

**Understanding parental influences on  
smoking uptake among Māori children:  
A mixed methods investigation**

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**A thesis submitted in partial fulfilment of the requirements for the  
degree of Master of Public Health**

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**January 2012**



## Abstract

Smoking is a leading cause of preventable death world wide. In New Zealand reducing smoking rates is an important public health issue, particularly among Māori where smoking rates are almost double that compared to non-Māori. Public health interventions over recent years have focused on increasing smoking cessation. However, less attention has been paid to reducing smoking uptake. Many people transition through the stages of smoking uptake as children and parents can play a significant role in preventing this. However, relatively few models have been developed to fully understand how parents can influence the smoking uptake process, particularly in relation to Māori. The purpose of this thesis was to explore and identify causes of smoking uptake for Māori youth, with a focus on how they relate to parental behaviours and the broader whānau context.

## Methods

A mixed methods approach was used to identify parental influences. Methods used were a literature review, quantitative analyses of two large youth smoking surveys and qualitative key informant interviews with parents and caregivers of Māori children. Findings from the studies were synthesised to develop a model that attempted to explain pathways of parental influence on smoking uptake for Māori children. These influences were organised in relation to those behaviours that can socialise children to take up smoking and more general parenting behaviours.

## Findings

Parental smoking socialisation behaviours for Māori youth were related to anti-smoking expectations, exposure to smoking behaviour prompts, anti-smoking attitudes and engaging in anti-smoking discussions with children. Contrary to prevailing evidence, quantitative findings suggested that parental smoking was not an independent risk factor for smoking uptake. More general parenting behaviours were poor parent-child relationships (including communication), lack of monitoring of a child's behaviour, and lack of reinforcement of rules or expectations with children. Whānau and parenting values such as manaaki (caring), whānaungatanga (connecting with family) and love and support are potential motivators for parents to take action to reduce the risk of their children starting to smoke.

A key finding was that identity as Māori was not found to be an independent risk factor for smoking behaviour among children. Therefore, an explanation for higher rates of smoking uptake among Māori youth is that they are more likely to be exposed to known risk factors.

## **Conclusions**

Findings from this thesis have two important implications for practice. First, interventions should seek to address known risk factors for smoking uptake but be appropriate for Māori. Second, interventions should address general parenting behaviours as well as smoking specific behaviours.

## Acknowledgements

I am grateful to all those who lent their technical, financial and moral support while I worked on this thesis. In particular, I would like to thank my supervisors Richard Edwards and Bridget Robson for their guidance, advice and tolerance. To Jane Zhang I would like to thank you for the statistical support provided, much of which in your own time.

For all those who participated in the qualitative research I am indebted to you for allowing me into your lives and the candor of our discussions. For the schools and Māori health service that helped recruit participants for the qualitative research, thank you for your support and your commitment to preventing our children from smoking.

A special thanks goes to the Health Sponsorship Council for providing a scholarship that covered the many expenses associated with this thesis as well as providing the raw data from the youth surveys upon which a large part of this work is based. A special thanks also to Iain Potter and Rhiannon Newcombe for their interest in the topic area and believing in me.

I appreciate the support from the Heart Foundation who provided me with two travel grants to attend conferences to present work from this thesis. I would also like to recognise my current employer, the Ministry of Social Development, for granting me precious time to study.

Perhaps the irony of undertaking a study about parenting and whānau is that my whānau have been affected the most. So I would like to thank them for the support and understanding they have given to me all the way through this process. Maureen your comments and feedback were invaluable. Tūmanako and Kahurangi, sorry I've been so busy and haven't had as much time as I wanted to be a dad. Finally Wendy, without your support it would not have been possible to do this.

Ngā mihi aroha ki a koutou.



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## Kupu whakataki: Prologue

*He tina ki runga, he tāmore ki runga*

*Contentment above, firmly rooted below*

The first pairing of beings in our creation stories was between Papatūānuku and Ranginui. Through this pairing seventy children were born, all of them male. However, engulfed in the loving embrace of Papatūānuku and Ranginui theirs was a world of darkness. Longing to experience the world of light some of their children decided their parents must be separated. After many attempts Tāne Mahuta finally succeeded and he and his siblings entered Te Ao Mārama, the world of light. Rangunui was pushed up to the heavens, while Papatūānuku remained as the earth beneath the feet of her children.

There was only one thing missing in this new world, the female element. Tāne molded some clay into the shape of a woman, Hineahuone and breathed life into her, *tihei mauri ora!* Through the pairing of Tāne and Hineahuone a daughter was born and thus the first whānau Māori was established.

These stories tell of the importance of whānau and its functioning as a cornerstone of health and wellbeing for Māori. The whakatauki *He tina ki runga, he tāmore ki runga* (contentment above, firmly rooted below) points to the importance of whānau as the foundation upon which wellbeing is built.

This thesis explores one dimension of whānau and wellbeing, the role parents and whānau can play in preventing their children from smoking. As discussed in the following chapters, interactions between whānau, parents, children and smoking are complex. Despite this, key threads are identified and are drawn together in the final chapter to develop a model for parental influence on smoking uptake. This model is underpinned by identity, whānau values and parental values.

What is my motivation for doing this work? I see the harm that tobacco causes our people and have been engaged in tobacco control since the mid 1990's. Now that I am a parent I want my children to be able to grow up well and free from smoking...



## Chapter 1: Introduction

Tobacco use is a leading cause of premature illness and death across the world. The international significance of tobacco use is recognised by the Framework Convention for Tobacco Control that came in to force in 2005 and was the first global health treaty ratified under the auspices of the World Health Organisation.<sup>1</sup> From the perspective of the World Health Organisation the impacts of tobacco are viewed in the context of a global epidemic that threatens people's right to lead healthy lives. As such the Framework attempts to reduce the demand for and supply of tobacco, reduce the environmental impact of tobacco production and share information on best practice for tobacco control. Preventing harm from tobacco use is seen as a priority public health issue because the behaviour (smoking) is preventable, it causes many deaths and many of the impacts on health (e.g. lung cancer) are difficult to treat.

In New Zealand the primary method of using tobacco is through inhaling tobacco smoke from burnt cigarettes. Such use increases risk of many cancers, cardiovascular disease and respiratory disease.<sup>2</sup> A survey conducted in 2006 found smoking prevalence among Māori (45.8%) was greater than Pacific peoples in New Zealand (36.2%) and more than double that of European/Other New Zealanders (20%).<sup>3</sup> Recent figures indicate that around 5000 people die each year from tobacco related causes and of these 800 are Māori.<sup>4</sup>

High smoking prevalence is not only a significant public health issue for Māori in absolute terms but also contributes to health inequalities between Māori and non-Māori. While figures vary, evidence indicates that smoking significantly contributes to health inequalities and there is some concern that widening disparities in smoking between Māori and other ethnic groups over recent years could lead to a greater contribution of smoking towards health inequalities in the future.<sup>5-7</sup>

Interventions to address smoking have been in place in New Zealand since the 1940's. However, concerted efforts to reduce harm only gained momentum during the 1960's after the release of several international reports linking smoking to cancer and other

illnesses.<sup>8-9</sup> Over the past decade tobacco control interventions have focused on reducing exposure to second-hand smoke (e.g. amendments to the Smokefree Environments Act and various campaigns) and supporting smokers to quit (e.g. through services such as the Quitline, Aukati Kai Paipa, mass media campaigns, graphic warnings on cigarette packets and tobacco tax increases). In comparison, discouraging people from starting to smoke has been given relatively less attention and may be a reason for continued high rates of smoking as those who quit are replaced by new smokers. This is supported by an Australian study that suggested increases in smoking cessation rates and reductions in initiation rates were required to make significant reductions in smoking prevalence.<sup>10</sup>

For Māori, increasing smoking cessation may go some way towards addressing disparities in smoking prevalence between Māori and non-Māori. However, smoking cessation rates for Māori would need to be markedly higher than non-Māori to ensure that disparities do not further increase or at least stay the same. Furthermore, if not implemented strategically this may do little to address the cause of disparities in the first place, that more Māori youth take up smoking than their non-Māori counterparts. Therefore, reducing smoking uptake is an important issue for Māori.

## **1.1 Smoking uptake**

Surveys undertaken in 2006<sup>i</sup> indicate that by Year 10 half (49.7%) of students in New Zealand schools had tried a cigarette and over one in ten smoked at least monthly.<sup>11</sup> Among Māori Year 10 students three quarters (74.4%) had tried a cigarette and over a quarter smoked at least monthly (28%).

Findings from the Dunedin Multidisciplinary Health and Development Study suggest there is a general up-shift in smoking frequency as children grow older.<sup>12</sup> Findings also suggest that, at least for those who participated in the Dunedin cohort, ages 10 to 13 could be characterised as the formative period for smoking uptake. From ages 13 to 15 smoking within the cohort was observed to increase markedly.<sup>13</sup> While providing useful data on trends in smoking uptake by age, due to the nature of the

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<sup>i</sup> Findings from 2006 are reported here for comparative purposes as data analysed in this thesis was also based on 2006 data.

study's sample, little information was available on patterns of smoking uptake among Māori youth.

## **1.2 Trends in smoking among Māori youth 1970 to present**

Data on smoking among Māori youth has been available since 1972. Smoking among Māori youth from the early 1970's through to the early 1990's followed a similar pattern to the general youth population. During this period current smoking rates declined among Māori boys and girls. However, girls were consistently more likely to smoke than boys. Māori youth were also more likely to smoke than non-Māori.<sup>14</sup>

Survey data through the 1990's suggest smoking prevalence may have increased among all New Zealand youth with females and Māori continuing to have high rates of smoking.<sup>15</sup> Between 1999 and 2007 smoking rates once again decreased for the total New Zealand youth population.<sup>16</sup> While a similar pattern was observed among Māori youth, smoking rates continued to be consistently higher than those of non-Māori, particularly girls. In 2003 daily smoking among Māori girls was 36% compared to 23% among Pasifika girls, 6% among Asian girls and 13% among European/Other girls. In 2007 these rates were 22% for Māori girls, 11% for Pasifika girls and 4% for European/Other girls. For Māori boys, daily smoking rates in 2003 were 24% compared to 17% among Pasifika boys, 8% among Asian boys and 13% among European/other boys. In 2007 these rates were 12% for Māori boys, 9% for Pasifika boys, 5% for Asian boys and 4% for European/Other boys.

Findings from a survey carried out in 2006<sup>11</sup> indicated that Māori students were the most likely to have tried smoking (74%) compared to Pacific (59%) and European/Pākehā (43%).

## **1.3 Smoking among indigenous peoples outside of New Zealand**

For the purposes of the present thesis 'indigenous' peoples refers to the original inhabitants of a country or geographical region who have experienced colonisation and a subsequent subjugation of their traditional social and political structures to those

of the coloniser.<sup>17</sup> Examples include Aboriginal and Torres Straight Islanders, First Nation Canadians, Native Americans and Sámi.

Most studies of indigenous youth indicate they tend to have higher smoking prevalence's than their non-indigenous counterparts. For example, a study conducted between 2002 and 2004 found smoking rates among American Indian and Alaskan Native youth were higher compared to other ethnic groups.<sup>18</sup> American Indian and Alaskan females were also more likely to smoke (28%) compared to males (19%). A review of Australian studies suggested Aboriginal or Torres Straight Islander youth were more likely to smoke and start smoking at an earlier age than their non-indigenous counterparts.<sup>19</sup>

## **1.4 Smoking uptake and parents**

As discussed in the following chapter, there are many influences on smoking uptake that include individual factors, factors in the immediate environment and factors in wider communities and society in general. It is important to understand the mechanisms through which these factors influence uptake and identify those that are modifiable to enable the most effective targeting of interventions.<sup>20</sup> However, taken in their entirety understanding all of the relationships and inter-relationships between these factors would be a difficult task. Therefore, a practical solution is to focus on one area (e.g. factors in the immediate environment), while acknowledging the broader context in which the focus area is set.

In terms of the immediate environment, research suggests that parents can play a key role in influencing whether their children smoke. Within the broader family context studies have found intact, two parent family structures, higher parental SES, good relationships between parents and a stable home environment are protective of smoking uptake.<sup>21-22</sup> In terms of parent-child relationships positive parenting styles have been found to reduce risk of smoking.<sup>22-23</sup> For smoking specific behaviours, parental smoking has been associated with smoking uptake in many studies.<sup>21 23-24</sup> As many of these factors are amenable to intervention, there are a number of opportunities to develop parent focused initiatives that will reduce smoking uptake.

A limitation of the parent related research on smoking uptake is that each study has tended to focus on exploring the impact of individual risk or protective factors. There is little, if any, published literature that attempts a comprehensive exploration of the impact of a range of parental influences on their childrens' smoking behaviour. In addition, there are relatively few studies that have explored parental influences on smoking uptake among Māori and indigenous peoples in general.

It is difficult to consider influences of Māori parents out of context of whānau. In 2002 the Ministry of Health released *He Korowai Oranga: Māori Health Strategy*.<sup>25</sup> This strategy emphasised the importance of considering health in the context of the whole whānau and highlighted the importance of not limiting notions of whānau to single households or nuclear families. More recently the Whānau Ora initiative, led by Te Puni Kōkiri, has picked up on this theme by promoting improved whānau wellbeing through better and more appropriate service provision.<sup>26</sup> In the context of the present thesis such strategies and initiatives imply that a) parents may not be the only influences on smoking uptake among children in the whānau context, and b) preventing children from not smoking should benefit the whānau as a whole.

## **1.5 Understanding why Māori youth are more likely to smoke**

There is a strong New Zealand and international evidence base identifying the likely causes of smoking uptake. However, despite the observed disparities in smoking rates between Māori and non-Māori, few studies have explored why Māori are more likely to take up smoking.

This thesis attempts to explore and identify causes of smoking uptake for Māori youth, particularly as they relate to parenting behaviours and the broader whānau context. This information was used to develop a model of smoking uptake. Specific thesis aims were to:

- Identify plausible determinants<sup>ii</sup> for smoking uptake among Māori youth, with a focus on parental<sup>iii</sup> behaviors and whānau context
- Assess whether plausible determinants differ for Māori compared to non-Māori youth in New Zealand
- Build a model of smoking uptake among Māori youth based on the plausible mechanisms of parental influence and whānau context identified within the research undertaken for this thesis.

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<sup>ii</sup> Determinants are defined as “any factor, whether event, characteristic, or other definable entity, that brings about a change in a health condition or other defined characteristic”.27. Centers-for-Disease-Control-and-Prevention. *Principles of Epidemiology in Public Health Practice, Third Edition: An Introduction to Applied Epidemiology and Biostatistics*. Atlanta: U.S. Department of Health and Human Services, 2010.

<sup>iii</sup> In this thesis the terms “parent”, “parenting” and “parental” include biological parents as well as other primary caregivers of children.

## Chapter 2: Literature review

A review of the published and unpublished literature was undertaken to provide a context for smoking uptake among Māori children and identify potential parent related determinants for smoking uptake. A preliminary review of the literature indicated that there were very few studies (published or unpublished) on smoking among Māori youth, or indigenous peoples in general. Therefore, the approach taken for the review was to identify generic determinants for smoking uptake and assess whether the available literature for Māori youth supported, did not support (or otherwise) the findings from the generic literature. Literature on smoking uptake was also sourced for indigenous peoples. The specific aims of the literature review were to review the current literature in order to:

1. describe key concepts relevant to the study of smoking uptake
2. identify contextual (non-parent related) determinants of smoking uptake at the individual, peer and wider community/societal levels
3. identify determinants of smoking uptake that are specific to parents and families or whānau
4. identify determinants of smoking uptake specific to Māori and other indigenous peoples.

Unless otherwise stated the outcome of interest was smoking uptake. Uptake included any of the stages of smoking uptake from susceptibility through to being an addicted smoker.<sup>iv</sup>

### **2.1 Literature sources**

#### **2.1.1 Published literature**

Electronic searches of published peer reviewed literature in the PsychINFO, and MEDLINE databases were conducted using the OVID search platform. An initial

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<sup>iv</sup> These stages are reviewed in section 2.3.

literature search was conducted by University of Otago library staff on behalf of the author. A full range of search terms were used to ensure all relevant literature was identified. Terms included:

*Smoking, smoke, smokers, risk factors, motivation, causality, mentors, initiate, initiation, uptake, onset, acquisition, experimentation, experimenting, adolescent, child, children, infant, newborn, baby, babies, toddler(s), adolescent, adolescence, teen(s), youth(s), young adults.*

The search was restricted to papers published after 1990. Specific types of studies that were sought included reviews (in particular systematic), cohort studies, randomised controlled trials, clinical trials, qualitative studies, and theoretical explorations of smoking uptake. Specific New Zealand information was also sought for Māori and international literature for indigenous peoples.

A second OVID search of the published literature was conducted in September 2011 to update the small number of studies investigating determinants of smoking uptake among Māori and other indigenous peoples. This search used the same search terms described above but was restricted to Māori and other indigenous peoples. Search terms used to identify Māori or indigenous specific literature included *rangatahi, Māori, indigenous, aboriginal, Sámi, first nation and native American.*

### **2.1.2 Unpublished literature**

Unpublished literature (and some additional published literature not identified in the OVID search) was sourced from New Zealand and international agencies linked to tobacco control that have undertaken or managed research in the area of smoking uptake (Appendix A). Most of the unpublished literature was accessed via the internet through searches of relevant organisation's websites.<sup>v</sup> These websites were identified from well established organisations involved in tobacco control (e.g. the New Zealand Ministry of Health and the World Health Organisation) and an internet search using the Google platform. Search terms included “tobacco control” and “tobaco research”.

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<sup>v</sup> Some literature was accessed directly from the agency if they were based in Wellington.

Website directories were searched for links to any relevant pages on smoking uptake. In addition, basic search terms such as “smoking uptake” and “initiation” were used where website search functions were available. New Zealand University catalogues were also searched for theses and dissertations undertaken in New Zealand of relevance to smoking uptake. The catalogue search was conducted by University of Otago library staff on behalf of the author. Copies of dissertations or theses were accessed through university libraries or directly from the authors.

## ***2.2 Methods for organising literature review findings***

Findings were organised according to the literature review’s aims. Summarising key themes from the literature was challenging as studies covered a broad range of issues and often used inconsistent definitions for key smoking uptake related outcomes or determinants. For example, a number of papers identified specific outcomes (e.g. general smoking among adolescents) and sought to identify risk and protective factors that were causally associated with the outcome. Other papers posited explanatory models or theories and investigated whether they were supported by evidence. Methods for overcoming these challenges are described below.

### **2.2.1 Organising literature for non-parent related determinants of smoking uptake**

There is a large body of literature on determinants and protective factors for smoking uptake. However, conducting a full review of this literature was beyond the scope of this thesis. Instead literature on determinants of smoking uptake, not related to parent or caregiver behaviour, was mainly sourced through existing published literature reviews and supplemented by published and unpublished literature from New Zealand. Special attention was paid to any literature related to Māori.

Risk and protective factors for smoking uptake identified in the literature were summarised as determinants. Determinants were organised according to whether they originated at the individual child, peer or community and societal levels. This was based on layers identified in Dahlgren and Whitehead's model of the social determinants of health.<sup>28</sup>

## **2.2.2 Organising literature for parent and family/whānau related determinants of smoking uptake**

The present thesis focused on parental influences on smoking uptake. Therefore, literature on family/whānau related determinants for smoking uptake was reported in a separate section and organised according to whether it related to:

- family context
- parenting behaviours
- parent-child relationships
- specific parental smoking socialisation behaviours.

*Family context* included family composition, functioning and indicators of socio-economic status (SES). *Parenting* covered those parental or caregiver behaviours that were intentionally (on the part of parents) related to the upbringing and welfare of children (e.g. monitoring a child's behaviour). *Parent-child relationships* were seen as a direct product of parenting behaviours and focused on attachment and social bonding with parents. *Parental smoking socialisation* covered those behaviours related to smoking that may have transmitted knowledge, attitudes or skills that increased or decreased a child's risk of taking up smoking.<sup>29</sup> These behaviours included smoking specific *parenting* behaviours that were directed at their children (e.g. discussions with children about not smoking) as well as *smoking related parental* behaviours that were not directed at their children but may have affected them (e.g. smoking in their presence).

Findings on family/whānau and parent related determinants for smoking uptake were summarised onto evidence tables and these are included in Chapter 4. An example of an evidence table is provided in Table 2.1. For each study presented in the evidence tables the following information was provided: authors names and year of publication, study type (broadly divided into longitudinal and cross-sectional studies<sup>vi</sup>), the country in which the study was undertaken, a basic indication of the sophistication of the analysis (whether findings were not adjusted, adjusted for demographics only,

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<sup>vi</sup> No studies based on randomised control trials were identified.

adjusted for demographics as well as other psychosocial<sup>vii</sup> variables). Findings from studies in relation to determinants of smoking uptake were given as either “protective” (decreases risk), “not significant” (N.S.) or increases “risk”. Blank spaces in the tables indicated that a study did not report results in relation to the determinant.

**Table 2.1. Example of an evidence table used in the literature review**

<i>Study details</i>				<i>Determinants</i>	
<i>Author</i>	<i>Study type</i>	<i>Country</i>	<i>Analysis</i>	<i>Low parental income and education</i>	<i>Low father occupational status</i>
Droomers, Schrijvers, Casswell, & Mackenbach, 2005	Cohort	NZ	PS <sup>viii</sup>		Risk
Soteriades & DiFranza, 2003	Cross-sectional	US	PS	Risk	

Actual statistical figures from the studies (e.g. Odds Ratios or Relative Risks) were not included in the evidence tables as they were often related to associations that were specific to a study. In addition, the heterogeneity in measures of exposure and in methods of reporting results meant that direct comparisons of the strength of association between studies were difficult.

### **2.3 Stages of smoking uptake**

Smoking uptake is generally viewed as a process rather than a singular event. There is some debate as to whether this process can be seen as progressing through a series of distinct stages or if it is more of a gradual transformation where demarcations between stages are blurred.<sup>30</sup> A study by Mayhew, Flay, and Mott<sup>30</sup> proposed five stages that people transition through in the process of taking up smoking: non-smoking to preparation<sup>ix</sup>, tried, experimenter, regular and established/daily smoker

<sup>vii</sup> In the context of the literature review psychosocial variables were individual psychological and/or social factors (e.g. peer smoking) not directly related to parenting behaviours that were associated with smoking uptake. These variables could occur at the individual, peer, community and societal levels.

<sup>viii</sup> PS = Findings adjusted for *psychosocial* confounders/mediators/moderators, including demographic.

<sup>ix</sup> A variation on this stage was also discussed where the an additional “contemplation” stage was added between “non-smoking” and “preparation”.

(dependent). The authors commented that these stages are similar to those proposed for the Transtheoretical Model of change. This model proposes that to acquire a new behaviour people transition through precontemplative, contemplative, action, or maintenance stages of motivation.<sup>31</sup> Mayhew et al. suggested much of the research into stages of smoking uptake have used this model as a framework for analysis and this is why there are similarities between the two models.

Mayhew et al. characterised the transition from being a ‘non-smoker’ to ‘preparation’ as forming positive attitudes and beliefs about smoking and being influenced by peers. They commented that “susceptible” could be used as another term for preparation. A United States cohort study by Pierce, Choi, Gilpin, Farkas, and Merritt<sup>32</sup> aimed to test the predictive validity of a measure of smoking pre-experimentation (susceptibility) for experimentation with tobacco and established smoking. To be classified as “not susceptible” a respondent had to answer “no” to “Do you think that you will try a cigarette soon?” and “definitely not”<sup>x</sup> to “If one of your best friends were to offer you a cigarette, would you smoke it?” and “Do you think that you will smoke a cigarette in the next year?”. Participants who were not identified as “not susceptible” were classified as being “susceptible”. Pierce and his colleagues found susceptibility was a stronger predictor of experimentation than smoking among family or friends. However, exposure to smokers was a more important predictor for becoming an established smoker.

The second stage of smoking uptake proposed by Mayhew et al., “tried”, was defined as having ever tried smoking a cigarette, but not more than two and not in the past year. “Experimenters” were defined as smoking on an occasional, ‘experimental’ basis and engaged in a process of learning how to smoke. At this point the authors suggested the individual had not made a decision to become a ‘permanent’ smoker. Following the experimental stage was a suggested ‘regular’ stage where people were seen as smoking at least monthly but not daily.

The final stage of smoking uptake was described as becoming an established smoker who was dependent on the nicotine in tobacco. A New Zealand study used the DSM-III-R to assess tobacco dependence among 18 year olds participating in the Dunedin Multidisciplinary Health and Development Study.<sup>33</sup> According to DSM-III-R

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<sup>x</sup> The other response options were “probably not”, “probably yes” and “definitely yes”.

criteria<sup>xi</sup> 19% of all participants were classified as being tobacco dependent. No significant differences were found between male and female tobacco dependence.

## **2.4 Smoking uptake context: Non-parent or family related determinants**

This section provides an overview of non-parent related determinants. The purpose of this section is to identify potential confounding variables and provide context for interpreting associations between parental behaviours and smoking uptake.

### **2.4.1 Individual**

Individual level determinants included psychological, attitudes and beliefs, and intentions to smoke.

#### **2.4.1.1 Psychological factors**

In the international literature negative mood states<sup>21 34</sup> (in particular, stress and depression), low self-esteem, and self-image<sup>21 35-36</sup> have been linked to smoking uptake. However, New Zealand studies that investigated mental health status or self-concept have found no associations with uptake.<sup>35-36</sup>

Greater attachment to parents, family, friends and key institutions (e.g. schools) has also been associated with less risk of smoking uptake.<sup>21 37-38</sup> School factors related to attachment include school bonding, level of academic achievement and school involvement.<sup>37</sup>

#### **2.4.1.2 Attitudes and beliefs about smoking**

Literature indicates positive attitudes towards smokers and the functionality of smoking behaviours increases risk of uptake.<sup>21 37 39</sup> Belief that smoking was common or normal among peers and/or adults was strongly associated with smoking behaviour.<sup>23 37-39</sup> Literature findings were inconclusive as to whether smoking

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<sup>xi</sup> Criteria included smoking for longer than intended, wanting to quit, being unable to quit, giving up other activities to smoke, continued use despite experiencing social, physical or psychological problems, and symptoms of tobacco tolerance and withdrawal when not smoking.

behaviour was linked to knowledge and beliefs about the health impacts of smoking or having skills and good self-efficacy to refuse tobacco.<sup>21 39</sup>

New Zealand studies have found associations between positive attitudes, beliefs or knowledge about smoking and adolescent smoking. A study based on Dunedin Multidisciplinary Health and Development Study data<sup>40</sup> found that at age 13, smokers were more likely to identify “relaxation/pleasure”, “friends” and “image” as reasons to smoke compared to non-smokers. Smokers and non-smokers were more likely to say “social context”, “effects”, “access” and “health” were reasons to smoke. The authors suggested that, for smokers, family and friends were seen as influences to smoke, while for non-smokers family and friends were seen as influences not to smoke.

#### ***2.4.1.3 Intentions to smoke and other individual level risk factors***

Having intentions to smoke were found to be strongly associated with smoking uptake.<sup>38-39</sup> This suggests that initial experiences of smoking may be actively sought.<sup>22</sup> Risk of smoking uptake appears to increase with an individual’s age and age related transitions.<sup>21 24</sup> Key transitions associated with increased risk are between primary school, intermediate school, secondary school and leaving school.<sup>34</sup> Each of these transitions mark key developmental points in an individual’s life (particularly in relation to growing independence from parents) and as times when new peer groups are being formed.

#### **2.4.2 Peers**

Smoking and positive attitudes towards smoking among peers is strongly predictive of uptake.<sup>21 24 37-39 41</sup> However, relationships between peers and smoking uptake are complex. For example, many individuals may be predisposed to smoking and actively seek peer groups who provide opportunities to smoke.<sup>22</sup> In some instances an individual wishing to conform to perceived norms and expectations of peers may initiate smoking.

New Zealand studies that have investigated peer smoking and uptake (usually among friends and/or best friends) have all found positive associations.<sup>36 42-44</sup> A study based on cohort data<sup>43</sup> found young people who had experimented with cigarettes before the

age of 13 tended to select peers who smoked at around age 15. This, in turn, was predictive of smoking at age 15.

### **2.4.3 Community and societal**

Community and societal level determinants identified in the literature were related to schools, exposure to smoking in the media (including advertising) and purchasing tobacco from retail outlets.

In general, there was little evidence that school policies reduced risk of student smoking with the exception of smoking bans and enforcement of bans.<sup>45</sup> A New Zealand study based on cross-sectional data found intention to stay at school until Year 13 was associated with reduced risk (protective) of smoking.<sup>36</sup> Such intentions can be seen as reflective of the individual as well as the school environment.

Higher cost for tobacco, particularly through taxation appears to discourage smoking initiation by influencing parents to quit smoking and reducing access to tobacco.<sup>23</sup> Findings from a New Zealand cross-sectional study<sup>46</sup> indicated that adolescents who thought purchasing tobacco was 'easy' or 'very easy' had at least double the odds of actually purchasing tobacco. A quarter of those who had attempted to purchase tobacco had been refused by shop staff. Of these people, heavy smokers and males were more likely to be refused, however this only slightly affected their likelihood of purchasing cigarettes.

Risk factors for smoking uptake associated with the media include tobacco advertising<sup>23</sup> and exposure to smoking imagery in films.<sup>47</sup> New Zealand cross-sectional studies exploring the media have linked exposure to R-rated films with adolescent smoking,<sup>48</sup> while qualitative studies have found smoking imagery in films was perceived as highly prevalent and recognisable.<sup>49</sup> The latter study also found that smoking imagery was seen as reflecting actual smoking prevalence and may be a reason why participants tended to over-estimate smoking among adults and their peers.

### **2.4.4 Uptake and gender**

During the mid to late Twentieth Century female smoking prevalence began to increase relative to males in many developed countries. This relative increase appears

to have been at least partly contributed by changes in gender roles (e.g. more women entering the workforce).<sup>50</sup> Uptake among females has been associated with body image, eating issues, high sociability scores, smoking among family, smoking among peers, tension and stress and beliefs that smoking enhances an individual's image of being independent and sophisticated.<sup>23 50-51</sup>

In general, New Zealand studies have not found gender is predictive of smoking during preadolescence. However, these studies have found by adolescence (14-15 years) females are at greater risk of taking up smoking.<sup>35-36</sup>

#### **2.4.5 Determinants of smoking uptake for Māori and other indigenous peoples**

Indigenous peoples other than Māori have been included in this section as, while specific determinants for smoking uptake between indigenous peoples may differ, their experience of colonisation may provide insights into common determinants for smoking uptake. In addition, very few studies have explored risk factors for smoking uptake among Māori.

##### ***2.4.5.1 Individual level***

A cross-sectional study of First Nations students attending schools in British Columbia found students with more depressive symptoms were more likely to smoke.<sup>51</sup> Another cross-sectional survey of American Indian mid to late adolescents identified stressful life events (including death, loss, illness, new school, pregnancy, verbal abuse, and parental unemployment) as being associated with smoking uptake.<sup>52</sup> This study also found associations for lack of attachment to school and poor academic achievement and aspirations.

Baseline data from a cohort study of Norwegian youth by Spein, Sexton, and Kvernmo<sup>53</sup> found Laestadian Christian affiliation was associated with increased experimentation for Sámi youth but not for non-Sámi youth. Unlike other studies of indigenous youth Spein et al.'s study did not find ethnic identification as Sámi was associated with increased risk of smoking compared to non-Sámi adolescents.

Focus group research with adolescent Native American Indians by Kegler et al.<sup>54</sup> suggested progression through the early stages of smoking uptake was influenced by

the extent that smoking was perceived as functional. Participants described smoking behaviour as projecting a ‘cool, mature’ image. Some females discussed how smoking offered an opportunity to counter being a ‘goody two shoes’. A number of smokers commented how existing messages about the negative impacts of smoking (e.g. on sporting performance) were not relevant. For example, some of these participants did not see themselves as athletic.

#### ***2.4.5.2 Peer smoking***

Findings from a cross-sectional study of First Nations students attending schools in British Columbia indicated smoking among friends was associated with greater risk of smoking.<sup>51</sup> Focus group research by Kegler et al.<sup>54</sup> suggested peer ‘pressure to smoke’ was either through direct pressure or wanting to fit in.

#### ***2.4.5.3 Community and Societal***

A cross-sectional study based on New Zealand Census data<sup>55</sup> explored associations between socio-economic disparities and smoking among Māori and non-Māori. The study was based on Census surveys that were undertaken in five yearly intervals from 1981 to 1996. The authors commented that this was a time when New Zealand’s economy and welfare state experienced rapid structural change which was found to have a disproportionate and negative effect for Māori. The authors found while smoking prevalence among Māori declined in absolute terms between 1981 and 1996 in relative terms it increased when compared to smoking among non-Māori. In addition levels of social inequality between Māori and non-Māori appeared to have an independent effect on smoking prevalence among Māori. Communities that experienced increased social inequality during the study period were associated with higher smoking rates. When the authors adjusted their data for potential confounders, results indicated Māori women were at particular risk of smoking compared to Māori men.

### ***2.5 Parent and family related determinants of smoking uptake***

This section reviews published and unpublished literature that specifically explored parenting and family related determinants for smoking uptake. The findings have

been organised according to the method described in Section 2.2.2 A glossary of terms used in this section is given in Appendix B.

Table 2.2 describes abbreviations used within the evidence tables in this section. Basic distinctions have been made between analyses that did not control for any other factors (*unadjusted*), those that controlled for basic demographic variables (*demographic*) and those that have adjusted for demographic and at least one other potentially confounding or modifying psychosocial variable (*psychosocial*).

Each of the following sub-sections starts with a brief summary of key findings from the relevant evidence table, followed by key findings from specific studies. Literature from studies with Māori or New Zealanders in general have been included where it is available.

**Table 2.2. Description of abbreviations used in the evidence tables**

Analysis

U	= Findings <i>unadjusted</i>
D	= Findings adjusted for <i>demographic</i> (e.g. gender, ethnicity, age, SES) confounders only
PS	= Findings adjusted for <i>psychosocial</i> confounders, including demographic

Country

Aus	= Australia
CA	= Central American country
Can	= Canada
Eng	= England
Fin	= Finland
Mex	= Mexico
Neth	= Netherlands
Nor	= Norway
NZ	= New Zealand
PR	= Puerto Rico
Scot	= Scotland
Swe	= Sweden
US	= United States
WEur	= Multiple Western European countries

Blank spaces in the table indicate that a study did not report results in relation to a determinant.

### 2.5.1 Family context

Family context refers to contextual factors within family settings that may influence smoking uptake. Studies included under family context investigated how well families functioned, socio-economic status, family structure, stress experienced within

the family and psychological disorders among parents. Findings from these studies are summarised in Table 2.3.

### ***2.5.1.1 Family structure***

Of the studies identified under family related factors, coming from ‘non-standard’ families was the most common determinant associated with uptake.<sup>56-61</sup> Studies into family structure and smoking have been mainly conducted in the United States and Europe. These studies have tended to regard nuclear, two parent families, as the norm. Other family structures (e.g. single parent, extended family households) were usually compared to nuclear families to investigate whether these alternate family structures were associated with decreased or increased risk of smoking uptake within the family.

A cross-sectional study undertaken across seven western European countries<sup>60</sup> observed a hierarchy of risk associated with how ‘intact’ a family was. At age 15 adolescents living in ‘intact’ families were least likely to smoke, followed by adolescents living in single parent households and then those living with step-parents. This study also found a significant relationship between family structure, affluence and parental smoking. For example, single parents were more likely to be less affluent, while intact families were less likely to have smoking parents.

Parental separation increases risk of smoking among their children. An American longitudinal study<sup>58</sup> found the effect of separation on uptake was mostly direct. However, at least part of the effect was explained through indirect effects such as depressive symptoms and rebelliousness among children. In general, cohort and cross-sectional studies identified for this review found that preadolescents and adolescents not living with either of their biological parents were at greater risk of smoking.<sup>56 59-61</sup>

While parental smoking is a common risk factor for adolescent smoking,<sup>xii</sup> the degree of risk may vary depending on family structure. A Dutch longitudinal study<sup>56</sup> found that having a single parent who smoked was more predictive of smoking among their children than for two parent families where one parent smoked. The authors

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<sup>xii</sup> Parental smoking is discussed in more depth in section 2.5.4.5.

**Table 2.3. General family related factors**

Author	Study type	Country	Analysis	Better family functioning	Determinants					SES related	
					Non-standard	Low parent age at birth	4 + children	Parental psych disabilities	Family stress	Low parental income and education	Low father occupational status
Otten, Engels, van de Ven, & Bricker, 2007 <sup>56</sup>	Cohort	Neth	PS		Risk						
O'Callaghan, O'Callaghan, Najman, Williams, Bor, & Alati, 2006 <sup>57</sup>	Cohort	Aus	PS		Risk		Risk				
Fleming, Kim, Harachi, & Catalano, 2002 <sup>62</sup>	Cohort	US	PS						N.S.		
Kirby, 2002 <sup>58</sup>	Cohort	US	PS		Risk <sup>xiii</sup>						
Isohanni, Moilanen, & Rantakallio, 1991 <sup>59</sup>	Cohort	Fin	PS		Risk	Risk	Risk		Risk <sup>xiv</sup>		
Dierker, Canino, & Merikangas, 2006 <sup>63</sup>	Cross-sectional	US/PR	PS					Risk			
Weiss, Garbanati, Tanjasiri, Xie, & Palmer, 2006 <sup>64</sup>	Cross-sectional	US	PS	Protective							
Griesbach, Amos, & Currie, 2003 <sup>60</sup>	Cross-sectional	WEur	PS		Risk						
Soteriades & DiFranza, 2003 <sup>65</sup>	Cross-sectional	US	PS							Risk <sup>xv</sup>	
DeFronzo & Pawlak, 1993 <sup>61</sup>	Cross-sectional	US	PS		Risk						
Droomers, Schrijvers, Casswell, & Mackenbach, 2005 <sup>66</sup>	Cohort	NZ	PS								Risk <sup>xvi</sup>

<sup>xiii</sup> This study found parental separation as a risk, partly moderated by a child's depressive symptoms and rebelliousness, however the effect mostly direct.

<sup>xiv</sup> In this case stress was linked to experience of parental separation or death of a parent.

<sup>xv</sup> This was found to be an indirect relationship via parental smoking status.

<sup>xvi</sup> This relationship was found to be both direct and indirect via fathers smoking status, smoking among friends and intelligence scores of the child.

suggested that this may be due to a ‘buffer’ effect in two parent families. They suggested where one parent smoked and the other did not the non-smoking parent may ‘buffer’ the smoking behaviour of the other.

#### ***2.5.1.2 Parental income, education and occupation***

Low parental income and education and low paternal occupation status<sup>65-66</sup> are associated with increased risk of smoking uptake. A New Zealand study<sup>66</sup> based on cohort data found that adolescents whose fathers were classified as being in the lowest status occupational group were twice as likely to be daily smokers compared to those whose fathers who were in the highest group. Higher smoking prevalence among fathers or friends and lower ‘intelligence’ scores of the child were found to be the main factors explaining this relationship. The authors commented that intelligence, while potentially genetic in origin, was also likely to be affected by an individual’s environment. For example, fewer opportunities to access quality education.

#### ***2.5.1.3 Stress in the family setting***

Findings in relation to “family stress” were mixed and it was unclear whether this is associated with smoking uptake.<sup>59 63</sup> A longitudinal study that explored the impacts of job loss by a family member indicated a significant increased risk (almost double) of ever smoking and smoking in the last 30 days among adolescents.<sup>67</sup>

#### ***2.5.1.4 Family functioning***

A cross-sectional study of Asian-American 8<sup>th</sup> and 9<sup>th</sup> grade students found better family functioning was associated with lower risk of smoking.<sup>64</sup> This study also found that differences in risk associated with family functioning varied across Asian-American sub-groups (Chinese, Filipino, Vietnamese, Korean).

#### ***2.5.1.5 Other determinants***

Other family related determinants associated with increased smoking uptake identified in the literature were low parental age at child’s birth, having more than four children in the household, and parental psychiatric disabilities.<sup>58 60 64</sup>

## **2.5.2 Parenting**

A number of studies explored whether a range of potential determinants related to how parents raise their children were associated with smoking uptake. These determinants included parenting style, monitoring, communication, parental involvement, rule setting, restrictions on media exposure and R-rated films, and pocket money.

Table 2.4 summarises literature in relation to parenting. Findings mainly supported positive parenting practices as being protective of smoking uptake. Dimensions of parenting found to be supportive included monitoring,<sup>67-73</sup> communication<sup>67 72 74</sup> and involvement,<sup>70-72 74-76</sup> and measures of general parenting style.<sup>68 77-78</sup>

### ***2.5.2.1 Parental monitoring***

Findings from a prospective cohort study in the United States<sup>72</sup> indicated that lower levels of parental monitoring were indirectly associated with increased risk of smoking uptake. Monitoring behaviours (e.g. parental knowledge of what their children did outside of school and setting curfews) appeared to be mediated by reduced likelihood of children engaging in disruptive behaviour and acquiring substance using friends. Engaging in disruptive behaviour was associated with an almost two fold increase in the risk of initiating smoking compared to children who did not engage in disruptive behaviour. These results were also supported by a United States cross-sectional study that found the more adolescents had to take care of themselves afterschool (referred to as latchkey youth) the greater the likelihood they would smoke.<sup>73</sup> The authors suggested non-permissive parenting styles, parental rule-setting about cigarette use, and in absentia parental monitoring reduced the likelihood of cigarette smoking among both latchkey and non-latchkey adolescents. These findings were also supported by a New Zealand cross-sectional study that observed an association between children who frequently engaged in unsupervised activities and increased likelihood of smoking.<sup>36</sup>

### ***2.5.2.2 Communication and involvement with children***

Poor communication between parents and children has been found to be associated with increased risk of smoking uptake.<sup>67</sup> Findings from a prospective cohort study of fifth and seventh grade students in the United States<sup>72</sup> indicated that maintaining

positive parent-child relationships were associated with lower risk of smoking in the past month in follow-up surveys. Measures of positive parenting included providing positive feedback through encouragement, spending time, seeking their child's opinions and physical affection. Another United States cohort study<sup>74</sup> followed youth in early to late adolescence over a four year period. Findings from this study suggested children who communicated with their parents about serious problems were less likely to progress from experimentation to established smoking.

Higher levels of parental involvement with children has been found to reduce risk of smoking uptake among 6th grade students<sup>71</sup> in the United States. Among students who associated with peers that exhibited problem behaviour, only those whose parents were uninvolved with their daily lives were at increased risk of smoking. This finding held across a range of demographic conditions including gender, ethnicity and family structure.

Parental involvement can be seen as a particular challenge where biological parents have separated. Results of a study of non-resident biological fathers indicated increased involvement with their adolescent children (as reported by the child) decreased the risk of their child smoking regularly. This effect was observed to be reversible where, if the level of a fathers involvement changed, so did the probability of their child initiating smoking.<sup>75</sup>

Findings from a study of parent and peer influence on smoking uptake suggested that parents could reduce the risk of their children from starting to smoke by discouraging their children from associating with peers who smoked.<sup>70</sup>

#### ***2.5.2.3 Parenting style***

Limited findings indicated permissive parenting,<sup>73</sup> disengaged parenting,<sup>77</sup> and lower levels of after school supervision of children<sup>73</sup> were also risk factors for smoking uptake. Results for parental support, parental control over their child's behaviour and authoritative parenting being protective of smoking uptake were mixed. Studies either found the relationship to be protective or not significant.<sup>79-82</sup> Most studies exploring parenting style were cross-sectional making it difficult to establish causal relationships.

**Table 2.4. Parenting behaviours**

Study details				Determinants					
Author	Study type	Country	Analysis	Positive general parenting	Monitoring	Communication	Involvement /time	Control	Support
den Exter Blokland, Hale, Meeus, & Engels, 2007 <sup>83</sup>	Cohort	Neth	PS					Protective	
den Exter Blokland, Hale, Meeus, & Engels, 2006 <sup>68</sup>	Cohort	Neth	PS	Protective	Protective				
Menning, 2006 <sup>75</sup>	Cohort	US	PS				Protective <sup>xvii</sup>		
Chassin, Presson, Rose, Sherman, Davis & Gonzalez, 2005 <sup>77</sup>	Cohort	US	PS	Protective					
Engels, Finkenauer, Kerr, & Stattin, 2005 <sup>80</sup>	Cohort	Neth/Swe	PS					N.S.	
Hill, Hawkins, Catalano, Abbott, & Guo, 2005 <sup>69</sup>	Cohort	US	PS		Protective				
Simons-Morton, Chen, Abroms, & Haynie, 2004 <sup>70</sup>	Cohort	US	PS		Protective		Protective		
Unger, Hamilton, & Sussman, 2004 <sup>67</sup>	Cohort	US	PS		Protective	Protective			
Pierce, Distefan, Jackson, White, & Gilpin, 2002 <sup>84</sup>	Cohort	US	PS						
Simons-Morton, 2002 <sup>71</sup>	Cohort	US	PS		Protective		Protective		
Distefan, Gilpin, Choi, & Pierce, 1998 <sup>74</sup>	Cohort	US	PS			Protective			
Cohen, Richardson, & LaBree, 1994 <sup>72</sup>	Cohort	US	PS		Protective	Protective	Protective		
Chen & Weiss, 2007 <sup>76</sup>	Cross-sectional	US	PS				Protective		
Huver, Engels, Van Breukelen, & De Vries, 2007 <sup>81</sup>	Cross-sectional	Neth	PS					Protective	N.S.
Olvera, Poston, & Rodriguez, 2006 <sup>82</sup>	Cross-sectional	US/Mex/CA	U						Protective
O'Byrne, Haddock, & Poston, 2002 <sup>78</sup>	Cross-sectional	US	PS	Protective <sup>xviii</sup>					
Mott, Crowe, Richardson & Flay, 1999 <sup>73</sup>	Cross-sectional	US	PS		Protective				

<sup>xvii</sup> This study looked at involvement of non-resident fathers.<sup>xviii</sup> This study used the “Family of origin scale” to score parenting style, higher scores were associated with more positive parenting styles.

**Table 2.4. Parenting behaviours (continued)**

Study details				Determinants					
Author	Study type	Country	Analysis	Authoritative parenting	Permissive parenting	Disengaged parenting	Access to R-rated films	Lack of after school supervision	Pocket money
Jackson, Brown, & L'Engle, 2007 <sup>79</sup>	Cohort	US	PS				Risk		
Chassin, Presson, Rose, Sherman, Davis & Gonzalez, 2005 <sup>77</sup>	Cohort	US	PS			Risk			
Sargent, Beach, Dalton, Ernstoff, Gibson, Tickle, et al., 2004 <sup>85</sup>	Cohort	US	PS				Risk		
Huver, Engels, Van Breukelen, & De Vries, 2007 <sup>81</sup>	Cross-sectional	Neth	PS	N.S.					
Scragg & Laugesen, 2007 <sup>44</sup>	Cross-sectional	NZ	D						Risk
Castrucci & Gerlach, 2006 <sup>86</sup>	Cross-sectional	US	PS	Protective <sup>xix</sup>					
Olvera, Poston, & Rodriguez, 2006 <sup>82</sup>	Cross-sectional	US/Mex/CA	U						
Griesbach, Amos, & Currie, 2003 <sup>60</sup>	Cross-sectional	WEur	PS						Risk
Scragg, Laugesen, & Robinson, 2003 <sup>87</sup>	Cross-sectional	NZ	PS						Risk
Dalton, Ahrens, Sargent, Mott, Beach, Tickle, et al., 2002 <sup>88</sup>	Cross-sectional	US	PS				Risk		
Mott, Crowe, Richardson & Flay, 1999 <sup>73</sup>	Cross-sectional	US	PS		Risk			Risk	

<sup>xix</sup> This study found that any relationships between authoritative parenting and smoking uptake were moderated by beliefs in the importance of a parent's opinions.

In their study of adolescent smoking Castrucci and Gerlach<sup>86</sup> identified four styles of parenting: unengaged, permissive, autocratic/authoritarian and, authoritative. The authors described these different styles as being determined by a balance of two factors: *demandingness* and *responsiveness*. *Parental responsiveness* was defined as the extent to which parents responded to a child's needs in a supportive, nurturing manner (e.g. spending time with children, listening attentively, being available). *Parental demandingness* was defined as the extent to which a parent expected and demanded responsible behaviour, including setting and enforcing rules with children. Table 2.5 presents the hypothesised relationships between parenting styles and their determinants. Of these styles the authors suggested authoritative parenting (high responsiveness and high demandingness) was the optimal style in terms of raising children to be healthy, functional members of society.

**Table 2.5. Parenting styles and their determinants**

		Parental responsiveness	
		Low	High
Parental demandingness	Low	Unengaged	Permissive
	High	Autocratic/Authoritarian	Authoritative

Based on these styles of parenting Castrucci and Gerlach<sup>86</sup> used cross-sectional data to determine if any were associated with adolescent smoking behaviours. Results suggested that while authoritative parenting was not independently related to smoking it was associated with adolescent beliefs that their parent's opinions about smoking were important. This, in turn, was associated with reduced risk of current smoking.

A Dutch cross-sectional study explored relationships between parenting style and adolescent smoking cognitions and behaviour.<sup>81</sup> The study investigated whether authoritative parenting was associated with reduced risk of adolescent smoking and whether or not any associations were mediated through smoking related cognitions. While no relationship was observed between authoritative parenting styles, greater 'strict control' (e.g. monitoring, supervision, and rule-setting) was associated with reduced risk of smoking behaviour. This association was partly mediated through

smoking related attitudes and intentions which in turn were associated with increased risk of smoking. Another Dutch study, this time using longitudinal data,<sup>83</sup> compared levels of parental control with likelihood of smoking initiation. The authors found children whose parents exerted less control were more likely to initiate smoking. When combined with findings on ‘strict control’ from the previous study these suggest that parental control over their child’s behaviour is protective of smoking, up to a point at which it may become counter-productive.

One of the few longitudinal studies that explored authoritative parenting styles was undertaken in the United States by Pierce et al.<sup>84</sup> This study found adolescent exposure to more authoritative parents halved the risk of smoking compared to those with less authoritative parents (20% vs 41%,  $p < 0.0001$ ). The study also found that within families with more authoritative parents those with adolescents who were receptive to tobacco advertising were more likely to smoke than those who were not receptive. Such a relationship was not found among adolescents with less authoritative parents suggesting that tobacco advertising can undermine positive parenting practices.

#### ***2.5.2.4 Restrictions on media exposure and watching R-rated films***

Exposure to media, in particular films, depicting people smoking appears to increase risk of smoking uptake.<sup>79 89-91</sup> Evidence suggests that where parents restrict their children from watching R-rated films, or limit unsupervised exposure to television, risk of smoking uptake is reduced.<sup>79 85 88</sup>

A cohort study undertaken in the United States<sup>79</sup> found that private access to televisions (e.g. having a TV in the bedroom) among white youth from ages 12 to 14 was predictive of smoking initiation within the following year. High exposure to R-rated movies, relative to others in the study, was also predictive of smoking initiation. In comparison, no significant relationships were found for R-rated movie exposure, access to TV and risk of smoking initiation for black youth. A possible reason for this difference given by the authors was that there were fewer (black) people on television, in particular black people who smoke. As a result black youth were exposed to fewer smoking role models.

Sargent et al.<sup>85</sup> used an American cohort study to investigate if adolescents who reported their parents restricted their viewing of R-rated films had a lower risk of initiating smoking. A focus of this study was whether parents influenced their child directly through modeling or indirectly through controlling access to other social influences in the media. After controlling for socio-demographics, social influences, parenting style and personality characteristics those adolescents who were allowed to watch R-rated films sometimes or all of the time were almost three times more likely to initiate smoking compared to those who were never allowed to watch these films. The effect of exposure to R-rated films was found to be markedly stronger for adolescents who were exposed to smoking among family members.

New Zealand qualitative research with Māori, Pacific and Asian parents<sup>92</sup> suggested they actively monitored the content of media that their children were exposed to. However, participants discussed how monitoring the media that their children were exposed to became harder as their children grew older.

#### **2.5.2.5 *Pocket money***

There was evidence that receiving pocket money is linked to increased smoking uptake. Most of the studies exploring pocket money identified in the literature were from New Zealand.<sup>36 44 87</sup> One New Zealand study found students in low socio-economic decile schools received more pocket money than those in higher decile schools and those students who received more pocket money were also more likely to purchase cigarettes.<sup>93</sup> These findings contrast with a New Zealand qualitative study with parents<sup>92</sup> that suggested participants actively monitored their childrens' spending, knew what they spent their money on, and none thought any money they gave their children was spent on cigarettes

#### **2.5.3 Parent-child relationships and attachment**

As parent-child relationships and attachment can, in part, be seen as the product of parenting styles,<sup>72</sup> they have been reported separately. However, few studies were identified that reported findings on associations between parent-child relationships and smoking uptake (Table 2.6). Of the identified studies most were based on cross-sectional data.

One study was identified that found good parent-child relationships were protective of uptake.<sup>72</sup> In this study parental smoking was not found to be a significant risk factor for smoking uptake.

**Table 2.6. Parent-child relationships**

<i>Study details</i>				<i>Determinants</i>	
<i>Author</i>	<i>Study type</i>	<i>Country</i>	<i>Analysis</i>	<i>Parent-child relationships</i>	<i>Attachment</i>
Fleming, Kim, Harachi, & Catalano, 2002 <sup>62</sup>	Cohort	US	PS		Protective
Cohen, Richardson, & LaBree, 1994 <sup>72</sup>	Cohort	US	PS	Protective	
Hoppe, Wells, Haggerty, Simpson, Gainey & Catalano, 1998 <sup>94</sup>	Cross-sectional	US	PS		Protective
DeFronzo & Pawlak, 1993 <sup>61</sup>	Cross-sectional	US	PS		N.S.

While findings were mixed in relation to attachment of children to their parents, there was some suggestion that better parent-child attachment may be protective of uptake. Results from a cohort study undertaken in the United States<sup>62</sup> indicated parental perceptions of their child's attachment to them and parental involvement with the child's school was protective of smoking initiation.

Two United States cross-sectional studies investigated associations between a child's social bonding with their parents and risk of smoking. The first study<sup>94</sup> compared children of methadone treated parents to a general population sample and found strong identification with parents was protective of smoking. The second study<sup>61</sup> used control theory as a framework for analysis and identified four types of social bonds: belief in values and norms of conventional society; attachment to people perceived as valuing conformity; commitment to conformist and socially valued behaviour; and degree of involvement in non-deviant behaviour. Attachment to parents was not significantly associated with smoking uptake among children. However, religious belief, belief in moral conformity, commitment and involvement were found to be protective.

A doctoral thesis that used New Zealand cross-sectional data<sup>36</sup> investigated whether the quality of parent-child relationships was associated with adolescent smoking behaviour. No associations between overall attachment and smoking behaviour were found.

## **2.5.4 Parental smoking socialisation**

*Anti-smoking socialisation* has been defined as the transmission of knowledge, attitudes and skills that prepare children to resist smoking.<sup>29</sup> Based on this definition the inverse (where parent behaviours with, and around, their children may increase their risk of taking up smoking) can be seen as parental pro-smoking socialisation. This section describes determinants associated with anti and pro smoking socialisation.

Parental smoking socialisation determinants identified in the literature included general parental pro/anti-smoking socialisation behaviours, smoking related discussions with children, parental attitudes and expectations about smoking, rules about smoking, parental smoking, parental smoking cessation and access to tobacco in the home/family environment. Table 2.7 presents summary evidence from the published studies.

### **2.5.4.1 General pro or anti-smoking socialisation**

Evidence was mixed for measures of general anti-smoking socialisation behaviours.<sup>29</sup>

<sup>77 86</sup> However, on balance it appears these behaviours may be protective. A United States cohort study<sup>77</sup> investigated relationships between parenting style, smoking specific parenting practices and smoking uptake among adolescents. At baseline children aged 10 to 17 and their parents were interviewed. Uptake of smoking among children was assessed 10 years later. Findings from this study indicated smoking specific parenting practices (e.g. parental reactions to smoking and smoking discussions) and more general parenting styles were independently protective of smoking initiation. Results also suggested adolescent perceptions of their parents smoking behaviours were stronger predictors of smoking initiation than parental smoking behaviours reported by parents themselves.

A Dutch cohort study<sup>68</sup> of parents and children investigated the influence of parental anti-smoking socialisation practices on stages of smoking uptake. Findings from this study did not support an association between smoking related parental communication, house rules about non-smoking or warnings about the dangers of smoking with adolescent smoking initiation or maintenance among existing smokers.

**Table 2.7. Smoking specific parenting behaviours**

Study details				Determinants							
Author	Study type	Country	Analysis	Gen anti-smoking socialisation	Smoking related discussions	Parental expectations	Parental confidence	Smoking rules	Rules about smoking in home	Rewards for not smoking	Access to tobacco
den Exter Blokland, Hale, Meeus, & Engels, 2006 <sup>68</sup>	Cohort	Neth	PS				Protective				
Huver, Engels, & de Vries, 2006 <sup>95</sup>	CS & L	Neth	PS							Risk	
Chassin, Presson, Rose, Sherman, Davis & Gonzalez, 2005 <sup>77</sup>	Cohort	US	PS	Protective	Protective <sup>xx</sup>						
Simons-Morton, 2004 <sup>96</sup>	Cohort	US	PS			Protective					
Simons-Morton, Chen, Abrams, & Haynie, 2004 <sup>70</sup>	Cohort	US	PS			Protective <sup>xxi</sup>					
Woodruff, Candelaria, Laniado-Laborin, Sallis, & Villasenor, 2003 <sup>97</sup>	CS & L	US	PS <sup>xxii</sup>								Risk
Aandersen, 2002 <sup>98</sup>	Cohort	US	PS			Protective <sup>xxiii</sup>					
Ennett, Bauman, Foshee, Pemberton, & Hicks, 2001 <sup>99</sup>	Cohort	US	PS		N.S.						
Distefan, Gilpin, Choi, & Pierce, 1998 <sup>74</sup>	Cohort	US	PS			Protective					
Scragg & Laugesen, 2007 <sup>44</sup>	Cross-sectional	NZ	D						Protective		
Castrucci & Gerlach, 2006 <sup>86</sup>	Cross-sectional	US	PS	N.S.							
Szabo, White, & Hayman, 2006 <sup>100</sup>	Cross-sectional	Aus	PS						Protective		
Thomson, Siegel, Winickoff, Biener, & Rigotti, 2005 <sup>101</sup>	Cross-sectional	US	PS						Protective <sup>xxiv</sup>		
Scragg, Laugesen, & Robinson, 2003 <sup>87</sup>	Cross-sectional	NZ	PS						Protective		
Proescholdbell, Chassin, & MacKinnon, 2000 <sup>102</sup>	Cross-sectional	US	PS						Protective		
Mott, Crowe, Richardson & Flay, 1999 <sup>73</sup>	Cross-sectional	US	PS					Protective			
Henriksen & Jackson, 1998 <sup>29</sup>	Cross-sectional	US	PS <sup>xxv</sup>	Protective							

<sup>xx</sup> This association was only significant for children of non-smoking parents.

<sup>xxi</sup> This study found a direct and indirect relationship via peer selection.

<sup>xxii</sup> Adjusted for a number of variables but not SES. SES was not found to be associated with smoking in the unadjusted analysis.

<sup>xxiii</sup> This study found that if the mother smoked this may undermine any anti-smoking expectations.

<sup>xxiv</sup> This study found that smoking bans in the home were associated with lower social acceptability of smoking among adolescents. For the purposes of this review lower social acceptability was assumed to be protective of smoking uptake.

<sup>xxv</sup> Analyses were adjusted for parental smoking, but it was not clear if data were adjusted for demographic variables.

**Table 2.7. Continued**

Study details				Parental smoking							
Author	Study type	Country	Analysis	Any parental smoking	How many parents smoke	Mothers smoking	Fathers smoking	Parental cessation vs never	Parental cessation vs smoking	Step parent smoking	Prenatal tobacco exposure
Fidler, West, van Jaarsveld, Jarvis, & Wardle, 2008 <sup>103</sup>	Cohort	Eng	D							Risk	
Bricker, Peterson, Andersen, Sarason, Rajan & Leroux, 2007 <sup>104</sup>	Cohort	US	D	Risk							
Bricker, Peterson, Sarason, Andersen, & Rajan, 2007 <sup>105</sup>	Cohort	US	D	Risk							
den Exter Blokland, Hale, Meeus, & Engels, 2007 <sup>83</sup>	Cohort	Neth	PS		Risk						
Otten, Engels, van de Ven, & Bricker, 2007 <sup>56</sup>	Cohort	Neth	PS	Risk	Risk			Risk			
Bricker, Peterson, Andersen, Leroux, Rajan & Sarason, 2006 <sup>106</sup>	Cohort	US	D	Risk							
Bricker, Peterson, Leroux, Andersen, Rajan & Sarason, 2006 <sup>107</sup>	Cohort	US	D	Risk							
den Exter Blokland, Hale, Meeus, & Engels, 2006 <sup>58</sup>	Cohort	Neth	PS	Risk <sup>xxvi</sup>							
Menning, 2006 <sup>75</sup>	Cohort	US	PS				Risk <sup>xxvii</sup>				
O'Callaghan, O'Callaghan, Najman, Williams, Bor, & Alati, 2006 <sup>57</sup>	Cohort	Aus	PS			Risk				Risk	
Peterson, Leroux, Bricker, Kealey, Marek, Sarason, et al., 2006 <sup>108</sup>	Cohort	US	PS	Risk	Risk						
Cornelius, Leech, Goldschmidt, & Day, 2005 <sup>109</sup>	Cohort	US	PS								N.S.
Hill, Hawkins, Catalano, Abbott, & Guo, 2005 <sup>69</sup>	Cohort	Neth/Swe	PS	Risk							
Barman, Pukkinnen, Kaprio, & Rose, 2004 <sup>110</sup>	Cohort	Fin	PS	Risk							
Engels, Vitaro, Blokland, de Kemp, & Scholte, 2004 <sup>111</sup>	Cohort	Neth	PS	Risk							
Vitaro, Wanner, Brendgen, Gosselin, & Gendreau, 2004 <sup>112</sup>	Cohort	Can	PS	Risk							
Bricker, Leroux, Peterson, Kealey, Sarason, Andersen, et al. 2003 <sup>113</sup>	Cohort	US	D						Protective		
Buka, Shenassa, & Niaura, 2003 <sup>114</sup>	Cohort	US	PS								Risk

<sup>xxvi</sup> This study found parental smoking to be a determinant for smoking maintenance but not smoking initiation.<sup>xxvii</sup> This study found that non-resident fathers smoking was a risk for smoking uptake.

**Table 2.7. Continued**

Author	Study details				Determinants							
	Study type	Country	Analysis	Parental smoking								
				Any parental smoking	How many parents smoke	Mothers smoking	Fathers smoking	Parental cessation vs never	Parental cessation vs smoking	Step parent smoking	Prenatal tobacco exposure	
de Vries, Engels, Kremers, Wetzels, & Mudde, 2003 <sup>115</sup>	Cohort	WEur	PS <sup>xxviii</sup>	Risk								
Ennett, Bauman, Foshee, Pemberton, & Hicks, 2001 <sup>99</sup>	Cohort	US	PS	Risk								
Kandel & Udry, 1999 <sup>116</sup>	Cohort	US	PS									Risk
West, Sweeting, & Ecob, 1999 <sup>117</sup>	Cohort	Scot	PS	N.S.								
Distefan, Gilpin, Choi, & Pierce, 1998 <sup>74</sup>	Cohort	US	PS				Risk					
Oygard, Klepp, Tell, & Vellar, 1995 <sup>118</sup>	Cohort	Nor	PS			Risk						
Kandel, Wu, & Davies, 1994 <sup>119</sup>	Cohort	US	D									Risk
Stanton & Silva, 1992 <sup>42</sup>	Cohort	NZ	D	Risk								
Isohanni, Moilanen, & Rantakallio, 1991 <sup>59</sup>	Cohort	Fin	PS	Risk								
Scragg & Laugesen, 2007 <sup>44</sup>	Cross-sectional	NZ	D	Risk								
Castrucci & Gerlach, 2006 <sup>86</sup>	Cross-sectional	US	PS	N.S.								
Leatherdale, McDonald, Cameron, Jolin, & Brown, 2006 <sup>120</sup>	Cross-sectional	Can	PS	Risk								
Nichols, Gruber, Brooks-Gunn, & Botvin, 2004 <sup>121</sup>	Cross-sectional	US	PS			Risk <sup>xxix</sup>						
Scragg, Laugesen, & Robinson, 2003 <sup>87</sup>	Cross-sectional	NZ	PS	Risk								
den Exter Blokland, Engels, Hale, Meeus, & Willemse, 2002 <sup>122</sup>	Cross-sectional	Neth	PS	Risk	Risk				Protective			
Farkas, Distefan, Choi, Gilpin, & Pierce, 1999 <sup>123</sup>	Cross-sectional	US	PS						Protective			
Mott, Crowe, Richardson & Flay, 1999 <sup>73</sup>	Cross-sectional	US	PS	Risk								
Jackson & Henriksen, 1997 <sup>124</sup>	Cross-sectional	US	U	Risk				Risk				

<sup>xxviii</sup> Analysis adjusted for various psychosocial variables, but it was not clear if data were adjusted for demographic variables.

<sup>xxix</sup> This study only investigated maternal influences on their daughters.

However, the degree of parental confidence in being able to change their child's smoking behaviour and a parental response of anger and punishment if their child was caught smoking were associated with lower likelihood of smoking maintenance. Smoking and non-smoking parents were found to differ in relation to the norms they set and the attitudes they conveyed about smoking. The authors gave the example of smoking parents who may communicate that smoking was bad to their children. They suggested this was often not backed up by actual behaviours such as having house rules about smoking, availability of cigarettes in the house or having knowledge of their child's smoking behaviour. Alternatively non-smoking parents were described as being more likely to explain they would be disappointed if their children were caught smoking. The authors concluded that parental smoking related behaviours were more amenable to change compared to more general practices such as parenting style. They also suggested that, even for parents who smoked, they could still effectively engage in anti-smoking socialisation practices. However, the authors commented that any such practices would be enhanced if they quit smoking themselves.

Another Dutch cohort study<sup>80</sup> explored whether studies that found relationships between parental control over their child and smoking onset were misleading. For this study the authors distinguished between behavioural and psychological control as well as general parental and smoking specific forms of control. Psychological control was described by the authors as exercising coercive discipline and suppressing a child's individuality. Parents who exercised this type of control were hypothesised as placing their children at risk of engaging in problem behaviours. Behavioural control was seen as more functional from a parenting perspective and described as monitoring the social activities of their children and setting limits. For this study children with an average age of 14 and their parents were surveyed at baseline and then again two years later. Results suggested there was no relationship between either general or smoking specific forms of parent control and smoking initiation. These findings were observed to differ from other studies, most of which were undertaken in the United States. The authors suggested a reason for the different results was their study controlled for parental knowledge of their child's behaviour. They suggested that knowledge acquired in this manner was more about what the adolescent chose to disclose than what they actually did. The study also found those parents who were

confident they could influence their child's smoking behaviours were more likely to engage in parental controlling behaviours.

An European study using both cross-sectional and cohort data<sup>95</sup> investigated the effects of anti-smoking parenting practices on adolescent smoking cognitions. The study sampled grade seven students from Dutch schools and followed them up two years later. Parenting practices that were associated with lower rates of smoking among children included communicating with children about the health risks of smoking and the addictive qualities of smoking. A number of parenting practices were found to be associated with more smoking. These included discussing rewards for not smoking, frequency of communication about smoking and communication about being allowed to smoke. Any effects of smoking related parenting practices did not markedly vary by parental smoking status or the child's gender.

#### ***2.5.4.2 Smoking related discussions***

Findings for smoking related discussions were mixed. Two studies that specifically investigated associations between parental smoking related discussions and smoking uptake were identified. The first was a cohort study by Chassin et al.<sup>77</sup> that found among adolescents who reported they had had smoking related discussions with their parents, only those whose parents were non-smokers were significantly less likely to smoke.

The second study was also based on cohort data and was undertaken in the United States.<sup>99</sup> Findings indicated that parental communication about smoking or alcohol use had, at best, no effect and, at worst, was counter productive. Parents who smoked were more likely to talk about rules regarding tobacco use than those parents who did not smoke. Parent-child communication about tobacco was not found to be related to smoking initiation. However, there was some support that such communication about rules and discipline escalated tobacco use from initiation to more regular use. Another study conducted in the Netherlands, this time focused on positive reinforcement through parents promising rewards for their children not smoking, produced similar results and suggested such approaches were counter-productive.<sup>95</sup>

Henriksen and Jackson<sup>29</sup> used Californian cross-sectional data of third to eighth grade students to investigate whether parental communication of anti-smoking messages

varied according to parent or child characteristics and whether such communication was associated with lower rates of smoking uptake. The authors found those children from households where both parents smoked were less likely to receive anti-smoking messages compared to those from non-smoking households. Anti-smoking messages were positively associated with authoritative parenting and lower rates of intention to smoke and smoking initiation. This finding held regardless of the smoking status of parents.

#### ***2.5.4.3 Parental attitudes and expectations***

Results from a United States cohort study of Grade 6 and 7 students<sup>96</sup> indicated parental expectations about their children not smoking reduced risk of smoking initiation. Another United States cohort study followed youth over a four year period from early to late adolescence. Findings from this study suggested that, among youth experimenting with tobacco use, those whose parents had less concern about their child's future smoking were more likely to progress to regular smoking compared to those whose parents had greater concern.<sup>74</sup> The authors of a third United States cohort study concluded that maternal anti-smoking attitudes were protective of smoking at 12<sup>th</sup> grade but only when parental behaviours (i.e. not smoking) were consistent with their attitudes.<sup>98</sup>

A cross-sectional study undertaken in the United Kingdom<sup>125</sup> found 9 to 12 year old smokers and non-smokers held different beliefs about how others perceived smoking. For example, most male non-smokers believed fathers and friends did not think smoking was fun. In comparison, males who smoked tended to believe their fathers and friends thought smoking was fun.

Results from a New Zealand qualitative study with Māori, Pacific, Asian and European parents<sup>92</sup> indicated most thought smoking was an important issue to address with their children. However, some thought it was not important at all or there were more important issues to worry about. Other important issues reported by participants included 'stranger danger', drugs, alcohol, sex, fast cars, motorbikes, bike safety and having a good education. Parents who did not smoke said that they would be upset if their children took up smoking and some who smoked said they would feel responsible that their children took up smoking. Parent conversations with their children about smoking were grouped into five categories, those who had:

1. not discussed smoking with their children
2. discussed health risks associated with smoking for the individual or their whānau
3. communicated their opinions and judgements about smoking
4. tried to counter the effects of their own smoking
5. discussed fire risks of smoking.

With the exception of discussions about fire risk, most discussions appeared to emphasise longer term effects of smoking. Some parents had discussed the positive aspects of not smoking. Among those who smoked a number indicated they felt guilty about the impacts of smoking on their children and this had motivated them to try and prevent their children from smoking.

The New Zealand study also explored parental perceptions of their ability to affect the smoking behaviours of their children. Results suggest some participants felt they were able to affect their children while others indicated they felt powerless, especially as their children grew older. Parents who felt powerless tended to attribute risks for their child taking up smoking to their child's individual character and temperament.

#### ***2.5.4.4 Smoking inside the home***

A number of studies found the presence of rules restricting or banning smoking in the home were protective of uptake.<sup>44 87 100-102</sup> Four studies were identified that reported data on associations between exposure to SHS in the home and smoking uptake.<sup>44 101-103</sup> All of these studies were based on cross-sectional data and found positive associations between exposure to SHS in the home and smoking.

Three studies specifically investigated associations between parents placing restrictions on smoking inside the home and smoking uptake. Proescholdbell, Chassin, and MacKinnon<sup>102</sup> hypothesised that smoking restrictions in the home created beliefs among children that all smoking was undesirable, therefore such restrictions would not be associated with adolescent smoking. They also hypothesised restrictive home smoking policies would not be associated with current regular smoking. This was based on a theory that adolescents who tried smoking despite anti-smoking socialisation were unlikely to be deterred from further smoking by restrictive

home smoking policies. A cross-sectional design was used where students in United States schools from grades 7 to 12 were sampled for the study. Results suggested restrictive home smoking policies were associated with lower likelihood of trying smoking for both middle and high school students. Findings also indicated restrictive home smoking policies were not associated with regular smoking for middle or high school students. The authors concluded that parental socialisation influences may be greater for preventing initial stages of smoking uptake compared to more established smoking.

Thomson, Siegel, Winickoff, Biener and Rigotti<sup>101</sup> investigated associations between smoking restrictions in the home and normative beliefs about smoking among 12 to 17 year olds in the United States. The study found that adolescents living in homes where smoking was banned were more likely to have lower perceived adult smoking prevalence and greater disapproval of adult and peer smoking. These associations persisted after controlling for parents who smoked and those parents who did not communicate anti-smoking sentiments to their children. The authors concluded that household smoking bans were associated with lower social acceptability of smoking.

Most New Zealand cross-sectional studies of SHS exposure in the home have found positive relationships with adolescent smoking.<sup>38 44 88 127</sup> However, in her doctoral thesis, Darling<sup>36</sup> found that this relationship was not apparent once other factors had been controlled for. New Zealand qualitative research<sup>92</sup> with parents (including Māori parents) found most participants did not think that it was good to smoke around their children and as a result few said they allowed smoking in their homes. However, some did allow smoking inside the home but not when children were present. Reasons given for not letting people smoke inside their homes included smell, health, role modelling and stains inside the home.

#### ***2.5.4.5 Parental smoking***

Of the smoking socialisation determinants identified in the literature parental smoking was most commonly associated with increased risk of uptake.<sup>42 44 56 59 68-69 73 86-87 99 104 106-108 110-112 115 117 120 122 124 126</sup> Results from a Dutch cross-sectional study found children aged between 10 and 14 were almost four times more likely to smoke if both their parents smoked compared to those children where neither parent smoked.<sup>122</sup>

A cohort study undertaken in the United States<sup>108</sup> investigated whether parental smoking acted as a social influence on their children to take up smoking. Theories such as Social Learning Theory, Social Cognitive Theory and Social Control Theory were identified as giving explanations as to how the process of social influence might take place. Parental smoking behaviour was assessed when their children were in the third grade and children's smoking behaviour was reassessed in the 12<sup>th</sup> grade. The authors found parental smoking increased the odds children would become daily smokers compared to families where neither parent smoked. The authors found no associations between risk and the gender of the parent or child who smoked.

Another cohort study also undertaken in the United States<sup>127</sup> investigated whether processes influencing transitions between stages of smoking uptake differed according to parental smoking history. The stages of uptake used as outcome measures for this study were "non-smoker", "trier", "regular" and "ex-smoker". The study was based around a social epidemic model of smoking uptake that suggested social influences were an important mechanism in the smoking uptake process. The authors proposed 'prevalence driven' and 'constant rate' as two processes that could potentially influence smoking transitions. Prevalence driven transitions were described as being the result of an individual being exposed to others smoking in their social and physical environment (the greater the prevalence of smokers the greater the risk of prevalence driven transitions). Constant rate transitions were described as the proportion of individuals who transition to the next stage of smoking uptake regardless of the prevalence of smoking within their environment. Data for this study were drawn four times during the 1980's from a cohort of students in Grades six to eleven. Findings indicated that transitions from never smoking to trying were prevalence driven. However, transitions to regular smoking tended to be driven by constant rate. The authors suggested that experimentation phases of taking up smoking tended to be influenced by social factors (e.g. parent and peer smoking), while later stages were influenced by growing dependence to nicotine and tolerance to nicotine. Analysis using the social epidemic model proposed by the authors suggested that the model applied to children regardless of their parents smoking status. However, prevalence driven transitions played a larger role among children who had smoking parents. The authors also noted that while some gender differences in uptake were observed these were not large.

Notably one United States cross-sectional study<sup>86</sup> did not find an association between parental smoking and adolescent smoking. The authors suggested a reason for a non-significant finding was their use of a more comprehensive range of variables to adjust the data compared to other similar studies.

Findings from New Zealand studies were mixed. Results from a birth cohort study published in 1992 found little evidence that children at age 13 modeled or were motivated by the smoking behaviours of their parents.<sup>42</sup> However, more recent cross-sectional studies suggest parental smoking is positively associated with risk of smoking uptake.<sup>87 128</sup> Based on a large cross-sectional sample Scragg, Laugesen, and Robinson<sup>87</sup> found strong associations between parental smoking and smoking among year 10 students. Ethnic differences were also observed. Risk of smoking among adolescent ethnic groups appeared to be inversely related to the prevalence of smoking in the respective ethnic adult populations. Adolescents who identified as Asian had the largest association (OR 6.64), while Māori were found to have the lowest (1.74). Later studies by the same authors found even stronger associations by ethnic group.<sup>44</sup>

#### Number of parents who smoke

A number of studies investigated whether there was a dose-response relationship between the number of parents who smoked and risk of smoking uptake. Petersen et al.'s cohort study<sup>108</sup> indicated having one parent who smoked almost doubled the odds that their children would become daily smokers compared to families where neither parent smoked. Having both parents smoke further increased the odds to almost two and a half times. A Finnish twin study that recruited twins at ages 11 to 12 and followed them up at age 14<sup>110</sup> found inattentiveness among children and parental smoking were independently associated with experimentation and current smoking. In combination these two determinants appeared to have an additive effect, with higher risk associated with having two parents who smoked compared to only one.

Jackson and Henriksen<sup>124</sup> used United States cross-sectional data of third and fifth grade children to investigate whether parental smoking and other parental pro-smoking socialisation behaviours were associated with early onset of smoking. Results suggested that a child's risk of early smoking onset was positively associated with the number of parents who smoked. Furthermore never smoking children of

smoking parents were significantly more likely to intend to smoke, perceive easy access to cigarettes or be ambivalent about smoking compared to children of non-smoking parents.

### Maternal smoking

A number of studies have found maternal smoking to be more strongly associated with smoking uptake than paternal smoking. An American cross-sectional study found perceptions among seventh grade girls of their mothers smoking status was associated with early onset of smoking behaviours.<sup>121</sup>

A qualitative Canadian study investigated how mothers who smoked described their attitudes, behaviours and experiences in relation to smoking around their children.<sup>129</sup> The author observed that mothers tended to present themselves as knowledgeable about the health risks of tobacco and often expressed guilt and shame about their own tobacco use. Mothers were reported as often attempting to deflect any perceived social stigmatisation as a result of a contradiction in being expected to be a ‘good mother’ and the risk their smoking posed for their children. For example, a number of participants explained that they only smoked when their children were not around.

A New Zealand cross-sectional study of Year 10 students found, with the exception of Asian youth, maternal smoking and paternal smoking were independently associated with risk of daily smoking among adolescent young people.<sup>130</sup> For Asian youth maternal smoking was associated with daily smoking but not paternal smoking once the results had been adjusted for age.

Smoking during pregnancy has also been found to be an independent risk factor for smoking uptake, particularly in relation to progression from the experimentation phases to becoming an addicted smoker.<sup>58 110 115 117 119-120</sup>

### Parental smoking cessation

Findings from studies of parental smoking cessation suggest that the impacts of parental smoking on their children are reversible, to an extent. In terms of reducing likelihood of smoking uptake evidence suggests the greatest benefit from parents quitting smoking would be attained before their child reached ages eight to nine. A United States cohort study<sup>113</sup> found risk of smoking uptake decreased if one or both parents stopped smoking. Having one parent quit was associated with a 25%

reduction in risk of smoking at follow-up compared to those whose parents continued to smoke. Having both parents quit was associated with a 39% reduction in risk. The odds of a person taking up smoking were further reduced if one parent quit smoking while the other never smoked. Findings from this study also suggested that reductions in odds for taking up smoking were greatest if the parent quit smoking before their child reached around eight years old. These results were supported by a cross-sectional study<sup>122</sup> that found parents who quit smoking when their children were young was associated with lower likelihood their children would start smoking compared to those parents who continued to smoke.

While parental smoking cessation reduces risk of uptake, their risk of smoking uptake continues to be higher compared to children whose parents never smoked. This may be due to a ‘delayed modeling’ effect that posits parental smoking can influence the likelihood that their children will smoke even if their parents quit years earlier.<sup>56</sup>

#### ***2.5.4.6 Access to tobacco***

Two studies were identified that investigated access to tobacco in the home environment (also called social supply). However, due to the cross-sectional nature of the data used for both studies it was not possible to establish whether access to cigarettes from family members is predictive of uptake or vice versa. Woodruff et al.<sup>97</sup> used cohort and cross-sectional data drawn from a sample of seventh and eighth grade United States students at baseline and followed up one year later. This study investigated relationships between cigarette availability and trying a cigarette. Cigarette sources that were measured included stores, friends and parents. Results indicated availability of cigarettes from adults (e.g. from parents or offers from other adults) was independently related to trying cigarettes. The authors concluded that those participants who reported obtaining cigarettes from parents most likely stole them. Among those ‘trying’ smoking the authors also observed social sources of tobacco were more important than commercial, possibly due to the young age of this group.

Results from a New Zealand study suggested adolescent smokers who had one or two smoking parents were more likely to get cigarettes from a family member.<sup>87</sup> The study reported other risk factors for getting cigarettes from family members included (student) identification as Māori ethnicity, lower SES, and allowing smoking in the

home. These results were supported by qualitative research with Māori, Pacific and Asian parents where participants indicated they thought their children had easy access to tobacco, mainly through family members.<sup>92</sup>

## **2.6 Summary of determinants for smoking uptake**

This section summarises key findings from the literature review.

### **2.6.1 Stages of smoking uptake**

Smoking uptake can be seen as a process that occurs over five stages: preparation/susceptible, trying, experimenting, regular use and established/daily smoking.

### **2.6.2 Non-parent related determinants**

#### ***2.6.2.1 Individual***

At the individual level determinants for smoking uptake identified in the international literature are related to psychological disposition, attitudes and beliefs, and intentions to smoke. Little New Zealand evidence has been found to support any of these determinants.

#### ***2.6.2.2 Peers***

Smoking among peers has been strongly associated with uptake in both international and New Zealand literature. Findings from international studies suggest that peers may influence some adolescents to smoke, while others who are predisposed to smoking may actively seek out smoking peers.

#### ***2.6.2.3 Community and societal***

Community and societal level determinants identified in the literature were related to schools, exposure to smoking in the media (including advertising) and ability to purchase tobacco from retail outlets. Findings from New Zealand research supports the latter two determinants.

#### ***2.6.2.4 Cross cutting themes and other determinants***

During the mid to late Twentieth Century smoking rates among females increased. This is partly attributed to changing gender roles and targetted tobacco industry advertising at females.

#### ***2.6.2.5 Determinants of smoking uptake for Māori and other indigenous peoples***

Very little literature was identified in relation to determinants of smoking uptake among Māori youth.

In general, individual level determinants for smoking uptake among indigenous youth were similar to non-indigenous youth. Similarly smoking among peers was also associated with increased risk of uptake.

New Zealand research suggests that widening socio-economic disparities between Māori and non-Māori that occurred between the early 1980's to the mid 1990's was also associated with an increase in smoking prevalence disparities for Māori.

### **2.6.3 Parent related determinants**

#### ***2.6.3.1 Family context***

A number of studies suggested ‘non-standard’ families increased risk of smoking uptake. Low paternal occupational status was found to have a direct relationship with smoking uptake, while parental income and educational level were found to be indirectly related through the smoking status of parents.

#### ***2.6.3.2 Parenting***

Positive parenting practices appear to be protective of smoking uptake. Specific parenting practices that were found to be protective include monitoring children’s behaviour, parent-child communication and involvement with children.

Amount of pocket money that children have and greater access to R-rated films in the home environment was associated with increased risk of smoking. Permissive parenting, disengaged parenting, and level of unsupervised child’s self-care were also found to be risk factors for smoking uptake.

### ***2.6.3.3 Parent-child relationships***

There was some support that good parent-child relationships were protective of uptake, regardless of parental smoking status. While findings were mixed in relation to attachment of children to their parents, the evidence suggests that better attachment may be protective.

### ***2.6.3.4 Parental pro or anti-smoking socialisation behaviours***

A range of anti-smoking socialisation determinants were identified among the published studies. These included general parental pro or anti-smoking socialisation behaviours, smoking related discussions with children, parental attitudes and expectations about smoking, rules about smoking, parental smoking, parental smoking cessation and access to tobacco in the home/family environment.

A number of studies indicated rules restricting or banning smoking in the home were protective of uptake. Some studies also found parental cessation (when compared to parents who continued to smoke) and parental expectations around their children not smoking as being protective.

A number of socialisation determinants were identified in the literature that were potential risks for smoking uptake. Of these determinants there was strong evidence that any parental smoking increased risk.

### ***2.6.3.5 New Zealand evidence on determinants of smoking uptake***

Lower socio-economic status (SES) has been associated with uptake in New Zealand. Pathways explaining the relationship between SES and smoking appear to be parental smoking, lower educational achievement and indirectly through parental smoking influencing their child's affiliations with smoking peers.

Cross-sectional findings suggested parental supervision and monitoring reduced risk among 14 to 15 year old children, while higher amounts of pocket money increased risk. In addition, those students who received pocket money were more likely to purchase cigarettes.

Qualitative research suggested New Zealand parents viewed smoking as an important issue to address with their children. However, other issues that were seen as more

important included ‘stranger danger’, drugs, alcohol, sex, fast cars, motorbikes, bike safety and having a good education.

Cross-sectional studies have found positive relationships between SHS exposure in New Zealand homes and risk of smoking. There were mixed findings for associations between parental smoking and uptake. Evidence suggested that adolescents with smoking parents or where smoking was allowed in the home were more likely to access tobacco from family members.

Qualitative research identified five types of conversations that parents may have with their children about smoking: those who had not discussed smoking; those who had discussed health risks associated with smoking for the individual or their whānau; those who had communicated their opinions and judgements about smoking; and, those who had tried to counter the effects of their own smoking. Some parents expressed they felt relatively powerless to deter their children from taking up smoking.

#### ***2.6.3.6 Parent related determinants among Māori and other indigenous peoples***

Few studies were identified that specifically explored determinants of uptake among Māori or other indigenous peoples. In general, indigenous youth were more likely to smoke tobacco compared to non-indigenous youth. One exception was among Norwegian Sámi who were no more likely to smoke than other Norwegian youth.

Qualitative research suggests that Native American Indian youth often acquired tobacco from family members, usually by stealing it. This research also found that anti-tobacco messages about smoking tended to focus on negative long term health effects of smoking. It appeared that parents of Native American youth in the study had low self-efficacy in being able to deter their children from using tobacco.

New Zealand studies suggested that social inequalities experienced by Māori compared to non-Māori were predictive of smoking among Māori, particularly females.

#### **2.6.4 Literature based model of parental influences on smoking**

While there was a reasonable body of literature on specific parental determinants for smoking uptake the findings indicated there were gaps in relation to: understanding

complexity in terms of the myriad of factors that may affect parental behaviours and their relationship to smoking uptake among their children (e.g. meta-analyses on parental influences on smoking uptake); and, in particular a paucity of evidence in relation to understanding parental influences on uptake in the context of Māori or other indigenous peoples.

Taking these limitations in to account<sup>xxx</sup> key parent related determinants identified from the literature review have been organised within an outcomes hierarchy<sup>xxxi</sup> (Figure 2.1). Where only cross-sectional findings were available it has been assumed the relationship between an identified risk factor and an outcome is causal.

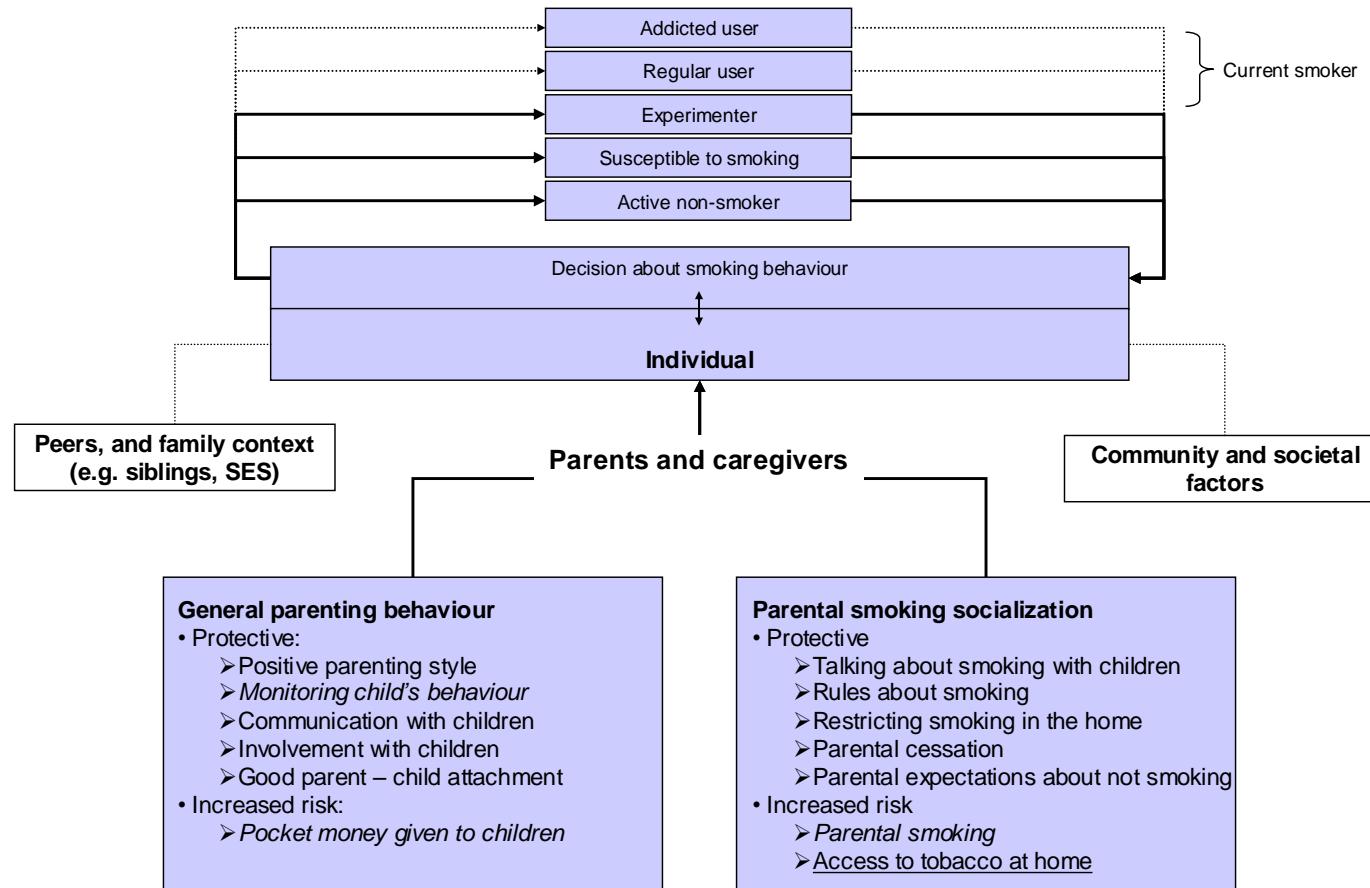
The hierarchy is orientated around determinants of smoking uptake for a young person. The key outcomes for the hierarchy are stages of smoking uptake, from being an active non-smoker to early experimentation. Parental influences on uptake are seen as influencing a child's decisions about smoking behaviour. For example, an action by a parent in relation to smoking will be interpreted by the individual child who may, in turn, decide whether or not to change their behaviour in relation to smoking. The lower level outcomes in the hierarchy have been organised into general parenting behaviours (e.g. parents facilitating good communication with their children) and parental smoking socialisation behaviours (e.g. parental smoking).

In the hierarchy factors such as family context, peer, community and societal influences were seen out of scope of parent or whānau focused interventions to reduce smoking uptake. Therefore, they are treated as potential confounders or effect modifiers for associations between parental behaviours and smoking uptake. From the hierarchy it is evident that a range of parent related determinants have been identified in the literature. However, relatively few determinants have been identified in the New Zealand literature (indicated in italics), and even fewer for indigenous peoples (indicated as underlined).

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<sup>xxx</sup> These gaps became a focus of the research conducted for this thesis.

<sup>xxxi</sup> An outcomes hierarchy identifies a contingent sequence of outcomes. For a higher level outcome to occur it is necessary that at least some of the lower level outcomes have come about.



- Risk factors in italics indicate where New Zealand studies have supported the presence of a given risk factor
- Risk factors that are underlined indicate where studies with indigenous peoples support the presence of a risk factor

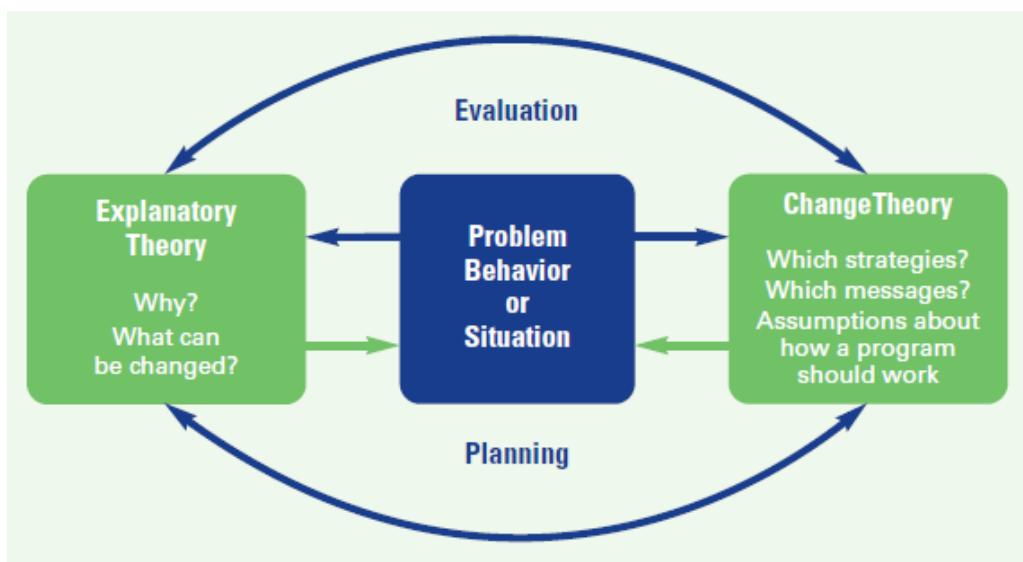
**Figure 2.1. Literature based model for parental influences on smoking uptake**

## Chapter 3: Methods

The purpose of this thesis was to build a model of parent related determinants for smoking uptake among Māori youth. As such this will represent an explanatory model that seeks to provide some rationale for the sequences of determinants and their inter-relationships that cause a phenomenon to occur (in this case smoking). Explanatory models are used in public health to increase understanding of what causes a health outcome to occur and what determinants need to be considered in order to make a meaningful impact on the health outcome. Examples of explanatory models developed for public health issues include those attempting to explain health promotion behaviours in students<sup>131</sup> and health promotion and quality of life among people living with multiple sclerosis.<sup>132</sup>

The relationship between explanatory models and interventions is expressed in Figure 3.1. For the purposes of this example the terms “model” and “theory” are used interchangeably where both attempt to identify causal determinants that are predictive of an outcome occurring. Figure 3.1 places the issue or problem at the centre. On the left of the model is the development of explanatory theory and on the right *change theories*. The latter are used to guide the development of interventions aimed at addressing one or more determinants identified in an explanatory model. The process of understanding the problem or situation, informing what can be done to address it and assessing the effectiveness of any interventions is referred to as *evaluation*.

The focus of developing an explanatory model in the present thesis is justified on the grounds that, while individual determinants have been identified, no comprehensive models on parental influence on smoking uptake were identified in the literature. In particular, there are no models for parental influences among Māori or other indigenous peoples. In the absence of such models initiatives that aim to address parental influences may not focus on the most salient determinants.



(Source: National Institutes of Health.<sup>20</sup>)

**Figure 3.1. Explanatory and change theory for planning and evaluation**

### **3.1 Methods for explanatory model building**

The development and testing of models and theories of human behaviour have traditionally been linked to empirical hypothethico-deductive methods of research. In this method hypotheses are posited and tested using strict criteria to determine whether findings corroborate the hypothesis or not. ‘Corroboration’ is not taken as an absolute truth that a theory is true, rather that the findings did not discount it was not true. Development of explanatory theories solely based on deductive (quantitative) research methods have been criticised for being reductionist,<sup>xxxii</sup> producing results that may not make sense<sup>xxxiii</sup> and because they fail to take into account the complexity of the phenomena that the theories are attempting to describe.<sup>134-135</sup>

The need for a comprehensive model and limited understanding of how parental behaviours affect uptake among Māori youth indicated a need to use both deductive (quantitative) and inductive (qualitative) methods of inquiry. Quantitative methods were seen as important as they would provide some verification of potential

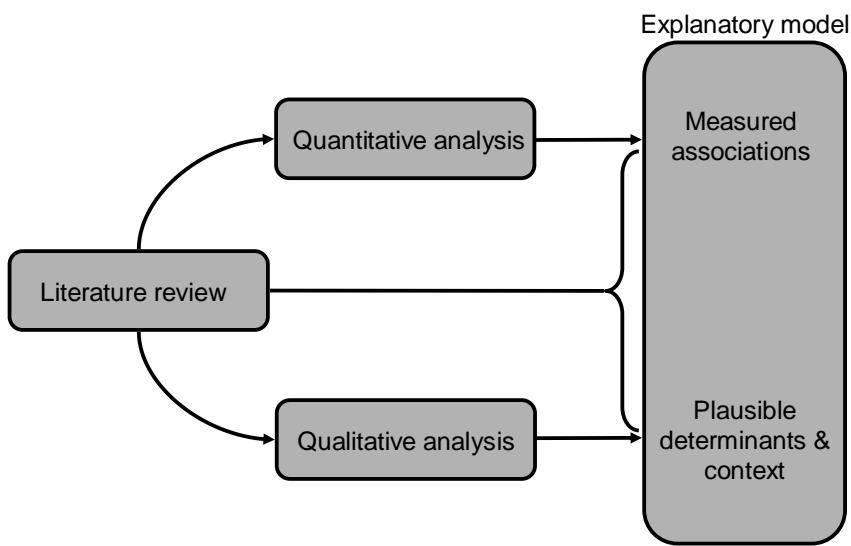
<sup>xxxii</sup> That is, reducing and understanding a phenomenon in terms of its components rather than trying to understand how each component interact as a whole.

<sup>xxxiii</sup> Empiricist methods are often contrasted against rationalist. At its most basic empiricist methods assume that only what can be measured is ‘true’, while rationalist methods assume that only what can be explained and understood is true.<sup>133</sup> Markie P. “Rationalism vs. Empiricism”, The Stanford Encyclopedia of Philosophy. In: Zalta ZN, editor, 2008.

determinants by measuring associations with smoking uptake. Qualitative methods were seen as important as they would provide insights and understandings of what might influence the uptake process and the contexts in which these influences could occur. Adopting both methods is consistent with a mixed methods approach.<sup>136</sup> Mixed methods approaches have been used to investigate a wide range of research questions including defining social and health problems (formative research) and developing theories of action as a basis of interventions.<sup>137</sup>

Mixed methods research has been defined as a research design that incorporates both philosophical (methodological) assumptions and methods of collecting information.<sup>138</sup> From a methodological perspective it synthesises deductive and inductive methods of inquiry (and their respective philosophical underpinnings) to guide how and what data is collected. It is out of the scope of this thesis to indulge in an in-depth discussion on mixed methods as a methodology. However, in the context of the present thesis both deductive and inductive methods of inquiry are seen as being of value. Both are intended to provide different but complementary sources of information that the other method will not be able to provide.

Figure 3.2 presents each component of the research and how they were ‘mixed’ to inform the development of the explanatory model. The literature review is included as part of the research process as it included both quantitative and qualitative information. Findings from the literature review were used to formulate research questions for both the quantitative and qualitative analyses. For the quantitative analysis the review findings helped to develop research hypotheses and identify potential confounding variables. For the qualitative analyses the review helped to identify key gaps in what was known about parental influences on smoking uptake. In addition, potential determinants identified in the literature were used to help inform and critique the explanatory model.



**Figure 3.2. Use of Mixed Methods to develop the explanatory model**

Findings from the quantitative analysis were used to identify potential parent related determinants that were statistically associated with smoking uptake. These determinants were used as a starting point for developing the explanatory model. Findings from the qualitative analysis were used to critique the quantitative analysis, identify other potential determinants and provide insights into the contexts in which determinants might occur. The quantitative and qualitative analysis methods are described in the following sections.

### **3.2 Quantitative data: Surveys of student smoking behaviours and attitudes**

Data for the quantitative analysis were sourced from two cross-sectional surveys conducted by the Health Sponsorship Council.<sup>xxxiv</sup> The first survey was the Year 6 Youth Lifestyle Study (YLS) conducted in 2004 (referred to henceforth as the Year 6 Survey), and the second the Year 10 In-depth study conducted in 2006 (referred to

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<sup>xxxiv</sup> The Health Sponsorship Council is a Crown Entity and is responsible for promoting the Smokefree and Auahi Kore tobacco control brands.

henceforth as the Year 10 Survey).<sup>xxxv</sup> These surveys were part of regular monitors<sup>xxxvi</sup> that aimed to provide information on smoking behaviours and inform the development and evaluation of social marketing campaigns targeted at young people and their parents.

### **3.2.1 Outcome measures: Smoking uptake definitions**

In the quantitative analysis data were available to measure two stages of smoking uptake: susceptibility to smoking and current smoking.

#### **3.3.1.1 Susceptibility to smoking**

The measure of smoking susceptibility was derived from questions used in the Global Youth Tobacco Survey (GYTS). The GYTS questions were originally adapted from a validated measure of smoking susceptibility developed by Pierce et. al.<sup>32</sup> A person was defined as being *not susceptible* to smoking if they answered “definitely no” to both of the following questions: “If one of your best friends offered you a cigarette, would you smoke it?” and “At any time during the next year do you think you will smoke a cigarette?” All other students were defined as being *susceptible* to smoking. A third measure used Pierce et. al. “Do you think that you will try a cigarette soon?”, was not included in the surveys and therefore could not be used as a variable for this study.

#### **3.3.1.2 Current smoking**

*Current smoking* was defined as students who reported they currently smoked at least once a month.

### **3.3.2 Year 6 Youth Lifestyle Study 2004**

Before 2004 the Year 6 Survey was administered to Year 7 and 8 students. In 2004 it was decided to lower the age of students to where most had never smoked cigarettes but may have been susceptible. The rationale for this change was to better identify associations with smoking susceptibility before most young people who would become smokers had tried their first cigarette.

<sup>xxxv</sup> As the senior researcher at the Health Sponsorship Council from 1998 to 2006 the author was principally responsible for developing the questionnaires and managing both surveys.

<sup>xxxvi</sup> At the time of writing this thesis the Year 10 Survey was administered biennially as part of the New Zealand Youth Tobacco Monitor.

### ***3.3.2.1 Sample***

The sample for the Year 6 Survey was drawn from Year 6 students attending New Zealand schools in 2004. Students were sampled using a two stage cluster design. Students who were schooled through distance learning were excluded from the sample. From an initial random sample of 250 New Zealand schools, the principals for 150 consented for their school to participate. Of the 150 schools, 140 schools returned questionnaires giving a 56% school level response rate. One class per school was surveyed. The 150 schools that originally consented to participate represented an eligible sample of 2493 students. Of the 140 schools that actually participated in the survey completed questionnaires were received from 2162 students giving an 86.7% student level response rate.

For the purposes of this study the sample was restricted to never smoking students aged 10 to 11 years giving a final sample size of 1652. Of these students 348 identified as Māori and 1305 as non-Māori. The reason for restricting the sample to 10 and 11 year olds was to minimise any potential confounding effects that age could have on the analysis while retaining as many students as possible (ages 10 and 11 were the most common ages for Year 6 students). Similarly only never smokers were included to remove any potential confounding effects that past smoking experience could have on the main outcome of interest (smoking susceptibility).

### ***3.3.2.2 Tools***

The Year 6 YLS used a closed ended, self completion questionnaire. The questionnaire collected information on:

- demographics
- lifestyle and interests
- smoking related behaviours, attitudes and perceptions
- awareness of youth orientated tobacco control initiatives
- parental attachment
- self-concept regarding student performance in school
- alcohol and sun exposure related questions.

A draft questionnaire was pre-tested with Year 6 students attending a Wellington primary school that was not selected for the survey. The pre-test involved asking students to complete a questionnaire. This was followed by discussing the survey with students to assess their overall perceptions of the survey as well as any feedback on specific questions that were unclear or difficult to complete. Following the pre-test student survey responses to the questionnaire were reviewed to assess whether any questions were being systematically missed or answered incorrectly. Findings from the student feedback and review of questions were used to refine the survey questions.

### **3.3.2.3 Procedure**

A market research company was contracted by the Health Sponsorship Council to recruit and survey the schools. Schools were contacted by telephone and invited to participate in the survey. The recruiters aimed to talk directly to the principal or their delegate. Once a school had consented to participate the research company collected details on the number of classes and Year 6 students per school. One class in each school was then randomly selected to participate in the survey.

Questionnaires and instructions were mailed to a school contact person and administered to students by school staff in class. Completed questionnaires were posted to the research company who collated them onto a database.

To enable comparisons between the Year 6 and Year 10 Surveys both datasets needed to be weighted using a similar method. The Year 10 dataset that was obtained from the Health Sponsorship Council already included standard weighting variables<sup>xxxvii</sup> that adjusted for the sampling design, non-response and post-stratification weightings. The Year 6 dataset was weighted in a similar manner by a University of Otago biostatistician. Some variables that were required to calculate weights were missing from the Year 6 dataset. Where possible values for missing variables were either estimated or assumed. For example, the weightings required information on the

<sup>xxxvii</sup> The data was weighted according to the Global Youth Tobacco Survey method and used the following formula:  $W = W_1 * W_2 * f_1 * f_2 * f_3 * f_4$ . Where  $W_1$  is the inverse of the probability of selection for each school;  $W_2$  is the inverse of the probability of selection for each classroom within selected schools;  $f_1$  is a school-level, non-response adjustment calculated by school enrolment size tertile (small, medium, large);  $f_2$  is a class-level, non-response adjustment factor calculated by each school;  $f_3$  is a student-level, non-response adjustment factor calculated for each class; and,  $f_4$  is a post-stratification adjustment factor calculated by sex and grade.<sup>139</sup> Health-Sponsorship-Council. Global Youth Tobacco Survey Country Report: New Zealand. Wellington: Ministry of Health, 2008.

number of Year 6 classes in a school. In some cases this information was not available but could be inferred from the number of Year 6 students known to attend the school. Students with missing weighting variables that could not be estimated or assumed were removed from the sample.

### **3.3.3 Year 10 In-Depth Survey: 2006**

The Year 10 Survey is carried out biennially and was first implemented as the “Youth Lifestyle Study” in 2000. From 2006 all schools in New Zealand with Year 10 students (apart from distance learning students) were eligible for selection<sup>xxxviii</sup> for the survey. Also from 2006 the survey was renamed the “Year 10 In-Depth Survey” and was conducted in conjunction with two other youth smoking surveys, the ASH Year 10 Survey and the Global Youth Tobacco Survey (GYTS). The ASH survey aims to survey all Year 10 students in New Zealand schools but only collects basic smoking information. The GYTS is part of a World Health Organisation initiative that aims to collect internationally comparable information from Years 9, 10 and 11 students. In comparison the Year 10 In-Depth Survey collects in-depth information on smoking behaviour, demographic, lifestyle and exposure to tobacco control interventions. Collectively the three surveys are referred to as the New Zealand Youth Tobacco Monitor.

Data from the 2006 Year 10 Survey has been used for this thesis. This is because it had an improved sample compared to previous years and many of the items included in the questionnaire were either directly comparable to the Year 6 Survey, or questions could be re-coded to be made comparable.

#### ***3.3.3.1 Sample***

The Year 10 Survey used a two-stage randomised cluster sampling design where the probability of school selection was proportional to the roll size of each school’s Year 10 students. An initial sample list of 186 schools was selected from all New Zealand schools with Year 10 classes (excluding correspondence schools). The Year 10 Survey sample list was selected by the Centers for Disease Control, Atlanta Georgia as part of the sample selection process for the GYTS sample that was nested within it.

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<sup>xxxviii</sup> Resource limitations meant that in previous years schools were only selected from some regions within New Zealand.

Contact attempts were made with the 186 selected schools by telephone. Of these schools 145 consented to participate giving a 78% school-level response rate. Within each school, one Year 10 class was randomly selected and all students in this class were invited to participate in the survey. The final survey sample was restricted to students aged 14 to 15 for the same reasons that ages were restricted to 10 and 11 year olds for Year 6 students. The estimated number of eligible 14 and 15-year-old students within the schools that consented was 3,821. Completed questionnaires were received from 3,189 students giving a student-level response rate of 83.7% and an overall response rate of 65.3%. Of these students 649 identified as Māori and 2512 as non-Māori.

### **3.3.3.2 Tools**

The Year 10 Survey used a closed ended, self completion questionnaire. The questionnaire collected information on:

- demographics
- lifestyle and interests
- smoking related behaviours, attitudes and perceptions
- involvement with parents
- awareness of youth orientated tobacco control initiatives
- attitudes and perceptions of alcohol.

A draft questionnaire was pre-tested with Year 10 students attending a Wellington region secondary school that was not selected for the survey. Similar to the Year 6 Survey, the pre-test involved asking students to complete a questionnaire and was followed by a discussion with students on their overall perceptions of the survey and specific questions within the survey. Following the pre-test student survey responses were reviewed using SPSS software to assess whether any questions were being systematically missed or answered incorrectly. Findings from the student feedback and review of questions were discussed among an advisory group set up for the survey and any amendments to the questions agreed for the final questionnaire.

### **3.3.3.4 Procedure**

A research company was contracted to recruit selected schools, identify classes to be surveyed, administer the survey in person in schools and collate survey data. Selected schools were informed of the survey by letter followed by an attempt to formally invite schools by telephone. Those schools that consented to participate in the survey were asked to provide details on the number of Year 10 students in their school and the number of Year 10 classes.<sup>xxxix</sup> One class was randomly selected to participate from each school. A trained researcher administered the survey in class, collected completed questionnaires, filled out background details on the class and school and posted completed questionnaires to the research company. Data were entered by the research company and forwarded to the Health Sponsorship Councils Research and Evaluation Unit for final cleaning, any recoding and assignment of weights.<sup>xxxvii</sup>

## **3.3.4 Comparisons between surveys and samples**

Sampling methods and questionnaires were sufficiently similar to allow age related comparisons to be made between the Year 6 and Year 10 Surveys. However, there were a number of differences between the two surveys that should also be taken into account when interpreting the analysis. These differences are described under *sampling* and *questionnaires*.

### **3.3.4.1 Sampling**

There were three key differences in relation to sample recruitment and selection.

#### Statistical power of the Māori and non-Māori samples

The first difference was the statistical power of the Māori compared to the non-Māori samples. For both the Year 6 and Year 10 Surveys the Māori samples reflect the proportion of Māori Year 6 and Year 10 students in the schools surveyed. As a result they were considerably smaller than the respective non-Māori samples. This meant that the statistical power for the Māori samples were less than the non-Māori samples. Table 3.1 provides an example of these differences where, for comparability, the proportion of students answering a question in a certain way (sample %) was set at 50% and the alpha at 0.05%. The example indicates the sampling error was double

<sup>xxxix</sup> This was based on a common time during the school day when all students were in the same type of class (e.g. form classes).

for Māori students (Yr 6 5.2%; Yr 10 3.8%) compared to non-Māori students (Yr 6 2.7%; Yr 10 1.9%).

**Table 3.1. Examples of Māori and non-Māori sample errors**

Class year	Ethnicity	Sample size <sup>xl</sup>	Sample % <sup>xli</sup>	$\alpha$	Total population <sup>xlii</sup>	Sampling error
Year 6	Māori	348	50	0.05	13007	5.2%
	Non-Māori	1305	50	0.05	46327	2.7%
Year 10	Māori	649	50	0.05	13470	3.8%
	Non-Māori	2512	50	0.05	49616	1.9%

In the context of the present analysis this will have led to larger confidence intervals for any ORs related to Māori students. Therefore, significant associations may have been less likely to be observed for the Māori sample compared to non-Māori simply because of differences in statistical power between the two samples. As an attempt to address this any associations that were close to being significant for the Māori sample ( $\geq 0.90$  lower confidence interval for risk factors and  $\leq 1.10$  upper confidence interval for protective factors) have also been described in the text of the results in Chapter 4.

### Survey administration

The second difference was the method of administering each survey. For the Year 6 Survey questionnaires were mailed to schools and administered by school staff. For the Year 10 Survey questionnaires were administered in schools by researchers. The method used for the Year 10 Survey is superior because this allows for better quality control of the survey process (e.g. ensuring that students had a safe and comfortable environment to complete their questionnaires).

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<sup>xl</sup> Sample sizes are for those used in the adjusted analyses.

<sup>xli</sup> As this varied depending on specific survey questions the sample proportion was set at 50% for the purposes of comparing sample errors.

<sup>xlii</sup> Student population at the time of the respective surveys.

### School sampling proportionate to roll size versus random sampling

The third difference was that schools with larger numbers of Year 10 students in the Year 10 In-depth Survey had a greater probability of being selected compared to the Year 6 YLS that was based on a purely random sample.

#### **3.3.4.2 Questionnaires**

The demographic and smoking related questions used in the Year 6 Survey were designed to complement those used in the 2004 Year 10 YLS (and similar to the 2006 Year 10 Survey). However, the Year 6 questionnaire was shorter and in some cases questions were adapted to be age appropriate. For example, a Year 10 Survey question designed to measure perceived smoking prevalence among peers was changed for Year 6 students to measure perceived smoking prevalence among adults as few peers of Year 6 students smoked. Table 3.2 provides an overview of the variables used in the present research. This table identifies those variables that were specific to either the Year 6 or 10 questionnaires and were not comparable, those that were the same or sufficiently similar to be comparable and those that required the creation of new variables to enable comparability between the two surveys.

#### **3.3.5 Analysis of the Year 6 and 10 data sets**

The analysis of the Year 6 and Year 10 datasets had two purposes. The first was to determine whether findings for associations between parental behaviours and smoking uptake in the New Zealand context supported the published and unpublished literature. The second purpose was to carry out analyses to address gaps in the existing literature, in particular in relation to parental influences on smoking uptake among Māori. The Year 6 and Year 10 questionnaires were reviewed to identify measures of smoking uptake, parenting variables, parental smoking socialisation variables and any other variables where there was evidence from the literature that were potential determinants of smoking uptake. The latter determinants were used to adjust for any potential confounding.<sup>xliii</sup> A full list of variables that were available for

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<sup>xliii</sup> Two variables specific to Māori settings, attendance at a marae in the past month and participation in kapa haka, were included as potential confounders. Inclusion of these variables was justified on the basis that two qualitative studies had identified marae (140. Masters B. Researching the process of Auahi Kore for Marae. Wellington: Health Sponsorship Council, 2000.) and kapa haka (141. Tunks M.

the analysis is given in Table 3.2. Based on the purposes and the review of the Year 6 and Year 10 questionnaires the aims of the quantitative analysis were to determine whether:

1. Smoking specific parental behaviours were associated with smoking susceptibility and current smoking among Māori youth.
2. General parenting behaviours were associated with smoking susceptibility and current smoking among Māori youth.
3. Associations between parent related risk factors for smoking susceptibility or current smoking varied by age of Māori students.
4. Associations between parent related risk factors for smoking susceptibility or current smoking varied between Māori and non-Māori students.
5. Identification as Māori was an independent risk factor for smoking uptake.

While a number of the parent related variables were shared some were specific to either the Year 6 or the Year 10 Surveys. As a result three analyses were conducted. The first was specific to the Year 10 data set, the second was specific to the Year 6 dataset, and the third was restricted to variables common to both Year 6 and Year 10 datasets. Each analysis was carried out with Māori student samples and repeated for non-Māori students.

A description of terms referred to in the analysis can be found in the Glossary in Appendix B. The author identified which variables should be included in the analysis, how new variables should be calculated and what analysis methods should be undertaken (with advice from supervisors, colleagues and biostatisticians). The unadjusted and adjusted analyses were conducted by Jane Zhang, a biostatistician employed by the University of Otago. All the analyses of the Year 6 and Year 10 Surveys were conducted using Stata, version 10.<sup>142</sup>

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Auahi Kore and kapa haka: Report prepared for the Health Sponsorship Council. Wellington: Health Sponsorship Council, 2000.) as settings where Māori were more likely to be exposed to smoking behaviours among others, providing possible smoking role models. Given the higher rates of smoking among Māori this was seen by the author as being a plausible risk for smoking uptake.

### ***3.3.5.1 Potential parent related determinants for smoking susceptibility and current smoking among Year 10 students***

Data for this analysis were drawn from the Year 10 Survey. The outcome measures were susceptibility to becoming a smoker and current smoking.

#### **Potential determinants**

Potential determinants were grouped according to whether they were related to parental smoking socialisation behaviours or more general parenting behaviours. Measures of specific parental smoking socialisation behaviours were: parental smoking, exposure to second-hand smoke in the home (SHS), parental rule setting about not smoking, and parental expectations about not smoking. More general parenting measures were: amount of pocket money received, monitoring of pocket money, general rule enforcement, and parental concern about education. With the exception of smoking among parents, measures of parental behaviours included biological parents and, if relevant, other caregivers such as step-parents.

Other, non-parent related variables that were available for the analysis were treated as potential confounders.

#### **Analysis**

All 14 and 15 year old students in the Yr 10 sample were included in the analysis of associations with current smoking. For the analyses of associations with smoking susceptibility the sample was restricted to *current non-smokers* (smoked less often than monthly or who had never smoked) and within a subset of this group, *never smokers*. Data were adjusted to account for the complex design of the sample and post-stratification weights applied to adjust for non-response.

The process of identifying any associations between potential determinants and key outcomes was conducted in two stages. In the first stage, unadjusted (univariate) odds ratios were calculated for the association between each potential determinant variable and the outcome variable(s). In the second stage two adjusted (multivariate) models were developed. In the first all demographics and parental variables were included (see Table 3.2). In the second stage, other, potential confounding variables were additionally adjusted for using forward stepwise logistic regression. This involved

adding each potential confounding variable in turn, and only including those that were significant ( $\alpha = 0.05$ ). Use of forward stepwise logistic regression was justified as an efficient means of limiting the number of variables to be included in the analysis. In the second model every variable was adjusted by every other variable included in the model. To save space in the tables presented in the following chapter only findings from the unadjusted analysis and the second adjusted model are presented.

### ***3.3.5.2 Potential parent related determinants for smoking susceptibility among Year 6 students***

For this analysis data were drawn from the Year 6 Survey. The outcome measure was susceptibility to becoming a smoker as few Year 6 students in the dataset smoked.<sup>143</sup>

#### **Potential determinants**

While the Year 6 data is presented as the second analysis in this thesis it was the last piece of analysis to be conducted. Based on experiences and knowledge gained from the analysis of Year 10 and Year 10 compared to Year 6 data a modified method for selecting potential confounders was used for the Year 6 specific analysis. The rationale for this was to minimise the number of variables used to adjust for confounding in order to avoid the possibility of over-adjusting the data and removing any actual associations with smoking susceptibility.

In the first stage potential confounders identified in the literature review that were available as variables in the Year 6 dataset were included. The second stage recognised that New Zealanders, and in particular Māori, may have additional unique factors for smoking susceptibility. These factors could confound associations between parenting behaviours and uptake and may not have been documented in the existing literature. Therefore, variables measured in the Year 6 Survey were reviewed to identify any additional potential confounders that were plausibly linked to smoking uptake. These confounders were discussed and agreed with the thesis supervisors.<sup>xliv</sup>

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<sup>xliv</sup> Eight variables were identified. Of these two, attending marae in the past 30 days and liking to do Māori activities, had not been identified in the literature.

**Table 3.2. Variables used in the Year 6 and Year 10 analyses<sup>xlv</sup>**

Source	Variable	Description	Measure
Yr 6 only	Parental anti-smoking attitudes	Based on a single question about whether parents had ever talked to their child about the dangers of smoking tobacco.	Yes* or No
	Communication with parents	A composite of four separate items that measured students perceived quality of communication with their parents <sup>xvi</sup> as part of the Inventory of Parent and Peer Attachment: Short Form. <sup>144</sup>	High*, Medium or Low
	Parent created rules	A composite of three items measuring whether children have set bed times, when they can watch TV and whether have to tell parents where they are after school.	High*, Medium or Low
	Normative belief	A single question about perceived prevalence of smoking within the adult population.	$\approx <1/4^*$ , $\approx 1/2$ or $\approx >3/4$
Common to Year 6 & 10 Existing variables <sup>xvii</sup>	No. of parents smoking	A single question about how many parents were reported as smoking. This measure only included biological parents.	0*, 1 or 2
	Home SHS exposure	A single question on reported exposure to other peoples smoking inside homes over the previous seven days.	0*, 1 to 2 or 2+
	Smoking status of friends**	Smoking among best friends or other friends of the student. The Year 6 and 10 surveys used slightly different wording. Year 6 referred to “best friend” and “other friends”. Year 10 “best friend and “other close friends”.	None* or At least 1
	Sibling smoking	Smoking among a students siblings. The Year 6 Survey allowed for responses for any brothers or sisters while responses for the Year 10 Survey were restricted to older brothers or sisters only.	0* or 1≤
	School performance**	For Year 6 students measured by a single item from the Self-Description Questionnaire <sup>145</sup> on student perception of how well they were doing overall on school subjects. Among Year 10 students measured by a single item on how well they rated their performance in school subjects. Both used 1 to 5 scales that were simplified into three categories.	Good*, Average or Below average

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\*Reference variable for analysis.

\*\* These variables were not identical between the Yr 6 and 10 surveys, however they were seen as being comparable.

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<sup>xlv</sup> Unless otherwise state variables were self-reported. Shading indicates potential parent-related determinants for smoking uptake. Non-shaded variables were available to be used in analysis as potential confounders.

<sup>xvi</sup> This inventory included three sub-scales: communication; alienation; and, trust. These sub-scales could be independently scored and aggregated to obtain an overall measure of parent attachment. In general, the communication sub-scale was found to be significantly associated with smoking susceptibility and current smoking. Therefore it was the most commonly referred to variable of the inventory. The communication sub-scale included items about children talking to parents about any troubles, parents asking if anything is bothering them, and not feeling like they should bother their parents with their problems they may be experiencing. Responses to the communication variable were categorised as “high” (more communication), “medium” (some communication) or “low” (little or no communication).

<sup>xvii</sup> May have been used in the Year 6 or Year 10 analyses.

**Table 3.2. Continued**

Source	Variable	Description	Measure
Common to Year 6 & 10	Been to marae	Measured whether student's reported they had been to a marae in the past month.	No* or Yes
	Likes Māori activities**	For Year 6 students measured by whether they like participating in Māori cultural groups, for Year 10 by whether participated in Māori cultural groups.	No* or Yes
	Visited place of worship	For both Year 6 and Year 10 students the measure was based on a single question. Year 6 students were asked to indicate whether they had been to a church, mosque, synagogue or similar in the past month, for Year 10 students whether they had been to a place of worship in the past month.	No* or Yes
	Age**	Students were asked to indicate their age. For Year 6 students the sample was restricted to those aged 10 or 11 years old and for Year 10 restricted to 14 or 15 years old.	10* or 11
	School decile	Not self-report data. An indicator of socio-economic status based on socio-economic characteristics of the communities that schools serve. <sup>146</sup> The Ministry of Education allocates schools a decile rating based on their surrounding communities from 1 (most deprived) to 10 (least deprived). The ten point rating was simplified to three using a method used in other studies. <sup>11</sup>	High*, Medium or Low
	Gender	Gender as reported by the student.	Male* or Female
	Family structure**	Based on responses to a multiple response question. Three basic family/household structures were identified, single parent, nuclear or extended. <sup>xlviii</sup> Some measures of family structure differed between the Year 6 and 10 surveys mainly in relation to people other than parents and children living in a household.	Nuclear*, Extended, Single parent or Other
New variables <sup>xlix</sup>	Ever smoked	Based on a single question about whether students had ever smoked a cigarette, even a few puffs.	No* or Yes
	Parental anti-smoking attitudes	The Year 6 Survey measured whether parents had talked to students about the dangers of smoking tobacco, while the Year 10 Survey measured whether their parents would be upset if students were caught smoking. Both measures were seen to be indicative of student perceptions of their parent's attitudes towards smoking.	Yes* or No
	Pocket money	For both surveys based on a single response question, however as they used different measures of pocket money, a simplified dichotomous measure was used based on that used for the Year 6 Survey (i.e. whether or not received pocket money).	No* or Yes
	Parental general rules	A general indication of the extent to which parents were setting rules (apart from smoking related rules) to govern their children's behaviour. This was based on the respective measures used for the Year 6 and 10 surveys. While the actual questions differed between the two surveys <i>parental general rules</i> was intended to measure the extent to which rules were present, not the actual rules that parents had set.	High*, Medium, or Low

<sup>xlviii</sup> *Single* parent households were defined as households where only one parent and their children lived, *nuclear* defined as households where both parents reside. It was assumed that participants interpreted 'parents' as birth parents, however, some may include step-parents. Blended homes were defined as being extended as, the household may have different social dynamics compared to nuclear. Definition challenges associated with 'caregiver' meant that it was difficult to say whether this referred to step-parents, grandparents, nannys or all. It was therefore more consistent to define anyone who indicated 'caregiver' as living in an extended household. *Extended* households were defined as any household where at least one birth parent resided and where people other than their children (including step-parents) also resided. *Other* households were defined as any households where neither birth parents resided (e.g. living with relatives, foster families and adoptive families).

<sup>xlix</sup> Only used in the Year 6 and Year 10 comparative analysis.

**Table 3.2. Continued**

Source	Variable	Description	Measure
Yr 10 only	Rules against smoking	Based on a question about whether parents had set specific rules with their children about not smoking tobacco.	Yes* or No
	Anti-smoking expectations	Based on a question that measured whether parents would be upset if students were caught smoking.	Yes* or No
	Pocket money (NZ\$)	Amount of pocket money students reported they received in the last week.	0\$*, \$1 - \$20 or Over \$20
	Monitoring of Pocket money	A measure of whether students thought their parents knew what they were spending their pocket money on.	Yes* or No
	Rule enforcement and general monitoring	Based on two questions that measured whether parents knew where their children were when they were away from home and if they would get into trouble if they broke any important rules.	High*, Medium or Low
	Concern about Education	Based on two questions that measured whether parents expected their children to put aside time to do their homework and whether parents knew much about their child's life at school (including grades).	High*, Medium or Low
	Normative belief peer smoking	Perceived prevalence of smoking among children the same age as the participants.	Under half* or Half and over

A total of 16 variables were identified. However, during the preliminary stages of the analysis one of these variables, *parental monitoring of their child's unsupervised behaviour*, was removed as it appeared to have a colinear relationship with other variables and caused adjusted models to fail. The final analysis included these 15 variables in a adjusted logistic regression model. These variables included demographic factors, smoking related behaviours, family and parenting behaviours, school performance and engagement in Māori culture or religion. A full list of variables included in the Year 6 analysis is given Table 3.3.

**Table 3.3. Variables used in the Year 6 analysis**

Variable type	Variable
<i>Parental smoking socialisation</i>	Number of parents smoking Home SHS exposure Parental anti-smoking attitudes
<i>General parent behaviours</i>	Communication with parents Parent created rules
<i>Potential confounders</i>	Normative belief Smoking status of friends School performance Been to marae Likes Māori activities Visited place of worship Age School decile Gender Family structure

### Analysis

The key outcome of interest was *susceptibility to smoking*. Associations between the outcome and the 15 potential determinants were analysed using multiple logistic regression to produce odds ratios (ORs). All variables were adjusted for other variables included in the analysis and 95% confidence intervals were calculated for each OR.

### ***3.3.5.3 Potential determinants of smoking susceptibility: Year 6 students compared to Year 10 students***

As few Year 6 students smoke<sup>143</sup> the outcome measure for this analysis was susceptibility to becoming a smoker. Current smokers were excluded because they have, by definition, progressed beyond being susceptible to smoking.

#### **Potential determinants**

Three variables relating to parental smoking socialisation behaviours were common to both Year 6 and Year 10 Surveys: the number of parents who smoked; exposure to second-hand smoke (SHS) at home over the past seven days; and, parental anti-smoking attitudes. The latter variable was a new variable that was created to allow comparability between the Year 6 and 10 surveys. Two variables relating to more general parenting behaviours, pocket money and rule setting, were also identified. Both of these variables were created for the present analysis.

Similar to the Year 10 analysis other, non-parent related, variables that were available were treated as potential confounders.

#### **Analysis**

Variables that were measures of modifiable parental behaviours were defined as being determinants for the present study. The unadjusted and adjusted analysis process was the same as for the Year 10 specific analysis described above. First unadjusted odds ratios were calculated. Second demographic and parental variables were included. Forward stepwise logistic regression was used to identify and adjust for other potential confounding variables.

### ***3.3.5.4 Comparisons of variables selected for the three sets of analyses***

Table 3.4 presents all of the variables actually used in the three sets of analyses. While there were some differences in how variables were identified, comparisons indicate there were only relatively small differences between the analyses in the number and types of variables actually included (Table 3.4). Many of these differences can be attributed to the variables that were available for each analysis. Based on this observation it was not decided to repeat the Year 10 and Year 6

compared to Year 10 analyses using the refined method of variable selection used for the Year 6 analysis.

**Table 3.4. Variables used in the three sets of analyses<sup>1</sup>**

	Variable	Year 6	Year 10	Year 6 & 10
Yr 6 analysis only	Parental anti-smoking attitudes	✓		
	Communication with parents	✓		
	Parent created rules	✓		
	Normative belief	✓		
Variables used for the Year 6 and Year 10 comparative analysis	No. of parents smoking	✓	✓	✓
	Home SHS exposure	✓	✓	✓
	Smoking status of friends	✓	✓	✓
	Sibling smoking			✓
	School performance		✓	✓
	Been to marae		✓	
	Likes Māori activities	✓	✓	
	Visited place of worship	✓		
	Age	✓	✓	
	School decile	✓	✓	
	Gender	✓	✓	✓
	Family structure	✓	✓	
New variabl es <sup>iii</sup>	Ever smoked	✓		
	Parental anti-smoking attitudes			✓
	Pocket money			✓
Yr 10 analysis only	Parental general rules			✓
	Rules against smoking		✓	
	Anti-smoking expectations		✓	
	Pocket money (NZ\$)		✓	
	Monitoring of Pocket money		✓	
	Rule enforcement and general monitoring		✓	
	Concern about Education		✓	
	Normative belief peer smoking	✓		

<sup>1</sup> Shaded indicates variables that were forced in to the models for the Year 10 and Year 10 compared to Year 6 analyses, underlined indicates significant associations observed for at least one sample group.

<sup>ii</sup> May have been used in the Year 6 or Year 10 analyses.

<sup>iii</sup> Only used in the Year 6 and Year 10 comparative analysis.

### **3.4 Qualitative research: Smoking in the context of whānau and parenting**

The purpose of the qualitative research was to provide information to help interpret findings from the quantitative analysis, identify other potential determinants and provide insights into the contexts in which determinants might occur. The research focused on parental perceptions and experiences of how they might influence or discourage their children from smoking within a whānau context.

#### **3.4.1 Interpretative Phenomenological Analysis**

When selecting an approach for the qualitative analysis use of grounded theory was an obvious choice. Grounded theory aims to develop explanatory theories of social processes<sup>147</sup> and would have been aligned to the aims of this thesis. However, grounded theory was discounted for two reasons. First, because parents were the focus of the research and the outcome of interest was smoking uptake among their children,<sup>livi</sup> the actual outcome was abstracted from the parents own experience and therefore not ‘grounded.’ Second, grounded theory can be both time and resource intensive. Development of a grounded theory is an iterative process developed over consecutive interviews with periods of analysis in between. For practical reasons this was not possible as identification of participants was challenging and leant towards all interviews being conducted in a short period of time.

Interpretive Phenomenological Analysis (IPA) was identified as an alternative approach to grounded theory. This was because it focuses on how people make sense of their own lived experiences<sup>148</sup> and can be used to develop theories and models of health behaviours.<sup>149</sup> This is achieved through collection of information from participants own descriptions of phenomena, the contexts in which they occur and how people interpret them.<sup>150</sup> For example, in the present study IPA was applied to understanding parental interpretations of their smoking (phenomenon) and how it was seen as being unhealthy for themselves and their children (interpretation). A contextual factor for parents talking to their children about smoking was that some felt uncomfortable because they felt hypocritical as they were smokers themselves

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<sup>livi</sup> Planned for research with preadolescent children was not able to be carried out due to complexities in the sample recruitment process.

(context). IPA has been used previously with Māori participants in conjunction with kaupapa research methods to explore whānau experiences of tamariki (children) with asthma.<sup>151</sup> The authors of the study commented that because IPA is cognisant of the social and cultural context of participants it was an appropriate research method to use with Māori.

In line with an IPA approach four smoking related phenomena of interest were identified. These phenomena were stated as the aims for the study:

1. Smoking in the context of whānau
2. How parental smoking behaviours are interpreted in the context of being a parent.
3. How parents perceive their influence over whether their children smoke or not.
4. How parents link any perceptions of smoking to taking action to protect their children from smoking.

### **3.4.1 Participants**

Participants were purposively selected based on the criteria that they were parents or caregivers of Māori preadolescent children (aged 5 to 13) who smoked or had recently quit. Caregivers were included as many whānau situations can include foster children, whāngai,<sup>liv</sup> blended families and extended families. Parents or caregivers did not have to identify as Māori themselves, so long as their children had at least one biological parent who identified as Māori.

Seven parents and caregivers participated in the interviews, each from a different whānau (Table 3.5). Six participants were current daily smokers and one had recently quit. Four participants were biological mothers, two were biological fathers and one was an aunt who regularly cared for her nieces and nephews. Six participants identified as Māori and one as Pākehā. The Pākehā participant had Māori children to her Māori ex-partner and was still in regular contact with her ex-partner's whānau. To protect participant confidentiality their names have been changed in the research.

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<sup>liv</sup> Whāngai is a traditional adoptive practice usually within the wider whānau that continues today. Contemporary whāngai practice may be through formal adoption or informal agreement between biological parents and primary caregivers of a child.

**Table 3.5. Participant details**

Identifier	Ethnic ID	Relationship to children	Smoking status
Tūī	Māori	Mother	Daily smoker
Whio	Māori	Mother	Daily smoker
Kōkako	Māori	Father	Daily smoker
Takahē	Māori	Father	Recently quit
Kākāpō	Māori	Mother	Daily smoker
Kea	Māori	Aunt	Daily smoker
Kererū	Pākehā	Mother	Daily smoker

### 3.4.2 Research tools

A semi-structured, open ended interview schedule (Appendix C) was used to guide each interview. Questions were organised around four topic areas: the participant's whānau, their parenting, their smoking, and smoking and their children. Interpretive Phenomenological Analysis (described under procedure) techniques were used to guide the development of questions within each topic area. In general questions were designed to get participants to describe a phenomenon of interest (e.g. their smoking) and then to explore how they interpreted these phenomenon. Each interview was recorded.

### 3.4.3 Procedure

Participants were recruited using two methods. In the first method, a primary school that had relatively high numbers of Māori students in the greater Wellington region was invited to support the research. The school consented and agreed to send out invitation packs to a limited number of Māori parents whose preadolescent children were attending the school. The information packs contained an invitation letter, an information sheet (Appendix D) about the study, a form to indicate interest in participating in the study, and a self-addressed envelope. In the form to indicate interest, parents were asked to provide details of their name, telephone contact information and whether they were smokers. Three parents indicated interest to participate using the first method. However, due to personal circumstances one of these was unable to participate.

The second method involved inviting parents enrolled in a Māori language course who met the research selection criteria to participate in the study. Of those invited, four completed a form indicating their interest to participate. An additional participant was identified through personal networks.

All those people who indicated they were interested in participating in the study were contacted by telephone to arrange a time and place of their choosing to conduct the interview. Participants were asked to identify a location for the interview that was quiet and allowed them to answer freely. Most participants were interviewed in their own homes. In some instances participants were interviewed while looking after their children. This did not appear to affect the types of responses participants made, however at times the interviews were interrupted so that they could tend to their childrens' needs.

Prior to each interview starting participants were given an information sheet about the study (Appendix D) and asked to sign a consent form (Appendix E). The information sheet gave details about the purpose of the research, how information from their interviews would be used, who would have access to their information and assured confidentiality. Participants were able to refuse participation in the interview at any time.

The interviews used a semi-structured, open ended, interview schedule to guide the discussion (Appendix C). At the start of each new topic, participants were asked to describe the phenomenon of interest. Follow-up questions then explored how participants attached meaning to those phenomenon. The order of the 'phenomenon' explored was: whānau as a system, parenting, being a smoker, smoking and being a parent and smoking in the context of whānau.

Once the interviews were completed recordings were transcribed. In line with IPA analysis techniques each transcript was analysed consecutively. The first transcript to be analysed was read several times to ensure that the author was familiar with its content. The transcript was then transferred onto a three columned table. The interview conversation was recorded in the middle column. Notes on the conversation were made in the left hand column. These notes included reflections by the author on key points of interest in the interview, how participants described and interpreted these points and any associations with other parts of the interview. Once a

complete set of notes had been written key themes emerging from the notes were recorded in the right hand column. This process was repeated for the remaining six interviews.

When notes and themes had been documented for all the interviews themes from across the interviews were reviewed and organised according to common topics. Within each topic area over-arching themes were identified and other related themes organised as sub-headings.

The final stage was to write up the analysis according to the key themes. This included descriptions of ‘phenomenon’ and how they were interpreted. The process required constant referral back to the original transcripts to ensure the analysis was accurate.

### ***3.5 Development of an explanatory model of smoking uptake***

At the conclusion of the quantitative study (Chapter 4) and qualitative study (Chapter 5) chapters outcomes hierarchies were developed based on the research findings. Outcome hierarchies attempt to identify cause and effect relationships between behaviours, settings or states (outcomes) that lead to an overarching outcome of interest to occur (e.g. smoking uptake).<sup>152</sup>

As with the hierarchy presented for the literature review those presented for the qualitative and quantitative research were orientated around determinants of smoking uptake for a young person. Parental influences on uptake are seen as influencing a child’s decisions about smoking behaviour and described as potential determinants in the models. Chapter 6 synthesises the literature review, quantitative and qualitative outcomes hierarchies into a single, explanatory model for parental influences on smoking uptake. The process that was used to do this is described in Chapter 6

## **3.6 Ethics**

### **3.6.1 Qualitative analysis**

Two ethics applications were made to the University of Otago's Human Ethics Committee. The first was to undertake research interviewing preadolescent Māori children of parents who smoked. While this application was approved the research was abandoned due to complexities<sup>lv</sup> in recruiting sufficient numbers of participants.

The second application was to conduct the research with parents and caregivers who smoked and who had Māori children. Specific actions to ensure that the research was undertaken ethically are described in Section 3.4 and included provision of information sheets and consent forms to participants, ensuring that participants felt comfortable during the research process and removing identifying information from any reported material.

As part of the ethics application process documentation describing the thesis and studies described in the methods section were sent to the Ngāi Tahu Research Consultation Committee for approval.

### **3.6.2 Quantitative analysis**

The quantitative research did not require ethical approval as it was based on secondary data and there were pre-existing data sharing agreements between the University of Otago and the Health Sponsorship Council who held the data. The datasets used for the quantitative analysis had individual student and school identifying information removed.

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<sup>lv</sup> For example, three levels of consent were needed, at the school level, at the parent level and the participant level. Due to confidentiality requirements the author could not approach parents directly, rather participating schools sent letters to parents on behalf of the parents who were asked to mail a consent form to the author.

## **Chapter 4: Quantitative analysis of survey data**

The aims of the quantitative analysis were to determine whether:

1. Smoking specific parental behaviours were associated with smoking susceptibility and current smoking among Māori youth.
2. General parenting behaviours were associated with smoking susceptibility and current smoking among Māori youth.
3. Variables associated with parent related risk factors for smoking susceptibility or current smoking varied by age of Māori students.
4. Associations between parent related risk factors for smoking susceptibility or current smoking varied between Māori and non-Māori students.
5. Identification as Māori was an independent risk factor for smoking uptake.

To address these aims three sets of analyses were undertaken. Results from these analyses are presented in the following order: Year 10 specific results, Year 6 specific results and Year 10 compared to Year 6 results. This chapter concludes with a discussion of the results in relation to the aims and identification of key determinants to inform the explanatory model for parental influences on smoking uptake. Tables for the non-parental variables used for adjusting the data are prefixed with an “F” and presented in Appendix F.

### ***4.1 Potential determinants for smoking susceptibility and current smoking among Year 10 students***

This section reports findings from the analysis that was specific to the Year 10 dataset. For this analysis sub-sample sizes were sufficiently large to allow analysis of associations between parent related variables, smoking susceptibility and current smoking for Māori and non-Māori students.

### **4.1.1 Associations with current smoking**

#### *Parental smoking socialisation behaviours*

Table 4.1 presents findings of associations between parental smoking socialisation behaviours and current smoking. For Māori Year 10 students, three of the four smoking socialisation variables in the unadjusted analysis were significantly associated with current smoking (rules against smoking were not significant for Māori or non-Māori students). In the adjusted<sup>lvi</sup> analysis only SHS exposure (1 to 2 days adjusted odds ratio (aOR) 2.11, CI 1.10 to 4.06; above 2 days aOR 2.67, CI 1.47 to 4.84) and a lack of parental anti-smoking expectations (aOR 4.29, CI 2.49 to 7.37) remained significant.

The same pattern was found for non-Māori students where three smoking socialisation variables were significant in the unadjusted analysis but two, SHS exposure (1 to 2 days aOR 1.76, CI 1.04 to 2.97; above 2 days aOR 3.93, CI 2.49 to 6.21) and lack of anti-smoking expectations (aOR 3.00, CI 1.90 to 4.75) remained significant in the adjusted analysis.

Parental smoking was associated with current smoking in the unadjusted analysis but not found to be significantly associated in the adjusted analysis for either Māori or non-Māori students.

#### *General parenting variables*

Elements of all the general parental variables were found to be significantly associated with current smoking among Māori students in the unadjusted analysis. However, in the adjusted analysis only pocket money continued to be significant (\$1 to \$20 aOR 2.63, CI 1.17 to 5.90; more than \$20 aOR 2.26, CI 1.04 to 4.91). Lack of monitoring of pocket money (aOR 1.66, CI 0.98 to 2.81) was very close to being significantly associated with greater risk.

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<sup>lvi</sup> See footnotes to Table 4.1 for variables that the data were adjusted for.

**Table 4.1. Associations between parental behaviours and current smoking among Year 10 students**

Variable (n = all)		Māori n = 649 <sup>lvii</sup>		Non-Māori n= 2512 <sup>lviii</sup>	
		Unadjusted OR	Adjusted OR <sup>lx</sup>	Unadjusted OR	Adjusted OR <sup>lx</sup>
<i>Smoking socialisation</i>	<i>SHS exposure - Home</i>	0	1.00	1.00	1.00
		1 to 2 days	<b>3.08</b> <i>(1.82 to 5.22)</i>	<b>2.11</b> <i>(1.10 to 4.06)</i>	<b>3.17</b> <i>(2.12 to 4.75)</i>
		Above 2 days	<b>4.34</b> <i>(2.89 to 6.53)</i>	<b>2.67</b> <i>(1.47 to 4.84)</i>	<b>8.63</b> <i>(6.33 to 11.78)</i>
	<i>Rules against smoking</i>	Yes	1.00	1.00	1.00
		No	1.26 (0.88 to 1.79)	0.79 (0.48 to 1.29)	1.28 (0.98 to 1.68)
	<i>Anti - smoking expectations</i>	Yes	1.00	1.00	1.00
<i>General parent behaviours</i>		No	<b>4.66</b> <i>(3.21 to 6.76)</i>	<b>4.29</b> <i>(2.49 to 7.37)</i>	<b>5.12</b> <i>(3.86 to 6.79)</i>
	<i>No. of parents smoking</i>	0	1.00	1.00	1.00
		1	<b>1.57</b> <i>(1.01 to 2.42)</i>	0.71 (0.39 to 1.31)	<b>3.27</b> <i>(2.40 to 4.44)</i>
		2	<b>2.25</b> <i>(1.44 to 3.51)</i>	0.66 (0.34 to 1.29)	<b>4.90</b> <i>(3.41 to 7.04)</i>
	<i>Pocket money (NZ\$)</i>	0\$	1.00	1.00	1.00
		\$1 - \$20	<b>3.89</b> <i>(2.07 to 7.32)</i>	<b>2.63</b> <i>(1.17 to 5.90)</i>	1.37 (0.94 to 1.99)
		Over \$20	<b>3.93</b> <i>(2.12 to 7.26)</i>	<b>2.26</b> <i>(1.04 to 4.91)</i>	<b>3.33</b> <i>(2.30 to 4.82)</i>
	<i>Monitoring of Pocket money</i>	Yes	1.00	1.00	1.00
		No	1.28 (0.90 to 1.83)	1.66 (0.98 to 2.81)	<b>2.58</b> <i>(1.97 to 3.40)</i>
	<i>Rule enforcement and general monitoring</i>	High	1.00	1.00	1.00
		Medium	1.47 (0.99 to 2.20)	0.84 (0.48 to 1.46)	<b>2.09</b> <i>(1.55 to 2.82)</i>
		Low	<b>1.88</b> <i>(1.16 to 3.04)</i>	0.83 (0.40 to 2.01)	<b>2.90</b> <i>(1.96 to 4.29)</i>
	<i>Concern about Education</i>	High	1.00	1.00	1.00
		Medium	<b>2.02</b> <i>(1.37 to 2.99)</i>	1.42 (0.84 to 2.39)	<b>2.06</b> <i>(1.53 to 2.78)</i>
		Low	1.64 (0.98 to 2.76)	0.90 (0.40 to 2.01)	<b>2.18</b> <i>(1.43 to 3.32)</i>
					<b>0.48</b> <i>(0.24 to 0.98)</i>

<sup>lvii</sup> Unadjusted n = 589 to 649, adjusted n = 618.

<sup>lviii</sup> Unadjusted n = 2310 to 2512, adjusted n = 2220.

<sup>lx</sup> Adjusted for friend smoking, sibling smoking, family structure, been to a marae, demographic variables, and other smoking socialisation and general parenting behaviours.

<sup>lx</sup> Adjusted for friend smoking, sibling smoking, school performance, been to a marae, demographic variables, and other smoking socialisation and general parenting behaviours.

Apart from lower levels of pocket money (\$1-\$20 per week) all of the unadjusted general parental variables were associated with current smoking for non-Māori students. In the adjusted analysis receiving more than \$20 per week in pocket money (aOR 1.88, CI 1.17 to 3.03) and no monitoring of pocket money (aOR 2.16, CI 1.47 to 3.18) were associated with increased risk of current smoking. While low or medium parental concern about their child's education was also associated with increased risk in the unadjusted analysis (OR 2.18, CI 1.43 to 3.32) once adjusted this variable was associated with a reduced risk (aOR 0.48, CI 0.24 to 0.98).

Pocket money was the only general parenting variable associated with current smoking among Māori and non-Māori students (though lack of monitoring of pocket money was significant for non-Māori and close to being statistically significant for Māori).

#### *Non-parental variables*

Of the demographic variables used to adjust the data for Year 10 students (Table F4.1, Appendix F) females were at greater risk of being current smokers for both Māori and non-Māori students.

For Māori and non-Māori students friend smoking and sibling smoking were significant in the adjusted analysis. Of all the variables included in the analysis friend smoking was the most strongly associated with current smoking among both Māori and non-Māori students.

Of the school, family and Māori culture variables, living in a one parent family and attending a marae in the past month were significant for Māori students in the adjusted analysis. For non-Māori students school performance and attending a marae in the past month were significant.

#### **4.1.2 Identification as Māori and risk of current smoking among Year 10 students**

An aim of the secondary data analysis was to determine whether Māori students were at greater risk of being susceptible to smoking compared to non-Māori once other known risk factors had been adjusted for. To achieve this aim Māori and non-Māori students were analysed together and identification as Māori or non-Māori was added

as a variable to the unadjusted and adjusted analyses. Table 4.2 compares risk of being a current smoker between Māori and non-Māori Year 10 students. In the unadjusted analysis Māori Year 10 students were more likely to be a current smoker (OR 3.58, CI 2.88 to 4.46) but once adjusted for other factors there was no significant difference (aOR 1.27, CI 0.90 to 1.79).

**Table 4.2. Risk of current smoking Māori compared to non-Māori**

	Unadjusted OR (CI)	Adjusted OR <sup>lxii</sup> (CI)
Non-Māori	1.00	1.00
Māori	<b>3.58</b> <b>(2.88 to 4.46)</b>	1.27 (0.90 to 1.79)

#### **4.1.3 Associations with smoking susceptibility**

For this analysis the Year 10 sample was restricted to non-smoking students. To be classified as a non-smoker students must not have smoked a cigarette in the past month. Susceptibility to smoking was defined as any student who did not answer “definitely not” to the question “If one of your best friends were to offer you a cigarette, would you smoke it?” and “Do you think that you will smoke a cigarette in the next year?” Results for associations between parent behaviours and smoking susceptibility are presented in Table 4.3.

##### *Parental smoking socialisation behaviours*

For Māori students only SHS exposure and anti-smoking expectations were associated with smoking susceptibility in the unadjusted analysis. However, in the adjusted<sup>lxiii</sup> analysis neither of these variables remained significant but having one smoking parent was found to be associated with reduced risk of susceptibility (aOR 0.45, CI 0.23 to 0.88). In addition, having two parents who smoked (aOR 0.49, CI 0.23 to 1.04) was borderline not significantly associated with reduced risk of susceptibility.

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<sup>lxii</sup> Adjusted for smoking status of friends, smoking status of siblings, school performance, family structure, attendance at marae in past 30 days as well as demographic variables, parental smoking socialisation behaviours and other parenting behaviours included in model.

<sup>lxiii</sup> See footnotes to Table 4.3 for variables that the data were adjusted for.

For non-Māori students, all of the smoking socialisation variables were significant in the unadjusted analysis. Once adjusted SHS exposure for more than two days in the past week (aOR 1.53, CI 1.06 to 2.22), rules against smoking (aOR 1.40, CI 1.12 to 1.74), and anti-smoking expectations (aOR 1.69, CI 1.20 to 2.37) remained significant.

#### *General parenting variables*

For Māori students receiving over \$20 a week and medium rule enforcement/general monitoring were significant in the unadjusted analysis. In the adjusted analysis low levels of rule enforcement/general monitoring (aOR 2.35, CI 1.55 to 3.57) was significant. Lack of monitoring of pocket money was borderline not significant (aOR 1.67, CI 0.98 to 2.86). As neither of these variables were significant in the unadjusted analysis this suggests that the effect of the confounding variables was to weaken their associations with susceptibility in the unadjusted analysis. Notably pocket money was not significant in the adjusted analysis.

Among non-Māori students all of the unadjusted general parental variables were significantly associated with smoking susceptibility. Once adjusted some continued to be significant (pocket money \$1-\$20 aOR 1.51, CI 1.18 to 1.93; >\$20 aOR 1.47, CI 1.10 to 1.97; lack of monitoring of pocket money aOR 1.34, CI 1.06 to 1.07; low concern about education aOR 0.56, CI 0.34 to 0.91).

#### *Non-parental variables*

Non-parental variables used to control for any confounding are included in Table F4.3, Appendix F. Among Māori Year 10 students fewer non-parental variables were significant in the unadjusted analysis compared to the adjusted. This appeared to be the result of stronger associations and smaller confidence intervals in the adjusted analysis. One exception was for below average school performance where the non-significant unadjusted odds ratio (OR 1.53) reversed and became significant in the adjusted analysis (aOR 0.35).

**Table 4.3 Associations between parental behaviours and smoking susceptibility among current non-smoking Year 10 students**

Variable (n = all)		Māori n= 466 <sup>lxiii</sup>		Non-Māori n= 2251 <sup>lxiv</sup>		
		Unadjusted OR	Adjusted OR <sup>lxv</sup>	Unadjusted OR	Adjusted OR <sup>lxvi</sup>	
Smoking socialisation	<i>SHS exposure – Home</i>	0 1 to 2 days Above 2 days	1.00 <b>1.81</b> <b>1.73</b> ( <b>1.02 to 3.21</b> ) ( <b>1.13 to 2.67</b> )	1.00 1.38 1.26 (0.63 to 3.04) (0.67 to 2.37)	1.00 <b>1.83</b> <b>2.50</b> ( <b>1.40 to 2.40</b> ) ( <b>1.93 to 3.25</b> )	1.00 1.42 1.53 (0.99 to 2.04) ( <b>1.06 to 2.22</b> )
	<i>Rules against smoking</i>	Yes No	1.00 1.08 (0.74 to 1.57)	1.00 1.15 (0.69 to 1.92)	1.00 <b>1.51</b> ( <b>1.26 to 1.79</b> )	1.00 <b>1.40</b> ( <b>1.12 to 1.74</b> )
	<i>Anti to smoking expectations</i>	Yes No	1.00 <b>1.66</b> ( <b>1.06 to 2.60</b> )	1.00 1.42 (0.74 to 2.72)	1.00 <b>2.50</b> ( <b>1.95 to 3.19</b> )	1.00 <b>1.69</b> ( <b>1.20 to 2.37</b> )
	<i>No. of parents smoking</i>	0 1 2	1.00 1.21 (0.79 to 1.85)	1.00 <b>0.45</b> ( <b>0.23 to 0.88</b> )	1.00 <b>1.79</b> ( <b>1.44 to 2.22</b> )	1.00 0.97 (0.72 to 1.31)
	<i>Pocket money (NZ\$)</i>	0\$ \$1 to \$20 Over \$20	1.00 1.17 (0.71 to 1.93)	1.00 1.12 (0.58 to 2.15)	1.00 <b>1.28</b> ( <b>1.04 to 1.57</b> )	1.00 <b>1.51</b> ( <b>1.18 to 1.93</b> )
	<i>Monitoring of Pocket money</i>	Yes No	1.00 1.18 (0.81 to 1.72)	1.00 1.67 (0.98 to 2.86)	1.00 <b>1.79</b> ( <b>1.48 to 2.15</b> )	1.00 <b>1.34</b> ( <b>1.06 to 1.70</b> )
General parent behaviours	<i>Rule enforcement and general monitoring</i>	High Medium Low	1.00 <b>2.35</b> ( <b>1.55 to 3.57</b> )	1.00 0.70 ( 0.32 to 1.54)	1.00 <b>1.64</b> ( <b>1.36 to 1.99</b> )	1.00 1.45 (0.92 to 2.30)
	<i>Concern about Education</i>	High Medium Low	1.00 1.30 (0.84 to 2.00)	1.00 0.83 (0.47 to 1.49)	1.00 <b>1.54</b> ( <b>1.24 to 1.90</b> )	1.00 1.05 (0.81 to 1.36)
			1.00 1.34 (0.76 to 2.36)	1.00 1.37 (0.58 to 3.27)	1.00 <b>1.68</b> ( <b>1.22 to 2.32</b> )	1.00 <b>0.56</b> ( <b>0.34 to 0.91</b> )

<sup>lxiii</sup> Unadjusted n = 356 to 466, adjusted n = 439.<sup>lxiv</sup> Unadjusted n = 2076 to 2251, adjusted n = 2157.<sup>lxv</sup> Adjusted for ever smoked, friend smoking, normative beliefs about peer smoking, school performance, family structure, participated in Māori cultural activities, demographic variables, and other smoking socialisation and general parenting behaviours.<sup>lxvi</sup> Adjusted for ever smoked, friend smoking, school performance, demographic variables, and other smoking socialisation and general parenting behaviours.

In the adjusted analysis being female, an ever smoker, having friends who smoke and believing half or more of a students peers smoked were associated with increased risk of smoking susceptibility. Notably among these variables being an ever smoker was associated with eleven times the risk of being susceptible to smoking, while having friends who smoked was associated with three times the risk.

Being older, going to a low decile school, perceiving school performance to be below average, living in a single parent or “other” household and liking Māori activities were associated with decreased risk of smoking susceptibility among Māori students.

Fewer non-parent related variables were significant among non-Māori Year 10 students compared to Māori students. In the adjusted analysis being female, ever smoking, having friends who smoke, and having average or below average perceived school performance was associated with increased risk of smoking susceptibility. Similar to Māori Year 10 students, ever smoking had the strongest association with susceptibility, followed by friend smoking.

Being older or going to a low decile school were found to be associated with lower risk of smoking susceptibility among non-Māori students.

#### **4.1.4 Identification as Māori and risk of smoking susceptibility among Year 10 students**

Table 4.4 compares risk of smoking susceptibility between Māori and non-Māori Year 10 students. This analysis was similar to that conducted for current smoking where identification as Māori or non-Māori added as a variable to the unadjusted and adjusted analyses. Unadjusted findings indicated Māori students were significantly more likely to be susceptible to smoking (OR 1.63, CI 1.33 to 2.00). However, once adjusted identification as Māori was not associated with greater risk (CI 0.95, CI 0.73 to 1.24).

**Table 4.4. Risk of smoking susceptibility Māori compared to non-Māori**

	Unadjusted OR (CI)	Adjusted OR <sup>lxvii</sup> (CI)
Non-Māori	1.00	1.00
Māori	<b>1.63</b> <b>(1.33 to 2.00)</b>	0.95 (0.73 to 1.24)

## **4.2 Potential determinants for smoking susceptibility among never smoking Year 6 students**

This section reports findings from an analysis of the Year 6 dataset. Results from the analysis of associations between potential determinants of smoking uptake and smoking susceptibility among Year 6 never smokers are presented in Table 4.5.

### **4.2.1 Parental smoking socialisation behaviours**

Of the three smoking socialisation variables exposure to SHS at home for one to two days out of the past seven and the absence of parental anti-smoking attitudes were associated with increased risk of smoking susceptibility in the unadjusted analysis among Māori students. In the adjusted<sup>lxviii</sup> analysis exposure to SHS for one to two days remained significant (1-2 day's aOR 4.29, CI 1.71 to 10.74). Parental anti-smoking attitudes were borderline not statistically significant (OR 2.42, CI 0.99 to 5.92)

In comparison, only exposure to SHS for more than two days in the past seven days was significant for non-Māori students in the unadjusted analysis. None of the smoking socialisation variables were significant in the adjusted analysis.

Neither parental smoking nor parental anti-smoking attitudes were significantly associated with susceptibility for Māori or non-Māori students in the adjusted analysis.

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<sup>lxvii</sup> Adjusted for smoking status of friends, average school performance, past smoking, “other” family structure as well as demographic variables, parental smoking socialisation behaviours and other parenting behaviours included in model.

<sup>lxviii</sup> See footnotes to Table 4.5 for variables that the data were adjusted for.

## 4.2.2 General parenting variables

Medium and low levels of parent-child communication and parent created rules were significant for Māori students in the unadjusted analysis. In the adjusted analysis medium levels of communication were associated with at least a two fold increase in risk (aOR 9.61, CI 2.14 to 43.09) and low levels at least a three fold increase (aOR 18.32, CI 3.46 to 97.05).

Similar results were found for non-Māori students. Medium and low levels of communication and medium levels of parent created rules were significant in the unadjusted analysis. Communication continued to be significant in the adjusted analysis (medium aOR 4.42, CI 2.41 to 8.08, low OR 6.47, CI 3.23 to 12.96).

**Table 4.5. Associations between potential determinants of smoking uptake and smoking susceptibility among Year 6 never smokers**

Variable		Māori (n=348)		Non-Māori (n=1305)	
		Unadjusted OR (CI)	Adjusted OR <sup>lxix</sup> (CI)	Unadjusted OR (CI)	Adjusted OR (CI)
<i>No. of parents smoking</i>	0	1.00	1.00	1.00	1.00
	1	1.03 (0.51 to 2.12)	0.75 (0.30 to 1.89)	1.48 (0.99 to 2.21)	1.60 (0.95 to 2.71)
	2	1.26 (0.57 to 2.80)	1.40 (0.47 to 4.16)	1.13 (0.66 to 1.94)	0.94 (0.46 to 1.90)
<i>Home SHS exposure</i>	0	1.00	1.00	1.00	1.00
	1 to 2 days	<b>3.51 (1.65 to 7.48)</b>	<b>4.29 (1.71 to 10.74)</b>	1.01 (0.62 to 1.66)	0.84 (0.47 to 1.50)
	2+	1.26 (0.60 to 2.67)	0.48 (0.17 to 1.36)	<b>1.91 (1.25 to 2.92)</b>	1.29 (0.78 to 2.32)
<i>Parental anti-smoking attitudes</i>	Yes	1.00	1.00	1.00	1.00
	No	<b>2.28 (1.21 to 4.30)</b>	2.42 (0.99 to 5.92)	1.24 (0.87 to 1.76)	1.03 (0.69 to 1.53)
<i>Communication with parents</i>	High	1.00	1.00	1.00	1.00
	Medium	<b>4.92 (1.89 to 12.83)</b>	<b>9.61 (2.14 to 43.09)</b>	<b>4.16 (2.44 to 7.08)</b>	<b>4.42 (2.41 to 8.08)</b>
	Low	<b>12.04 (4.38 to 33.12)</b>	<b>18.32 (3.46 to 97.05)</b>	<b>7.66 (4.17 to 14.07)</b>	<b>6.47 (3.23 to 12.96)</b>
<i>Parent created rules</i>	High	1.00	1.00	1.00	1.00
	Medium	<b>2.62 (1.11 to 6.21)</b>	1.59 (0.70 to 3.57)	<b>2.55 (1.60 to 4.08)</b>	1.43 (0.95 to 2.15)
	Low	<b>2.63 (1.20 to 5.79)</b>	1.21 (0.29 to 5.05)	1.27 (0.82 to 1.99)	1.44 (0.51 to 4.08)

<sup>lxix</sup> In the adjusted analysis each variable was adjusted for all other variables in the model. Gender, parental smoking, general parent created rules, parental anti-smoking attitudes and normative beliefs about adult smoking were not found to be significantly associated with susceptibility to smoking.

#### **4.2.3 Non-parental variables**

A range of other, non-parent related variables were included in the analysis as potential confounders (Table F4.5). For Māori students smoking among friends, attendance at marae, liking Māori activities, and being exposed to an extended family structure were significantly associated with smoking susceptibility in the unadjusted analysis. In the adjusted analysis smoking among friends, average school performance liking Māori activities, visiting a place of worship in the past month and living in an extended family were associated with increased risk. Being 11 years old was associated with decreased risk.

For non-Māori students unadjusted results indicated having smoking friends and below average school performance were associated with increased risk, while visiting a place of worship was found to be protective. In the adjusted analysis below average school performance and attendance at marae were associated with increased risk. Visiting a place of worship and low school decile were found to be protective.

Apart from non-significant variables none of the non-parental variables included in the analysis were shared between Māori and non-Māori students. Notably visiting a place of worship was found to increase risk for smoking susceptibility among Māori students but decrease risk among non-Māori.

#### **4.2.4 Identification as Māori and risk of smoking susceptibility among Year 6 students**

Table 4.6 compares risk of Māori students being susceptible to smoking with non-Māori students after adjusting for other factors. For this analysis, identification as Māori or non-Māori was added as a variable to the analysis. Results indicated that Māori students were not significantly more likely to be associated with being susceptible to smoking (aOR 0.79, CI 0.52 to 1.22).

**Table 4.6. Risk of smoking susceptibility Māori compared to non-Māori**

Ethnic identification	Unadjusted OR (CI)	Adjusted OR <sup>lxx</sup> (CI)
Non-Māori	1.00	1.00
Māori	1.27 (0.90 to 1.82)	0.79 (0.52 to 1.22)

### **4.3 Potential determinants of smoking susceptibility: Year 6 students compared to Year 10 students**

This section reports findings on age related associations between smoking susceptibility and parental behaviours. The purpose of this analysis was to determine whether variables associated with smoking susceptibility varied by the age of the students. For Year 6 students the age range was 10 or 11 years old. For Year 10 students the age range was 14 or 15 years old.

Data were drawn from variables common to the Year 6 and Year 10 datasets. As there were relatively few current smokers among Year 6 students compared to Year 10 the samples were restricted to never smokers<sup>lxxi</sup> and the outcome of interest was smoking susceptibility. Specific findings for Māori students are reported first then for non-Māori. The section concludes with a comparison of age related associations between Māori and non-Māori students.

#### **4.3.1 Māori never smokers**

##### *Parental smoking socialisation behaviours*

For Māori Year 6 students exposure to SHS for one or two days in the past week and lack of parental anti-smoking attitudes were associated with smoking susceptibility in the unadjusted analysis (Table 4.7). In the adjusted<sup>lxxii</sup> analysis associations for these variables slightly increased and they continued to be significant (SHS 1 to 2 days aOR

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<sup>lxx</sup> Adjusted for smoking status of friends, below average school performance, visited marae in past 30 days as well as demographic variables, parental smoking socialisation behaviours and other parenting behaviours.

<sup>lxxi</sup> In the analysis in section 4.1 the current non-smoker sample included ever smokers.

<sup>lxxii</sup> See footnotes to Table 4.7 for variables that the data were adjusted for.

3.89, CI 1.68 to 8.99; lack of anti-smoking attitudes aOR 2.41, CI 1.14 to 5.07). Notably exposure to SHS for more than two days at home was not significant in the adjusted analysis. This suggests moderate levels of SHS exposure had a stronger affect on susceptibility than higher levels.

For Māori Year 10 students who had never smoked none of the smoking socialisation variables were associated with susceptibility in the unadjusted analysis. However, once adjusted having one parent who smoked was associated with reduced risk of being susceptible to smoking (aOR, 0.27, CI 0.08 to 0.90).

**Table 4.7. Māori never smoker associations between parental variables and smoking susceptibility for Year 6 and 10 students**

Variable		Year 6 Never smokers (n = 348 <sup>lxxiii</sup> )		Year 10 Never smokers (n = 167 <sup>lxxiv</sup> )	
		Unadjusted OR (95%CI)	Adjusted OR <sup>lxxv</sup> (95%CI)	Unadjusted OR (95%CI)	Adjusted OR <sup>lxxvi</sup> (95%CI)
<i>Smoking socialisation</i>	No. of parents smoking	0	1.00	1.00	1.00
	1	1.03 (0.51 to 2.12)	1.12 (0.48 to 2.59)	0.64 (0.25 to 1.60)	<b>0.27</b> <b>(0.08 to 0.90)</b>
	2	1.26 (0.57 to 2.80)	1.67 (0.56 to 5.01)	1.23 (0.49 to 3.12)	0.36 (0.09 to 1.41)
<i>7 day SHS exposure in home</i>	0	1.00	1.00	1.00	1.00
	1 to 2 days	<b>3.51</b> <b>(1.45 to 7.48)</b>	<b>3.89</b> <b>(1.68 to 8.99)</b>	1.75 (0.49 to 6.22)	2.38 (0.64 to 8.90)
	Above 2 days	1.26 (0.60 to 2.67)	0.90 (0.35 to 2.32)	2.07 (0.69 to 4.99)	2.77 (0.75 to 10.27)
<i>Parental anti-smoking attitudes</i>	Yes	1.00	1.00	1.00	1.00
	No	<b>2.28</b> <b>(1.21 to 4.30)</b>	<b>2.41</b> <b>(1.14 to 5.07)</b>	1.10 (0.10 to 6.47)	1.36 (0.13 to 14.19)
<i>General parent behaviours</i>	Pocket money	No	1.00	1.00	1.00
		Yes	1.37 (0.62 to 3.04)	1.42 (0.52 to 3.88)	0.94 (0.43 to 2.07)
<i>Parental general rules</i>	High	1.00	1.00	1.00	1.00
	Medium	<b>2.57</b> <b>(1.23 to 5.37)</b>	1.36 (0.65 to 2.82)	1.28 (0.64 to 1.45)	1.98 (0.73 to 5.37)
	Low	0.73 (0.08 to 7.55)	0.85 (0.17 to 4.27)	1.02 (0.32 to 3.27)	1.55 (0.36 to 6.67)

<sup>lxxiii</sup> Unadjusted n = 337 to 348, adjusted n = 319

<sup>lxxiv</sup> Unadjusted n = 149 to 167, adjusted n = 145.

<sup>lxxv</sup> Adjusted for friend smoking, school performance, demographic variables, and other smoking socialisation and general parenting behaviours.

<sup>lxxvi</sup> Adjusted for friend smoking, school performance, demographic variables, and other smoking socialisation and general parenting behaviours.

### *General parenting variables*

For Year 6 students medium parental general rules was the only variable associated with smoking susceptibility in the unadjusted analysis. Once adjusted neither of the general parental variables were associated.

Among Year 10 students neither of the unadjusted or adjusted general parental variables were associated with susceptibility.

### *Non-parental variables*

Smoking among friends was the only significant variable in the unadjusted analysis for Year 6 students (Table F4.7). In the adjusted analysis friend smoking was associated with at least eight times the risk of being susceptible to smoking compared to having no smoking friends. Average school performance was also associated with increased risk.

For Māori Year 10 never smokers none of the potentially confounding variables were associated with susceptibility. However, in the adjusted analysis smoking among friends was significantly associated.

## **4.3.2 Non-Māori never smokers**

### *Parental smoking socialisation behaviours*

Among non-Māori Year 6 students only SHS exposure for more than two days in the last week was significantly associated with smoking susceptibility in the unadjusted analysis (Table 4.8). In the adjusted<sup>lxxvii</sup> analysis none of the variables were associated.

For Year 10 non-Māori never smokers having any parents smoke and any exposure to SHS in the home were associated with smoking susceptibility in the unadjusted analyses. In the adjusted analysis none of the variables were associated.

### *General parenting variables*

Among Year 6 students medium or low parental general rules were associated with increased smoking susceptibility in the unadjusted analysis. Medium parent created rules continued to be associated in the adjusted analysis (aOR 1.56, CI 1.06 to 2.29).

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<sup>lxxvii</sup> See footnotes to Table 4.8 for variables that the data were adjusted for.

Having pocket money was the only general parental variable associated with susceptibility in both the unadjusted and adjusted analyses (aOR 1.55, CI 1.14 to 2.09) for Year 10 students.

**Table 4.8. Non-Māori never smoker associations between parental variables and smoking susceptibility for Year 6 and 10 students**

Variable		Year 6 Never smokers (n = 1305 <sup>lxxviii</sup> )		Year 10 Never smokers (n = 1429 <sup>lxxix</sup> )	
		Unadjusted OR (95%CI)	Adjusted OR <sup>lxxx</sup> (95%CI)	Unadjusted OR (95%CI)	Adjusted OR <sup>lxxxi</sup> (95%CI)
<i>Smoking socialisation</i>	No. of parents smoking	0	1.00	1.00	1.00
	1	1.48 (0.99 to 2.21)	1.41 (0.84 to 2.38)	<b>1.72</b> <b>(1.24 to 2.37)</b>	1.35 (0.90 to 2.03)
	2	1.13 (0.66 to 1.94)	0.76 (0.38 to 1.51)	<b>2.07</b> <b>(1.28 to 3.32)</b>	1.32 (0.71 to 2.46)
	7 day SHS exposure in home	0	1.00	1.00	1.00
	1 to 2 days	1.01 (0.62 to 1.66)	0.87 (0.49 to 1.56)	<b>1.63</b> <b>(1.10 to 2.43)</b>	1.39 (0.84 to 2.29)
	Above 2 days	<b>1.91</b> <b>(1.25 to 2.92)</b>	1.71 (0.96 to 3.05)	<b>2.00</b> <b>(1.32 to 3.03)</b>	1.64 (0.95 to 2.85)
	Parental anti-smoking attitudes	Yes	1.00	1.00	1.00
	No	1.24 (0.87 to 1.76)	1.23 (0.84 to 1.79)	1.76 (0.81 to 3.84)	1.76 (0.77 to 4.02)
	Pocket money	No	1.00	1.00	1.00
<i>General parent behaviours</i>	Yes	1.06 (0.73 to 1.54)	1.14 (0.77 to 1.70)	<b>1.41</b> <b>(1.07 to 1.85)</b>	<b>1.55</b> <b>(1.14 to 2.09)</b>
	Parental general rules	High	1.00	1.00	1.00
	Medium	<b>1.60</b> <b>(1.06 to 2.43)</b>	<b>1.56</b> <b>(1.06 to 2.29)</b>	1.17 (0.89 to 1.53)	1.24 (0.93 to 1.67)
	Low	<b>4.96</b> <b>(1.93 to 12.72)</b>	1.84 (0.73 to 4.68)	1.06 (0.69 to 1.63)	0.72 (0.36 to 1.45)

<sup>lxxviii</sup> Unadjusted n = 1252 to 1305, adjusted n = 1196.

<sup>lxxix</sup> Unadjusted n = 1299 to 1429, adjusted n = 1278.

<sup>lxxx</sup> Adjusted school performance, demographic variables, and other smoking socialisation and general parenting behaviours.

<sup>lxxxi</sup> Adjusted for friend smoking, demographic variables, and other smoking socialisation and general parenting behaviours.

### *Non-parental variables*

Of the non-parental variables used to adjust for potential confounding friend smoking and below average school performance were significant in the unadjusted analysis among Year 6 students (Table F4.8). Only below average school performance continued to be significant in the adjusted analysis.

For Year 10 students age, gender, friend smoking, sibling smoking and average school performance were significant in the unadjusted analysis. In the adjusted analysis being older, female, and having friends who smoke were significantly associated with greater risk of susceptibility. Low school decile was found to be protective of susceptibility.

### **4.3.3 Comparisons between Māori and non-Māori students by school year**

Table 4.9 summarises and compares findings from tables 4.7 and 4.8.

#### *Parental smoking socialisation behaviours*

For Māori students SHS exposure in the home and parental anti-smoking attitudes were associated with increased smoking susceptibility for Year 6 students, while having one parent who smoked was associated with decreased risk for Year 10 students. In comparison, no smoking socialisation variables (and therefore no age related associations) were significant for Year 6 or Year 10 non-Māori students.

#### *General parenting variables*

Of the two general parental variables included in the analysis neither were significant for either Year 6 or Year 10 Māori students. In contrast parental general rules were associated with increased risk for Year 6 non-Māori students and pocket money was associated with increased risk for Year 10 students, suggesting age related associations.

#### *Non-parental variables*

Only school performance was shared between Māori and non-Māori students (Table F4.9). For Māori and non-Māori students school performance was significantly associated with smoking susceptibility among Year 6 students but not included as a variable in the forward stepwise regression model for the Year 10 analysis (and

therefore not a significant variable). While friend smoking was significant for both Māori and non-Māori Year 10 students, it was only significant for Māori Year 6 students and therefore any age trends were not shared. Of the remaining variables none were significant for Māori students. However, there appeared to be a trend of demographic variables (age, gender, school decile) becoming significant as non-Māori students transitioned to becoming adolescents.

**Table 4.9. Year 6 and Year 10 comparisons<sup>lxxxii</sup> by age for parental factors associated with smoking susceptibility**

Variable		Māori Yr6/Yr10		Non-Māori Yr6/Yr10	
		Yr 6	Yr 10	Yr 6	Yr 10
<i>Smoking socialisation</i>	<i>No. of parents smoking</i>	0	-	-	-
		1	↑NS	↓S	↑NS
		2	↑NS	↓NS	↓NS
	<i>7 day SHS exposure in home</i>	0	-	-	-
		1 to 2 days	↑S	↑NS	↓NS
		Above 2 days	↓NS	↑NS	↑NS
<i>General parent behaviours</i>	<i>Parental anti-smoking attitudes</i>	Yes	-	-	-
		No	↑S	↑NS	↑NS
	<i>Pocket money</i>	No	-	-	-
		Yes	↑NS	↑NS	↑NS
	<i>Parental general rules</i>	High	-	-	-
		Medium	↑NS	↑NS	↑S
		Low	↓NS	↑NS	↑NS

Key:

- = reference variable
- NS = Not Significant
- S = Significant (in bold)
- ↑ = Associated with increased risk of smoking susceptibility
- ↓ = Associated with decreased risk of smoking susceptibility

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<sup>lxxxii</sup> Comparisons only made for adjusted variables.

## **4.4 Discussion**

This section discusses the findings of the analysis according to the aims of the quantitative analysis, study limitations and concludes with identifying potential determinants to be included within the explanatory model that is developed in Chapter 6 of this thesis.

### **4.4.1 Smoking specific parental behaviours and smoking uptake**

Parental smoking socialisation behaviours were associated with smoking susceptibility for Māori Year 6 and Year 10 students and current smoking for Year 10 students. For Māori Year 6 students exposure to SHS was significantly associated with smoking susceptibility. Given a larger sample (in comparison to the non-Māori sample) an absence of parental anti-smoking attitudes may have also been associated. SHS exposure in the home and parental anti-smoking attitudes were also associated with current smoking for Māori Year 10 students. These results are supported in the New Zealand and international literature<sup>44 74 98</sup> and may be associated with a range of smoking socialisation behaviours. For example, SHS exposure may be a source of role modeling of smoking behaviours as well as provide opportunities to access tobacco. Anti-smoking attitudes may be a precursor to banning smoking inside homes.

Notably parental smoking was not significantly associated with increased risk of current smoking or smoking susceptibility for Year 6 or Year 10 Māori students (as well as non-Māori students) in the fully adjusted analysis. This finding is contrary to most prevailing evidence.<sup>21-22</sup> The authors of a United States cross-sectional study<sup>86</sup> that produced similar findings as those presented here, suggested that their findings may have been due to adjustment for parenting and other smoking related variables not included in previous studies. It is possible that the comprehensive adjustment for confounding variables in the present study accounted for non-significant results also. If this was the case this would imply that any relationships between parental smoking and uptake, if present, may be due to associations of parental smoking with other factors which are the actual determinants (e.g. through increased likelihood of SHS exposure). However, based on the weight of existing evidence, supporting parents to quit smoking remains an important strategy for reducing uptake. Encouragingly for

those parents and caregivers who find they are unable to give up smoking, these findings suggest that there are other behaviours that they can modify or carry out to help protect their children from taking up smoking (e.g. not letting people smoke in homes).

In contrast to many studies identified in the literature review having one parent who smoked was found to be associated with less risk of smoking susceptibility compared to having no parents who smoked for Māori Year 10 students, and there was a close to significant protective effect of having two smoking parents on smoking susceptibility. This finding seems counter-intuitive and was not present for current smoking. As such it would be interesting to investigate this further in additional studies to see if the finding is replicated. If this is a true association, a possible explanation for this is that by Year 10 (adolescent) students who are not already smoking may have developed strong opinions about not smoking (and therefore not being susceptible to smoking). These opinions may be further reinforced by observing the impacts of smoking on their parent. In addition, adolescence is often characterised as a time when children seek to develop their own identity independent to that of their parents. In this context parental smoking may act as a catalyst to not wanting to smoke as young people seek to adopt behaviours that are unlike their parents.

#### **4.4.2 General parenting behaviours and smoking uptake**

General parenting behaviours were also found to be associated with smoking susceptibility for Māori Year 6 and Year 10 students and current smoking for Year 10 students. Among Year 6 students poorer parent-child communication had the strongest associations with smoking susceptibility of all the parental and non-parental variables for Māori students. Lack of parent-child communication has also been associated with smoking uptake in international studies<sup>67</sup> and could be an important precursor to other parenting behaviours, such as rule setting (i.e. poor communication patterns may make it difficult to set and enforce any rules).

For Māori Year 10 students receiving pocket money was associated with current smoking but not smoking susceptibility. Associations between pocket money and current smoking have been found in previous studies.<sup>44 60 87</sup> A limitation of studies, including the present, investigating the association between receiving pocket money and smoking uptake are that they have predominantly been based on cross-sectional

data. As a result it is unclear whether increased pocket money is a determinant of smoking uptake or whether smoking uptake is a determinant of pocket money. There are plausible explanations to explain relationships in both directions. For example, increased pocket money may afford an adolescent greater choice in what they can spend their pocket money on and this choice may broaden to include tobacco. Conversely as an adolescent becomes more addicted to tobacco they may seek more pocket money to provide a secure means of purchasing a regular supply of tobacco to support their growing addiction. An absence of an association with smoking susceptibility lends some support to the latter explanation. If this is the case then reducing pocket money or better monitoring of how pocket money is spent could act to reduce a young person's ability to buy tobacco.

In addition to receiving pocket money, a lack of parental monitoring of pocket money expenditure was borderline not statistically significantly associated with current smoking and significantly associated with smoking susceptibility. Rule enforcement and general monitoring was also associated with smoking susceptibility. Measurement of parental monitoring of pocket money expenditure appears to be unique to the Health Sponsorship Councils Year 10 In-depth survey and no existing literature was identified that explored similar concepts with uptake. However, literature on more general parental monitoring behaviour suggests that high levels of monitoring is protective of uptake.<sup>73</sup> In any case, if a lack of parental monitoring of pocket money expenditure precedes smoking susceptibility this would indicate that such parental behaviour acts as a deterrent to smoking.

#### **4.4.3 Comparisons of parent related risk factors for smoking susceptibility by age**

No smoking socialisation variables were common between Māori Year 6 and Year 10 students in either the unadjusted or the adjusted analyses. SHS exposure in the home (for 1 to 2 days but not > 2 days in the previous week) and lack of parental anti-smoking attitudes were associated with increased risk of smoking susceptibility among Year 6 students. In comparison having one parent who smoked was found to be protective for Year 10 students. Among the two general parental variables included in the analysis neither were significant for Year 6 or Year 10 students.

Taking up smoking is seen as a complex process where different factors may interact at different stages of the uptake process to influence progression onto the next stage.<sup>30</sup> Accordingly there may be differences in which factors influence uptake progression in relation to age. In terms of interpreting the findings of the present study, it is plausible that exposure to SHS in homes and the wider whānau acts to normalise smoking behaviours. This may act to increase smoking susceptibility among impressionable preadolescent children who take role modelling cues from those in their immediate environment (e.g. whānau). In the case of an adolescent who is not a smoker there may be a reverse effect where, as they seek to build a sense of identity, they actively reject parental influences (in this case smoking). Hence smoking among parents is associated with reduced susceptibility. However, such an association needs to be confirmed in further studies. The lack of a clear association between both parents smoking and increased susceptibility in Māori Year 10 students, and the lack of any association with parental smoking among non-Māori students suggests these findings should be treated with caution.

#### **4.4.4 Comparisons of parent related risk factors between Māori and non-Māori students**

Both similarities and differences in parent related risk factors for smoking uptake were observed between Māori and non-Māori students.

No associations of parental smoking socialisation with smoking susceptibility were common to both Māori and non-Māori Year 6 or Year 10 students for smoking susceptibility (apart from non-significant associations). For Māori Year 6 students only 1 to 2 day SHS exposure was significant while no smoking socialisation variables were significant for non-Māori. For Year 10 students SHS exposure, rules against smoking and anti-smoking expectations increased risk of smoking susceptibility for non-Māori students, while having one parent who smoked was protective for non-Māori. In contrast the associations between parental smoking socialisation variables and current smoking (SHS exposure at home and parental anti-smoking expectations) were shared between Year 10 Māori and non-Māori students.

These findings suggest that smoking socialisation behaviours, or at least those included in the present analyses, could focus on the same determinants for reducing current smoking among both Māori and non-Māori youth. It is likely that greater

exposure to these determinants is a cause for higher levels of smoking uptake for Māori youth. Therefore, interventions targeting smoking socialisation determinants should be tailored to be effective for Māori audiences. In the context of reducing smoking susceptibility interventions to address smoking socialisation could be exclusively tailored for Māori if, as results suggest, none of the smoking socialisation determinants are associated with susceptibility among non-Māori.

For the general parental behaviours poor parent-child communication was associated with increased susceptibility for both Year 6 Māori and non-Māori students. Among Year 10 students lack of monitoring of pocket money expenditure was a risk factor for increased smoking susceptibility for Māori and non-Māori students for associations with smoking susceptibility. Having pocket money was a common risk factor for current smoking among Māori and non-Māori Year 10 students, while lack of monitoring of pocket money and lack of concern about education were risk factors for current smoking specific to non-Māori students. Many of the general parenting risk factors were shared between Māori and non-Māori students. This suggests that, similar to smoking socialisation, the same determinants could be targeted for Māori and non-Māori youth while ensuring that interventions are tailored for Māori needs.

Of the findings described above, perhaps most surprising was the absence of associations between known risk factors and smoking susceptibility or current smoking among non-Māori students (e.g. parental smoking) as these associations had already been established in the literature. One reason for this is that there may be unique factors affecting smoking uptake in New Zealand. Alternatively, differences in methods for analysing the data, as discussed in relation to non-associations with parental smoking and uptake discussed in the previous section, may explain the lack of association between parental smoking and smoking uptake.

#### **4.4.5 Identification as Māori and smoking uptake**

Once adjusted for potential confounding variables, identification as Māori was not associated with greater risk of being susceptible to smoking compared to non-Māori. Within the limitations of the present study this lends support to known risk factors being the main cause of smoking uptake for Māori students. Significant associations in the unadjusted analysis were only found for Year 10 students. This also suggests that these known risk factors may only be present among older, adolescent youth.

Nichter<sup>153</sup> described three ways in which ethnicity has been used in smoking research. The first was as a label to explore possible roles of biological influences/differences. The second as a proxy for a bundle of social and economic factors that are associated with a certain group of people. Nichter comments that such proxy measures are usually used where a group of people have had little influence over their socio-economic position as a result of a history of discrimination or oppression

The third way of using ethnicity was described as a means to determine whether distinctive characteristics of an ethnic group's 'culture' protect or expose them to specific types of risk. The author suggested tobacco research around ethnicity has tended to foster an analysis of difference, where ethnicity is treated as a risk factor. He compared this type of research to treating ethnicity as a risk marker. In this context he suggested that studies should only look at cultural difference after other factors had been discounted.

Based on Nichter's critique findings from the present study challenge the use of ethnicity variables, particularly in relation to indigenous peoples, as an independent risk factor in studies of smoking uptake. Such use tends to treat ethnicity as the problem and implies that the risk lies within biological or cultural traits ascribed to indigenous peoples. Instead, findings suggest that identification as Māori signals a risk marker where, in the case of uptake, youth may be at greater risk of being exposed to a range of influences on smoking uptake.

#### **4.4.6 Non-parental related factors**

Variables that were associated with increased risk of smoking susceptibility or current smoking among Māori students were smoking among friends, school performance, being female, sibling smoking, attending a marae in the past month and ever smoking. Smoking among friends and those analyses where ever smoking was measured were observed to have the strongest associations. Variables that were associated with decreased risk of smoking susceptibility or current smoking were being older in a given class year and attending a low decile school.

As these factors are likely to affect the way parent focused interventions are implemented and the impacts they have, it is important that they are taken into account as part of any intervention planning processes.

#### **4.4.7 Study strengths and limitations**

Key strengths of the study reported in this section were that it was based on large, representative samples of students and included reasonable sub-samples of Māori students. The latter enabled detailed analysis that does not appear to have been undertaken previously in New Zealand or with other indigenous peoples internationally. The response rates for the surveys, in particular for the Year 10 Surveys, were good and comparable to school surveys undertaken internationally. This suggests that any potential biases as a result of sample selection were minimised. A final strength was that surveys from which the data were drawn were primarily focused on smoking behaviours. Therefore, a comprehensive range of relevant variables were available as potential parent related determinants or confounders for the analysis.

As with any study using cross-sectional data a key limitation of the present research was that no temporal relationships could be established between those variables identified as potential risk or protective factors and current smoking or smoking susceptibility. As a result it is possible that in some cases the direction of causality is in the opposite direction with potential risk factors being outcomes and the outcomes identified in the research being risk factors.

A common problem with studies that take a sample from a population of interest is lack of statistical power, particularly if comparisons between sub-groups are sought. This has been identified as a particular issue for studies comparing data from Māori and non-Māori samples in national health surveys.<sup>154</sup> The samples from the in-depth surveys used for the quantitative data were based on a two stage cluster design that attempted to approximate a random sample for the New Zealand youth population. As a result the proportion of Māori students in the sample was reflective of Māori in the student population and substantially smaller than the non-Māori sample. As discussed in the method section this decreased the statistical power of the analysis of the Māori sample because it was smaller than the non-Māori sample (see section 3.3.4.1). An example of the potential effect of this was that variables found to be significant for non-Māori students may not have been found to be significant for Māori. Smaller sample sizes affected the ability to conduct sub-analyses within the Māori sample as often the sub-sample sizes became very small. For the present thesis

population attributable risk percent<sup>lxxxiii</sup> (PAR%) calculations had to be abandoned because small sample sizes meant that PAR% confidence intervals were too large to allow meaningful interpretations.

A solution to differences in statistical power is to ensure population surveys that include Māori and non-Māori samples have equal explanatory power (mainly through collecting similar sample sizes).<sup>154</sup> In the context of two stage cluster design school based surveys, establishing the same sample sizes may be challenging to achieve. This is because the process required to select schools, classes and Māori student oversamples may prove more resource intensive than increasing the Māori and non-Māori samples as a whole. An alternative would be to increase the Māori sample size to a desirable threshold where statistical power could allow meaningful comparisons with non-Māori, and appropriate sub-group analyses within the Māori sample.

A further limitation of the present study was that it was based on opportunitistically available variables derived from existing surveys. While attempts were made to ensure the variables were relevant and only those that were necessary were included in the analysis there was a danger that some of the analysis were ‘over-adjusted’. For example, some variables may have been intermediary (or mediating) variables lying on a causal pathway between a potential parent related determinant and smoking uptake. In such cases adjusting for these variables would (inappropriately) reduce the observed association of the potential determinant of interest with the outcome. Some attempts were made to account for this in the Year 6 analysis where only variables identified in the literature or that had a plausible link to smoking susceptibility were included. An improved design would be to use a theory driven approach to develop survey measures from the outset that attempted to test a hypothesised model of parental influence. Such an approach would limit the number of variables included and thereby reduce the likelihood of producing spurious results. In addition, limiting the number of variables included in adjusted analysis can increase statistical power, particularly where there are high numbers of missing variables with substantial missing data.

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<sup>lxxxiii</sup> This is a figure that represents the percent of the incidence (or in the case of cross-sectional studies, prevalence) of an outcome that is due to being exposed to a given determinant.

During the course of the analyses a number of unadjusted associations were observed to strengthen (either with increased risk or increased protection) in the adjusted analyses. Such observations were unexpected as normally associations between variables tend to weaken during the adjustment process. For example, associations between lower parent-child communication and smoking susceptibility for Māori Year 6 students were observed to strengthen between the unadjusted and adjusted analyses. Similarly, monitoring of pocket money expenditure strengthened for Māori Year 10 students.

Causes of these types of unexpected associations could be due to chance. Alternatively they could represent programming errors that occurred during the analysis. However, commands used for the analysis were carefully reviewed and no errors were found. Another explanation is that unexpected findings may reflect the relatively small evidence base in relation to models of parental influence on smoking uptake, particularly among Māori. In this explanation the findings may reflect, for example, previously unknown mitigating effects of some confounding variables.

#### **4.4.8 Key determinants identified from the quantitative study**

Table 4.10 summarises key findings from the secondary data analysis in relation to potential determinants that were associated with increased risk or were protective of current smoking or smoking susceptibility. From this table it is evident that while a number of variables that were included in the analyses were not significant, some were. Significant variables represented both parental smoking socialisation behaviours and general parenting behaviours.

Similar to the summary of key findings from the literature review, significant variables for Māori youth have been presented as an outcomes hierarchy orientated around parent related determinants for smoking uptake (Figure 4.1). The hierarchy presented in Figure 4.1 assumes parent related behaviours identified as significant were causally related to current smoking and/or smoking susceptibility.

**Table 4.10. Variables associated with current smoking or smoking susceptibility among Year 6 or Year 10 students**

Parental variable		Year 6		Year 10		Yr 6 & 10	Yr 6 & 10
		Māori	Non-Māori	Māori	Non-Māori	Māori	non-Māori
Smoking socialisation	7 day SHS Exposure	<b>Risk</b>	NS	<b>Risk</b>	<b>Risk</b>	<b>Risk</b>	<b>Risk</b>
	No rules against smoking	NM	NM	NS	<b>Risk</b>	NS	<b>Risk</b>
	No parental anti-smoking expectations	NM	NM	<b>Risk</b>	<b>Risk</b>	<b>Risk</b>	<b>Risk</b>
	Parental smoking	NS	NS	<b>Protective</b>	NS	<b>Protective</b>	NS
	No parental anti-smoking attitudes	<b>Risk<sup>(SS*)</sup></b>	NS	NM	NM	<b>Risk</b>	NS
General parenting	Pocket money	NS	NS	<b>Risk</b>	<b>Risk</b>	<b>Risk</b>	<b>Risk</b>
	Monitoring of pocket money	NM	NM	<b>Risk<sup>(CS*)</sup></b>	<b>Risk</b>	<b>Risk</b>	<b>Risk</b>
	Lower concern about education	NM	NM	NS	<b>Protective</b>	NS	<b>Protective</b>
	Low rule enforcement & general monitoring	NM	NM	<b>Risk</b>	NS	<b>Risk</b>	NS
	Low communication with parents	<b>Risk</b>	<b>Risk</b>	NM	NM	<b>Risk</b>	<b>Risk</b>
	Low parental general rules	NS	<b>Risk</b>	NS	NS	NS	<b>Risk</b>

CS\* Almost significantly associated with current smoking

SS\* Almost significantly associated with smoking susceptibility

NS Not found to be statistically significant

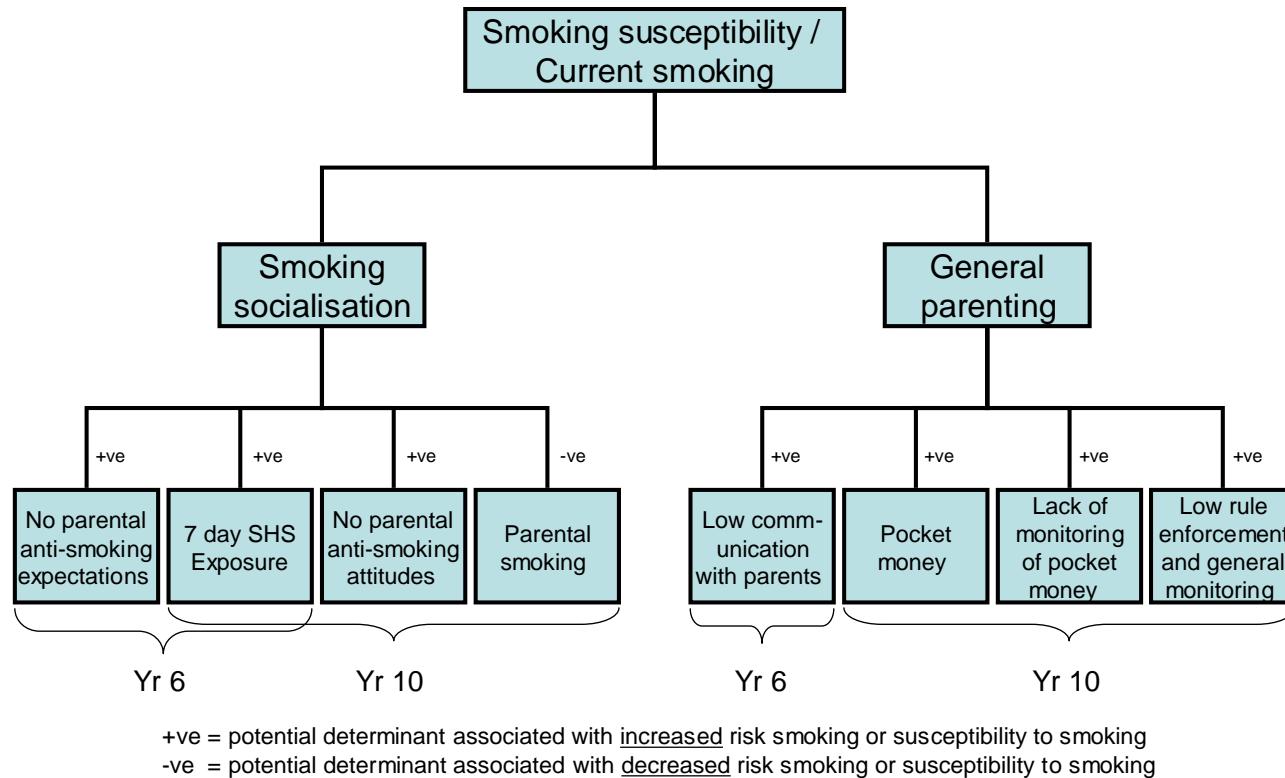
NM Variable not measured in the study

In the model, four determinants related to parental smoking socialisation are identified. Of these one (no parental anti-smoking expectations) is specific to Year 6 students, one (seven day SHS exposure in the home) is common to Year 6 and Year 10 students, and two are specific to Year 10 students (no parental smoking attitudes and parental smoking as being protective of uptake).

One determinant related to general parenting (low parent-child communication) was specific to Year 6 students, while the remaining three (having pocket money, monitoring of pocket money expenditure and low rule enforcement and general monitoring) were specific to Year 10 students.

Distinctions between potential determinants linked to Year 6 students and determinants linked to Year 10 students, suggest that interventions should be tailored for each group. To reduce complexity, specific linkages to current smoking or smoking susceptibility have been omitted from the model. However, interventions targeting preadolescents (Year 6 students) should be seen in the context of reducing smoking susceptibility. While interventions targeting adolescents can be seen in the context of reducing smoking and smoking susceptibility as well as more advanced stages of the smoking uptake (i.e. current smoking).

The determinants described in the model were used to inform the development of the explanatory model described in Chapter 6.



**Figure 4.1. Potential determinants for smoking uptake among Māori students: Quantitative study findings**

## **Chapter 5: Qualitative analysis of interviews with parents**

This section describes results from in-depth qualitative interviews with parents and caregivers of Māori preadolescent children. The aims of the study were to better understand:

1. Relationships between whānau makeup and values and parental influences on smoking uptake.
2. Parental perceptions in relation to affecting determinants of smoking uptake.
3. Determinants of parental action to prevent children from smoking.
4. Insights into parent related risk factors for smoking uptake.

The analysis was conducted around the four phenomena of interest for this study: the overarching whānau system; parenting; smoking; and parenting and smoking. An analysis of participant discussions in relation to each of these phenomena is presented in this section. At the end of this section key themes are discussed that contributed to the development of the explanatory theory described in the last chapter of this thesis.

To maintain confidentiality participant names have been replaced with the names of native New Zealand birds Kākāpō, Kōkako, Kea, Takahē, Kererū, Tūī, and Whio.

## 5.1 The whānau system

*I just love my whānau and I come from a split family so when they are all together I really like it and celebrate it. (Kākāpō)*

The purpose of exploring whānau systems was to better understand contextual influences on parenting. Participants were asked to describe their whānau, who the key decision makers were and reflect on whānau values in the context of an occasion when their whānau came together. Most of the participants described their immediate whānau as crossing a number of households that included their own or their partner's mothers, fathers, aunts, and siblings. One participant was whāngai and they described both their birth relatives and adoptive relatives as being whānau members:

*My birth family originated from Whakatāne, they stay in Whakatāne. My adopted parents were in Gisborne. But I treat them all the same and they are of equal importance, it's just the ones I grew up with I am a bit closer to. (Tūī)*

Proximity was linked to participants describing close whānau as including people who did not live in their household. For example, Kea described a number of wider whānau members who lived locally:

*Mum's in Brisbane [Australia]. Dad lives here in Pōrirua. So regularly in contact, at least once a week ... So yeah, we're all pretty close. I see my older sister and her four children who are in the age range we're looking at two or three times a week. (Kea)*

Similarly descriptions of less extended whānau were linked to situations where participants had fewer relatives who lived close to them.

*I don't really [have regular contact with wider whānau] because most of them don't live in the area. I see my in-laws. (Kōkako)*

Some participants discussed how living away from their tūrangawaewae,<sup>lxxxiv</sup> with only weak links to those whānau members who still lived there, affected their sense of Māori identity. A loss of identity was seen as a cause of dysfunction within whānau.

*...on my Dad's side as I said, I'm third generation so he moved down and didn't know that side of his family and so we didn't get to know it. So that's the hard bit having to find that. I think with that generation moving down to Pōrirua from their whenua they've lost their identity, which has meant that we are experiencing a lot of dysfunction in our whānau at the same time. (Kea)*

The make up of whānau members living within the research participant households was diverse and there was no one household archetype. Household make-up included single parent whānau, blended whānau, biological whānau and couples with nephews living with them.

### 5.1.2 Whānau values

Participants were asked to describe a recent event when their whānau had been together and reflect upon the values underpinning the process of coming together. Three core values emerged from their descriptions: manaakitanga - caring for others; whānaungatanga: ensuring that whānau are connected; and focusing on children as central to whānau. Concepts of manaaki were discussed in the context of caring for people who attended whānau events, particularly in relation to being fed and having a place to sleep.

Family events were seen as an important means of reinforcing connections between whānau members. Some participants discussed the importance of whānau coming together, not just for tangi, but for other reasons as well.

*Just getting together was the most important thing for us. The last time before that was a tangi - of course where all the whānau comes together, that's not sort a place you really want to meet each other again, it's certainly a better note than a sadder... (Kōkako)*

*So yeah values of whānaungatanga. Keeping strong together. (Kea)*

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<sup>lxxxiv</sup> A place often associated with marae where a person has specific connection, rights and belonging through kinship and common ancestry.

Closely related to whānaungatanga was a perception that children were a focus of whānau. This included providing opportunities for children to link and build relationships with other members in their wider whānau.

Daily decision making in relation to children was generally seen as being the responsibility of participants and their partners. Where a child's biological parents had separated participants often reported they both shared decision making for the welfare of their children.

Some participants commented that they played a decision making role in their wider whānau or that other whānau members could play a role in decision making within their household. An example of the former was where a participant saw themselves as playing a linking role in their whānau:

*...because I've been close on both sides of my family and I've got siblings that have separated from either one of them - you know, one side of the family - so I drive a lot of the decisions in our whānau. (Kea)*

Kōkako discussed how sometimes for serious events related to his older son he would ask his sister (his son's aunt) to help with decisions. This appeared to be because he felt she was better at being strict and his son listened to her.

*He [participant's older son] listens more to his aunty, who is a lot stricter, not to say he doesn't listen to us, when she comes down she'll lay the laws down more than us. We're maybe a bit too easy and let him get away with a bit too much. (Kōkako)*

## **5.2 Parenting**

*...it's all about when they leave me to go out into the world I am hoping that they are educated enough in most areas of their life to be able to take care of themselves. So that was my goal with bringing up my girls. (Tūī)*

### **5.2.1 Parenting values**

Participants were asked to describe what was important to them in the way they raised their children. Themes that emerged from the discussions related to ensuring that children were healthy and safe, felt loved and supported, could communicate openly with their parents, and were connected to their wider whānau and communities. Being safe at home and in their communities was often identified as most important. Safety was also discussed in the context of developing social skills to help children take care of themselves as they grew older and became more independent.

*Trying to teach them life skills, making them aware of themselves as well as others that come into their lives. Mostly that...because I am a mother of three girls I suppose I am real big about them being around men-strangers. (Tūī)*

Caring for the emotional wellbeing of their children was discussed as important. Central to the notion of caring was a common parenting goal of ensuring children felt and were able to express love and support. Love and support was often expressed in terms of whānau being connected to each other.

*...the family should be growing together whether you're old or young or what ever. Just love each other and those aspects. And manaakitanga, support each other. If they're down, pick them up... (Kōkako)*

Spending time with their children and being interested in what they were doing was also seen as an important component of support.

Two participants who had separated from their partners discussed their desire to ensure that their children felt their lives were stable. Making sure their children were still able to link and receive support from both parents was seen as important.

*Just keeping it all together but also the fathers are extremely important to me whether or not I like their fathers is not up to me. Making sure they have quality time and lots of time with their dads as well as me. (Kākāpō)*

Encouraging pro-social behaviour so that children could grow up and positively interact with other whānau members and the wider community was also described by some participants as an important parenting task. Kōkako, while highlighting the importance they placed on ensuring their children respected others, also used a reference to their older son once wanting to be a police officer. In this context wanting to be a police officer could be seen as a metaphor for being connected to and being an active member of their community.

*Yeah, my oldest son he's 16. I was - well when he was younger he was pretty much into - my older cousin he was a police officer who he had met, and he was wanting to be a policeman. I thought that was right, that would be good for you. Try and help him to go through that, well he was saying when he was 10 he wouldn't mind becoming a policeman, but things changed later. (Kōkako)*

Later in his interview Kōkako returned to the police metaphor in the context of his older child becoming disconnected from school as a result of being bullied. This disconnection from school also alluded to a disconnection from his community through 'not liking the police'.

*...His whole perspective turned around. With him [wanting to] being an officer now is totally different. He doesn't like the police. (Kōkako)*

A number of participants saw good communication with their children as being an important dimension of parenting. Communication was variously described as an important mechanism for expressing caring and love, conveying expectations and rules and resolving conflict. For example, Kākāpō described how while her elder son was independent she felt good communication enabled her to feel close to him:

*...he's very opinionated, very strong minded - but in saying that we are actually very close and he can talk to me about anything and he does - much to my horror sometimes. (Kākāpō)*

### **5.2.2 Expectations and rules**

Participants were asked to discuss any formal rules or expectations they have for their children. A range of rules and expectations regarding their child's behaviours were discussed. These included cleanliness, being healthy (e.g. eating well and being physically active), safety behaviours and doing well at school. Of the behaviours discussed expectations in relation to their children engaging in education were the most common. Engagement in education was seen as being partly dependent on the school and peer environment:

*...it's not actually a rule it's more of a...try and encourage them to stay there and I think too if they have a good peer group at school it will...they will stay at school. And if they have a good teaching system as well they would stay at school. (Whio)*

A child's sense of control and motivation was also seen as important for engaging in education:

*...that it's not the school that determines if you're going to succeed or not, it's you. You know if you want to learn, if you want to set your goals and reach those goals it's you that has to achieve them and all I can do is make sure that he has got the resources that are available for him to have. (Whio)*

Similar to having a sense of control, another participant reflected on her experience of education and how this had led to an expectation that her children try their best so they can fully realise their potential:

*The main thing for education for me and my kids is that they try. That they apply themselves and just try and learn ... my parents always said to me just go to school and live a life before you have kids because my older sister had gotten pregnant at 14... I was taken out of it at 16 and I fell pregnant and was taken out of education and became a mother. And I never understood what they meant by it until I was sitting there with this new born watching my educational life go down the drain. (Tūī)*

Linked to the parenting value of communication some participants commented on an expectation that their children were honest. These participants felt they could openly communicate with their children to resolve any problems or issues.

*We have rules about communication. If they are shitty with me, which they are all the time. If they are we can't sort it out unless we communicate. And honesty. Honesty is a big rule in this house because I can't sort anything out unless they are being honest with me.* (Tūī)

### 5.2.3 Enforcing rules and expectations

Participants discussed the consequences if rules or expectations were broken by children. Consequences included punishments as well as talking to their children about what happened. Tūī discussed how some common rules and expectations were set early in the life of their child while others were set in reaction to an event that was out of the ordinary:

*A rule that they haven't grown up with is usually set if their behaviour has - or they have done something that has caused a disruption with normal life or they have done something just should never be done, stuff like that. Then usually a new rule is set for them but other rules have just been in place for years...* (Tūī)

Whio commented that while rules were easy to set and enforce when their children were younger, as their child transitioned into adolescence it became increasingly difficult. This was seen as a normal part of adolescence as children became more independent.

*Last year it was he was breaking the rules, he started to find his own standing. And he started to make more mates... I think he started to get a voice within himself. I think he started making his, not rules but his own...he started weighing things up. He started I think about 17.* (Whio)

### 5.2.4 Connecting to culture and communities

Kea, who had no children but had a number of nieces and nephews she spent time with and cared for regularly (one of whom lived with her), saw her role as connecting her nieces and nephews to their wider whānau and culture.

*So for me it's about getting reconnected with Te Ao Māori, for our children, I think that's most important right now. And, you know, once they have that identity and they are strong in themselves, they can go out and conquer the world, as far as I'm concerned... that they know their pepeha on both their*

*Mum's and their Dad's side. You know, they know where in New Zealand their whenua comes from, yeah, and connecting and the importance of family, meeting their cousins, getting to know their cousins, aunties and uncles. (Kea)*

Embodied in this quote was a sense that establishing strong connections between children and their identity as Māori was an important foundation for children to achieve their potential. In practical terms this meant learning their pepeha (an expression or set of expressions that identify the speaker as belonging to a specific hapu, iwi and/or geographical location) and connecting with their broader whānau.

### **5.3 Being a smoker**

*I am addicted, I make up excuses, so I know that what I am doing is gross, it is a gross habit, it is bad for my health, bad for others' health, so smoking outside is my punishment for smoking. (Kākāpō)*

#### **5.3.1 Becoming a smoker**

Participants were asked to describe their smoking. Most participants reported they started smoking in late preadolescence and early adolescence. These participants often described smoking as being normal when they took up smoking.

*I started smoking cigarettes properly when I was 12. I was brought up when everyone was smoking - taxi drivers were smoking, there were ashtrays everywhere. My parents both smoked so I always wanted to smoke... (Kākāpō)*

Within this environment participants often attributed the reason for starting to smoke to their parents or their peers who smoked.

#### ***Parental influence***

Some participants who saw their parents as being an influence described seeing them smoking or seeing their smoking paraphernalia (e.g. cigarette packets) about the house. For some these experiences made them “want to” smoke.

*Yeah even one of my first memories of being a baby, I can see my mother's cigarettes on the table, and thinking mum did that, dad did that. They're always there. I want one of those. I always remember wanting one. (Kākāpō)*

Kōkako discussed how his experience of his parents separating indirectly affected his taking up smoking.

*...my parents have been split up when I was about 10 or 11, and when they got divorced it was when things got a bit awkward for myself and being shuffled from here [Pōrirua] and Hastings where my father lived. I didn't quite have a sense of where I was actually to be. I didn't know if my mother or my father loved me just as much. Just going out and doing things on my own, getting involved in wrong things... I don't think they were the influence on me smoking, more just being out there and I might have been left too young... I went back home after school one day, I must have been about 11 or 12 and said I'm smoking. (Kōkako)*

From this description it appears that as a result of his parents separating he felt he struggled with his sense of belonging and sense of identity. As a result he started engaging in more unsupervised activities which lead to his smoking.

Some participants also described that when their parents found out they were smoking there were no negative consequences. These descriptions suggest a lack of negative consequences may have meant that the participants were more likely to continue smoking. Kōkako described how his mother found out about his smoking.

*...my sister was getting on my back about it. She had spotted me down the road smoking. She was going to nark on me... I just went home and blurted it out. But that was the response I got: "Go buy your own fucking smokes." [Kōkako's mother] I thought, "Well that wasn't so hard". (Kōkako)*

### ***Peer influence***

Other participants discussed how peers were their main influence on them wanting to smoke.

*No, Mum and Dad never smoked. They said they did before they started having children but they stopped. Yeah. So it wasn't a big thing in our family I don't I think. It was more my friends that made me want to smoke. (Kea)*

Attributes associated with peer influence included perceptions of smoking being cool, wanting to belong and socialise with their peer group and associations between smoking, alcohol use and socialising with peers. Some participants described peer influence in terms of providing opportunities to smoke.

*I had a whole bunch of cool mates who thought it was cool and I was the only one who didn't smoke and I handled being around these mates for a year and then one day there was this cigarette and the first puff was ridiculous. But I tried it again a couple of days later. And then I progressed over the next month and then that was me. I was smoking. (Tūī)*

Other participants described peer influence in terms of wanting to belong:

*With friends and then alcohol was involved as well. All that sort of stuff and wanting to belong and wanting to... just to be in a group of friends and things like that. (Whio)*

### **5.3.2 Influences on continuing to smoke**

When asked why they had continued to smoke participants commonly answered that it was due to being depressed, stressed or just habit. Both Kea and Kākāpō reasoned they continued smoking because they found it relaxed them, relieved stress, and they did not have any other vices:

*Habit - habit, stress relief, a bit of a vice for me. As I said, I don't drink, I don't do anything else so it's kind of a vice, you know, but yeah, it's just habit really when it comes down to it. (Kea)*

*I suffer quite badly from depression and I don't do any drugs or alcohol and I'm on regular depression medication and apart from gardening to get that physical angst out of me, cigarettes are just sometimes, just, I can get outside, wander around, have a smoke and it just relaxes you, well for me, because I'm addicted. That's what I tell myself anyway. (Kākāpō)*

It appears that while Kākāpō described smoking as a relaxant, the end of the quote suggests that this may only be a superficial reason. Later in her interview Kākāpō described her reasons for smoking as excuses that attempted to cover up her concerns about smoking affecting her health and that it was perceived negatively by others.

### 5.3.3 Perceptions of smoking

During the course of the interviews a number of participants discussed their own and others perceptions of smoking. Of those who discussed perceptions of smoking most felt that over recent years societal perceptions had changed from accepting smoking to being generally negative.

*I don't want to offend people with my smoking because it is quite offensive, especially these days. It's not accepted socially as it was when I was growing up. (Kākāpō)*

*...I think you're kind of like a second class citizen. You can't smoke anywhere now - I mean the bars didn't faze me but just anywhere, like on hospital grounds - just everywhere. When you do smoke, you're constantly hiding. (Kererū)*

While Kererū did not like feeling like a second class citizen she also saw a perspective from that of non-smokers.

*Yeah, it does [feeling like a second class citizen annoyed her], but then I think if I wasn't a smoker, I wouldn't want to walk out the front of the hospital and have all - you know? (Kererū)*

At least part of the change in social norms in relation to smoking was attributed to greater exposure to anti-tobacco campaigns.

*...it wasn't out there, you know like how there are campaigns out there to quit smoking... Or even, don't even start to smoke. Māori television wasn't even there. Maybe if that was there at that time it would have been more in your face. You know because you see the adverts where "don't start smoking while you're pregnant" or you know "stop smoking or what ever when you're pregnant" and the younger ones. (Whio)*

Participants often described their own smoking in negative and even derogatory terms such as "filthy" or "gross".

*To be honest I think it's the most filthiest habit that has ever been placed on this earth and I think it sucks because I am in it and I am hooked. I have the habit and sometimes I disgust myself because I am smoking but it's a catch 22. (Tūī)*

### 5.3.4 Quitting smoking

Some participants did not see any reason to quit smoking as it was not a problem for them. Others discussed they had made previous quit attempts and one had recently quit smoking. Reasons for trying to quit smoking included for their health, they did not enjoy smoking, television advertisements had motivated them, they were inspired by their friend's quit attempts or they wanted to quit to protect the health of their children.

*Just had enough. I didn't want the boys smoking either. I didn't want that environment around them. [Participant's ex-partner] doesn't smoke so, I just kind of like, didn't really enjoy it, I didn't want them smoking and wanted to bring them up more in a healthy environment. Also get myself healthy as well.*

(Takahē)

Alcohol was often an implicating factor among those who had relapsed back to smoking.

*For them, I just wanted to give up smoking. I did last for about eight months. Unfortunately I was clean of alcohol, wasn't touching the alcohol, but then it was my birthday and I had a couple of drinks and then I needed that cigarette then. I woke up a couple days later and started smoking again.* (Kōkako)

### 5.4 Parenting and smoking

*Just because I'm a heavy smoker I know the cost of it. I know the health effects of it. I don't want my children to be a slave to a product that's terrible.* (Kākāpō)

A focus of the interviews was to understand how participants interpreted their smoking behaviour in the context of being a parent and what might influence parental smoking socialisation behaviours .

### **5.4.1 Not wanting own kids to smoke**

Most participants did not want their children to smoke but felt a dilemma because they were (or had been) addicted smokers themselves.

*And try and tell them not to smoke, yeah I would be a bit of a hypocrite really. It would be kind of hard to tell them especially when you are smoking yourself...  
(Kōkako)*

### **5.4.2 Perceptions of influence on smoking behaviours of children**

Participants were asked to discuss what influence, if any, they felt they had on whether their children started to smoke or not. Discussions centered around three themes, their perceptions of themselves as potential smoking role models, concern in relation to being a smoking role model for their children to start smoking, and perceptions regarding whether or not they could influence their children not to smoke.

#### ***Parents as smoking role models***

A number of participants saw that their smoking was a potential influence on their children taking up smoking. Kererū reflected on smoking uptake being intergenerational and her own experience of taking up smoking and linked it to her parents who were also smokers.

*Yeah we kind of say “You’d never start, eh?” and they say “yeah it’s disgusting, it’s gross” but I used to say that to my parents too. My parents were smokers. Look at me. (Kererū)*

Smoking as intergenerational was also identified by Whio who spoke about how she saw smoking as being handed down from parents to children.

*Smoking has been around for ever. I think it can be a generation thing as well. If your parents smoke some of you are going to end up smoking, some of their kids are going to end up smoking and so if it can be stopped somewhere along that line, you know it’s not easy. If it can be stopped somewhere along that line then maybe the future generation has got that chance. (Whio)*

Whio's response suggests that by breaking the transmission of smoking from one generation to another not only do the parents' children benefit but future generations benefit as well.

### ***Concern about parents being smoking role models***

Some parents discussed the disappointment they would experience in themselves if they found their children were smoking. Participants said they would experience this disappointment because they would feel at least partly responsible for their children smoking. For example, Kōkako discussed what happened when he found out his older adolescent son had started smoking.

*At first it was “why are you smoking for?” but I was not pissed off, just maybe annoyed that he had taken up smoking. Then I said “why are you doing it for?” and he said “everyone else is doing it”... I asked “is it because your mum and dad are doing it or your friends?” and he said “more my friends”. Maybe if I had asked him where the influence was to take up smoking... actually I might ask him that question as to whether it was us that influenced him or it was his friends. (Kōkako)*

His response was partly moderated by a recognition that his own smoking may have influenced his son to smoke. Similarly Tūī reported that if her daughters started smoking it would be more a reflection on herself as a smoker.

*If they were smoking I would be highly disappointed in myself more than in them because the example that I lead. Obviously I sit there and think I enjoy cigarette smoking which could be one of the reasons why they take it up. So I would be more disappointed in myself for not leading by example and I would be a little disappointed in them. (Tūī)*

However, in contrast to these perceptions other participants commented that children observing the negative impact smoking was having on their parents could act as a deterrent to smoke.

*... I get quite wheezy and coughy at night, so they see the negative health benefits from me and their grandmother, so I think they're actually quite well aware of what smoking does... (Kākāpō)*

### ***Perceptions of ability to influence children not to smoke***

Participant responses were mixed in relation to the degree they thought they could influence their children not to smoke, particularly in relation to competing against the influence of their children's' peers. Some thought they as parents had a lot of influence, while others thought that their influence was limited. For example, Kea was optimistic that she could deter her nieces and nephews from smoking. She based her optimism on being able to talk to her nieces and nephews, being respected and being able to express that she did not want them to smoke

*Optimistically yup, only because of the conversations I have with the children, you know. They're pretty clear they don't want it and yeah I think I can make a difference on putting the smoking aside. As an aunty - I am a really awesome aunty and they know that... yeah even though I smoke they know I don't want them to smoke... (Kea)*

In contrast Kererū was not confident that she would have any influence on whether or not her children smoked. This was because she saw it as being dependent on her children's personalities and own decisions.

*I don't think I have any influence over them. I mean I can give them the facts. I can tell them I don't want them to do it but realistically is that actually going to work on them. I don't know if it would be a hell of a lot. Depends what kind of kids they end up being. Teenagers you'll probably be able to tell. (Kererū)*

#### **5.4.3 Protecting children from smoking**

Discussions around protecting children from smoking focused on two main topic areas: Discouraging children from starting to smoke in the future and protecting children from second-hand smoke (SHS).

##### ***Discouraging children from smoking***

Most participants were able to describe actions they had taken to discourage their children from smoking. Of these actions, discussions with children about the impacts of smoking were most frequent. Discussion topics included impacts on: health (most commonly discussed); costs of tobacco; smell of tobacco on breath and in homes;

appearance (e.g. stains on fingers); physically (e.g. being able to run around with children); and taste.

*...I talk to them about how it's affected me financially. How it's affected me physically. How even though it tastes like utter crap I am that addicted that I inhale pure cigarette - you know pure smoke. I talk to them about the affect that it's having on my health. Like in terms of I could develop cancer or I could have an already developed cancer. The addictions stronghold is that strong that I haven't been able to take myself off. So I talk about that side of things and about how it makes my skin smell like a person shouldn't smell how I smell.*

(Tūī)

The types of discussions that parents reported suggest that educative approaches to influencing their child's behaviour were seen as an effective means of discouraging uptake.

*...educating them is the best thing you can do because at the end of the day they are going to make their own choices whether you like it or not. They are going to do what they want to do and the best thing you can do is have an input and hopefully they respect you enough or understand you enough.* (Tūī)

As Tūī's comment suggests 'educating' about the dangers of smoking was seen as a viable option for parents because children were seen as ultimately making their own decisions about whether they smoke or not. This indicates a perception among some participants that the primary point of influence for parents was at the point where children were able to make rational 'choices' over their smoking behaviour. This was based on a premise that perceptions of the negative affects of tobacco could act as a deterrent. This perspective was also echoed by Kākāpō:

*...people have their own - make up their own minds, but I've always made them well aware of how disgusting I feel as a smoker, and I show them "See these people have to go outside because they smoke those things, look at mum's nicotine stains, you want to walk around with yellow teeth?" I make it a real negative thing. They see that it's antisocial.* (Kākāpō)

Tūī's comment above suggests she was unconvinced about the effectiveness of just talking about the impacts of smoking with her children. However, her following

comments indicated that educative approaches would only be effective in an environment where parents and children could communicate openly and honestly with each other.

*One of the most important things for the girls with me is communication so they can be honest with me. Hopefully you have that relationship with your kids to say - oh that's not good for you. But they grow up. (Tūī)*

Other actions participants reported they had taken with their children included discussing the inconvenience of having to go outside when wanting to smoke, the challenges faced when trying to give up smoking and setting rules about not smoking. In practice, few participants had set rules with their children about not smoking. One participant said they found these rules became untenable as their children grew older. This was because their children questioned their parent setting rules about not smoking when they smoked themselves, a move to becoming more independent meant their children were less likely to follow rules and it was easy for children to disguise any smoking behaviour.

*I have [set non-smoking rules]. When they were younger, they weren't allowed to smoke. If I caught them they would get a thwack before the [anti-smacking] rule come in... But I think with my kids at that time they had the mentality that they see other people smoking/drinking. Even though it looked fun to them, I used to tell them you know smoking is not good for you in the sense that it will muck up your lungs. And they said but you smoke mum. So you know, so I really can't give them rules but only just to tell them well try not to start. (Whio)*

### ***Child initiated discussions about smoking***

Participants also discussed how their children had prompted discussions about smoking with their parents. In general, these discussions focused on children not wanting their parents to smoke. Participants described the main prompts for their children talking to them about smoking were learning about smoking in school and television advertisements. Some participants felt uncomfortable about these discussions because they felt their children did not appreciate the addictive nature of tobacco and how hard it was for them to quit smoking.

*They watch the ads and say “You’re going to die” and this and “You need to give up, you stink.” More-so as they’ve got older, they never used to say anything.* (Kererū)

In contrast other participants had expected these types of discussions and felt they were able to respond to their child’s questions.

*It was cool, and I expected it, they looked at me like - why are you doing it.  
Why are you doing it? Why don’t you just throw them away?* (Tūī)

Tūī reported her response to those questions was to discuss the addictive nature of tobacco with her children and use it as a reason not for them to smoke.

### ***Protecting children from second-hand smoke***

All participants felt that their children should be protected from second-hand smoke (SHS), particularly when indoors. While a number of participants recognised their smoking may influence smoking uptake, few linked this to allowing smoking inside their homes. The most common reasons given for why they (and others) smoked outside and away from children included not liking the smell of tobacco inside their homes, changing norms about the acceptability of smoking inside, not smoking inside being a norm in their whānau, not wanting to smoke indoors when their partner had recently quit, not liking their children see them smoke and for the health of their children.

*Whānau orientated - maybe it’s because of the tamariki, maybe the smell of stale smoke being inside the house is not a nice smell, even though I do smoke.  
My nephews though, they smoke in the house, they have no kids but just walking into that, you can smell the difference, it’s quite stink actually.* (Kōkako)

Protecting children from starting to smoke was not a typical reason given by participants for not allowing people to smoke around their children. However, preventing SHS exposure is described here as literature reported in Chapter 2 indicates it is, nevertheless, a protective factor against smoking uptake.

Some participants discussed how they felt children did not have a choice whether or not they were exposed to SHS. Therefore, it was an adult responsibility to ensure they were protected.

*Because it's not my daughter's choice. It's not them picking up a cigarette and inhaling it themselves so to me it's like poison floating around and just hitting them and you know it's someone else's poison that they are more or less putting around my daughters. But I am like that with a few kids. Not just my kids. I think it's because it's not my daughter's choice, its mine.* (Tūī)

Kea also described how they saw children not having a choice about being exposed to others smoking as being an adult issue and actions they had done to prevent children being exposed to smoking.

*I just don't agree with that. You know, they don't have a choice in some things but those things I can make the choice for them. You know, I'll smoke in my car but when they're in the car with me I won't, you know, and I try not to smoke too much when I'm around them. They know I smoke though but they don't like it. I'll have the conversation, "Don't do it. If aunty could turn back time and not smoke I would."* (Kea)

Some participants discussed how smoking bans had reduced the amount of exposure to people smoking and SHS.

*Not too much [exposure to SHS] because it's banned from the schools, it's banned from the parks; you don't see many people smoking in the streets. Now there are a few odd ones that you see but maybe outside offices but not around here. I do the hiding thing around here.* (Whio)

Whio's description included reduced exposure in both inside and outside settings. However, Tūī commented that because smoking had been banned in places like schools it meant that people (e.g. teachers) had to smoke outside schools where children could still see them.

### Whare Auahi Kore (Smoke Free Homes)

All participants reported they smoked outside when at home, or in an outside space (e.g. the garage). One reported they had smoked inside previously but had started smoking outside since they separated from their partner a number of years previously. Another had recently started smoking outside due to their partner recently quitting. For some not smoking inside homes was normal and it was felt that guests to the house would be aware of this.

*It's one of those unspoken laws. Everybody knows our house has been smoke free for a few years - since my daughters' father and I split. (Tūī)*

#### Influencing others not to smoke around children

A number of participants commented on how, depending on context, they have or would ask people not to smoke around their children or remove their children where people were smoking around them. These participants generally reported they felt comfortable taking these actions, particularly asking people not to smoke in their own homes.

*...we had a drink here and my aunty just kicked up this huge stink because she wanted to smoke in here. We ended up having quite a bit of a debate about it. And I said you can't. This is my house, this is my kid's house. (Tūī)*

*Even if it was my own kaumatua, my grandfather or something like that, I would say sorry, koro, we don't smoke inside the house - it's one of the rules of our whare. (Kōkako)*

Tūī commented how she had asked others not to smoke around her children.

*I have said to them how can you smoke that cigarette around my daughter, invade her space, look at her space. You can't do that to her, she didn't choose to smoke... I will ask people nicely not to smoke in that car if we are in someone else's car. I will ask but I am not that nice a person really, I am quite demanding on people I know so I am like "just don't smoke in here, give my daughters this space". (Tūī)*

This quote suggests at least some participants were prepared not only to ask people not to smoke around their children but engage in a discussion with them as to why.

#### **5.4.4 Visibility of smoking paraphernalia**

Most of the interviews were conducted in the participants' own homes. During the course of the interviews it became apparent that there were few visible indications that people in the household smoked. For example, no cigarette or tobacco packets were visible, there were no ash trays, and no matches or lighters. When asked about this participants generally replied that this was for safety so their children would not play with lighters or so that their children would not damage their tobacco.

*Safety and for smoking as well, convenience. I did have a box of matches on the fireplace during the winter time, to light the fire, I came in and my daughter had pulled them out, she didn't light any of them but just the fact that she had opened them up gave me a bit of a scare. (Kōkako)*

When prompted none of the participants reported they kept smoking paraphenalia out of the sight of children as a means of preventing them from smoking (e.g. by not making having tobacco in the home 'normal'). However, as noted previously some reported that such paraphernalia had been an influence on them starting to smoke.

## **5.5 Discussion**

This section discusses key findings from the key informant interviews. The first part of the discussion has been organised according to the study's aims. The second part draws together key themes to develop a model of parental and whānau influences on uptake based on study findings.

### **5.5.1 Relationships between whānau makeup, whānau values and parental influences on smoking uptake**

It was evident from participant descriptions of their whānau that there was no 'typical' whānau structure. Whānau were often described at the household level, but others living outside the household were also identified as important, particularly if they lived in relative geographic proximity to the participants home. These findings of heterogeneity across whānau are supported by other New Zealand studies.<sup>155</sup>

While daily decision making in relation to children was typically the responsibility of parents or primary caregivers, other whānau members also played decision making roles. This was usually in relation to important decisions made within a household or broader issues affecting the whole whānau, such as connecting with Māori identity.

Values were discussed at the whānau and parenting levels. Whānau level values focussed on manaakitanga (caring), whānaungatanga (connecting whānau members) and, perhaps a confluence of these two values, ensuring children were central to whānau functioning. The first two values were similar to those identified by

Metge,<sup>156</sup> with the main difference being that Metge saw manaakitanga as being part of a broader concept referred to as “mahi-a-ngākau” (work of the heart).

The whānau values identified in the present study have important implications in relation to reducing risk of smoking uptake. Caring could include ensuring whānau members are well, including being protected from the harms of smoking. A risk of ensuring whānau are connected is that the process potentially brings non-smokers, particularly children, into contact with whānau member who smoke and are potential role models for children. However, in the context of the value of manaaki this suggests that whānau members who do smoke should actively protect children from smoking (e.g. by not smoking around them).

Ensuring that children felt safe, loved, and supported were core values expressed for parenting. While safety focused on being safe from violence and accidents, it also included being safe from harm caused by unhealthy lifestyles. In the context of the present thesis protecting children from smoking uptake could be positioned as threats to these core values.

Participants who had separated from the biological parent of their child(ren) commented on a desire to ensure that their children still felt wanted, had a stable home life and maintained contact with both parents. This theme was also linked to ensuring that children were connected and identified with their whānau and community. One participant reflected that not having these things had led them to connect to people and settings where they were influenced to smoke. Supporting children to develop a sense of identity as Māori was also seen as an important factor for achievement in life and maintaining whānau functioning.

Most participants identified good communication as an important mechanism for supporting their children, discussing any issues that may arise, and, of particular relevance to smoking, monitoring what their children were doing. In this context good parent-child communication may be an essential prerequisite for parents wanting to actively deter their children from smoking. These findings were also supported by results from the quantitative analysis and the literature review<sup>67 72 74</sup> that indicated good communication was protective of smoking uptake.

### **5.5.2 Parental perceptions in relation to affecting determinants of smoking uptake**

All participants reported that they did not allow people, including themselves to smoke inside their homes. The primary reason for this was to protect their children's health from exposure to second-hand smoke. Other reasons included not wanting their home to smell of cigarettes and were similar to a previous study undertaken with New Zealand parents.<sup>92</sup> While all participant homes did not allow smoking inside, many said that other members of their whānau still did. On occasion participants reported they had had to ask whānau members not to smoke in their homes. This suggests that addressing smoking behaviours within the wider whānau would be beneficial in addition to just working with parents and primary caregivers alone. In this context, encouraging whole whānau (as opposed to specific households where children live) not to smoke around children could contribute to developing norms or kawa (protocols and customs) about protecting children from smoking.

Participants generally recognised that their smoking may influence their children to smoke. However, there was a strong perception that deciding whether to smoke or not was their children's choice. This perspective seems to be at odds to perceptions of parental influence on smoking and challenges whether children really are able to make a 'choice' about smoking. To counter this perception interventions could focus on heightening parental awareness on the influence they have on their child's smoking behaviour and provide suggestions for action.

Rule setting was discussed in the context of long standing rules about acceptable behaviour (e.g. eating healthy, food) and new rules that had been set in response to a particular event. In this context it may be unlikely to have long standing rules about not smoking because they may not be seen as relevant for young children. For parents who smoke, setting new rules if their children started smoking may be equally unlikely as some may feel hypocritical about imposing such rules when they smoke themselves. In any event few participants reported they had actually set specific rules about not smoking with their children. Among those who had, they reported they were difficult to maintain as their children grew older and were potentially counterproductive. For example, setting rules with children who are seeking greater independence from their parents could lead the child to react against the rule.

### **5.5.3 Determinants of parental action to prevent children from smoking**

The literature review and quantitative analyses reported in chapters two and four of this thesis identified a range of parent related risk factors for smoking uptake. However, there was little evidence on how parents or caregivers could be supported to take action in relation to these factors, particularly among those who smoke. Factors identified in the qualitative results that have or could support parents to take actions to reduce the risk of smoking included:

- encouraging children to talk to their parents about smoking
- changing parental perceptions about the degree of influence they have over their children's smoking behaviour
- providing information on how parents can deter their children from smoking
- building on an existing desire of parents that their children do not take up smoking and support for banning smoking inside homes.

A number of participants discussed how children had been motivated by school projects or television commercials to talk to them about their smoking. In general these discussions had been received positively and suggest they may be an effective means of motivating parents to change their smoking behaviours. Potential actions to mitigate any negative parental responses to child initiated discussions could include; encouraging parents to accept that discussions about smoking with their children are inevitable; and giving parents 'tools' to prepare to respond to those discussions in a constructive manner.

Similar to previous studies<sup>92</sup> some participants felt they could influence their children not to smoke, while others were not so confident. In these instances participants felt the best they could do was 'educate' their child about the dangers of smoking. Despite this perspective most participants reported they had engaged in at least one activity that could protect their children from smoking. For example, reducing exposure to SHS and maintaining good communication patterns with their children.

Potential interventions could focus on those parents who think their influence is limited by helping them recognise how behaviours that they were already doing (e.g.

not smoking inside) could reduce the risk of their children taking up smoking. This action may help to build the confidence of parents and caregivers, and increase their willingness to take further action.

Some participants saw smoking as an intergenerationally transmitted behaviour within whānau. From this perspective encouraging parents to quit, or take other actions to deter their children from smoking, was seen as not only important for their own child's health and wellbeing but for future generations as well who may have otherwise taken up smoking. Dangers of intergenerational transmission of smoking could be a useful message for campaigns to promote quitting among smoking parents and to increase parental action to promote non-smoking among children.

#### **5.5.4 Insights into parent related risk factors for smoking uptake**

While not a focus of the in-depth study, participants provided insights into potential determinants for smoking uptake based on their own experiences. For example, parental influences on smoking uptake were seen as being both direct and indirect. Direct influences included role modelling smoking as a desirable behaviour and condoning (or at least not reacting to) their children starting to smoke. Some participants had linked these experiences to their own children. Examples of how they had sought to limit these types of influences included trying to limit the exposure of their children to their smoking and being explicit with their children that they did not want them to smoke.

A lack of parental reaction to finding out their children were smoking was also identified as a potential reason why they continued to smoke past the initial stages of uptake. This finding is supported by literature<sup>68 77</sup> and suggests that an absence of negative parental reaction may be taken by children as condoning, or at least being ambivalent about, smoking. With no parental disincentives children may be more likely to continue to smoke.

#### **5.5.5 Study strengths and limitations**

A strength of the present qualitative study was that it allowed participants to provide their own experiences and perceptions of the phenomena that were explored. There is a paucity of research into parental influences on smoking uptake among Māori and other indigenous peoples. The nature of the present study allowed participants to tell

their own stories and reduced the risk of assuming that factors affecting Māori parents and their children were the same as those for other populations. The nature of Interpretative Phenomenological Analysis allows for contextual information to be gathered which can provide insights and further meanings in relation to the phenomena of interest. In terms of the present study such context included understanding how the role of whānau may influence or deter smoking uptake.

A feature of qualitative studies is that they tend to be based on smaller samples than quantitative studies. However, for the present study only seven parents were interviewed and care should be taken when attempting to generalise findings reported here to parents of Māori children in general. While the author is confident that a full range of perspectives of whānau, parenting and smoking uptake were elicited a larger sample would have allowed greater verification and comparison of findings.

The qualitative study focused on the experiences and perspectives of parents. Few similar studies were identified in the literature, particularly in relation to Māori. While the study contributed useful findings in terms of potential determinants for smoking uptake from a parent's perspectives, interviews with Māori children would also have been invaluable. Such a study was planned but abandoned due to complexities in the sample recruitment process. This was because it proved difficult to identify an appropriate sample source (in this case schools), and coordinate multiple levels of consent (school, parent and child) to recruit enough participants to be interviewed. It is probable that these complexities could be addressed and future research should be undertaken to understand how smoking is perceived among Māori children and youth.

### **5.5.6 Key determinants identified from the qualitative study**

Figure 5.1 summarises key findings from the qualitative research as an outcomes hierarchy. Potential interventions to address key determinants within the hierarchy are also described. Of the determinants identified in the model five were related to parental smoking socialisation practices:

- Negative parental reactions to their children smoking
- Parent-child discussions about smoking
- Parental anti-smoking attitudes
- Parental anti-smoking expectations
- Reduced exposure to smoking behaviours

A number of participants commented on an absence of negative reactions from their own parents when they found out they were smoking. This may have been interpreted by participants as their parents condoning their smoking behaviour. This in turn may have lead to an escalation of smoking from early experimentation phases to more regular smoking. This suggests that an absence of negative *parental reactions to their children smoking* may be a risk factor for progressing from the early stages of uptake.

A number of participants reported holding *discussions with their children about smoking*, and expressing *anti-smoking attitudes* and *anti-smoking expectations*. These were identified as potential factors that could reduce the likelihood their children would smoke. They have been listed as separate determinants as it would be expected that each would have their own separate linked interventions. For example, parents may need to be up-skilled in how to discuss smoking with their children, while holding anti-smoking attitudes could be seen as a pre-requisite for engaging in anti-smoking behaviours. As a determinant children would need to be aware of their parents' anti-smoking attitudes and expectations for them to have an effect. Anti-smoking attitudes could also manifest in a range of behaviours such as not letting smoking inside in homes or discussing smoking with their children. Anti-smoking expectations would be expressed directly with children. However, such expectations may not necessarily involve rules about not smoking as they were seen as difficult to enforce and potentially counter-productive.

While only a few participants gave reducing smoking uptake among their children as a reason for *reducing exposure to smoking behaviours* all lived in homes where smoking was not allowed inside. A number commented that this was influenced by changing norms about the acceptability of smoking inside over recent years. As a potentially significant source of exposure to role modelling of smoking behaviours there appears to be an opportunity to capitalise on these changing norms. For

example, by highlighting to those who continue to smoke inside that many smokers no longer do so.

Three determinants were identified that related to more general parenting behaviours that were indirectly associated with smoking uptake:

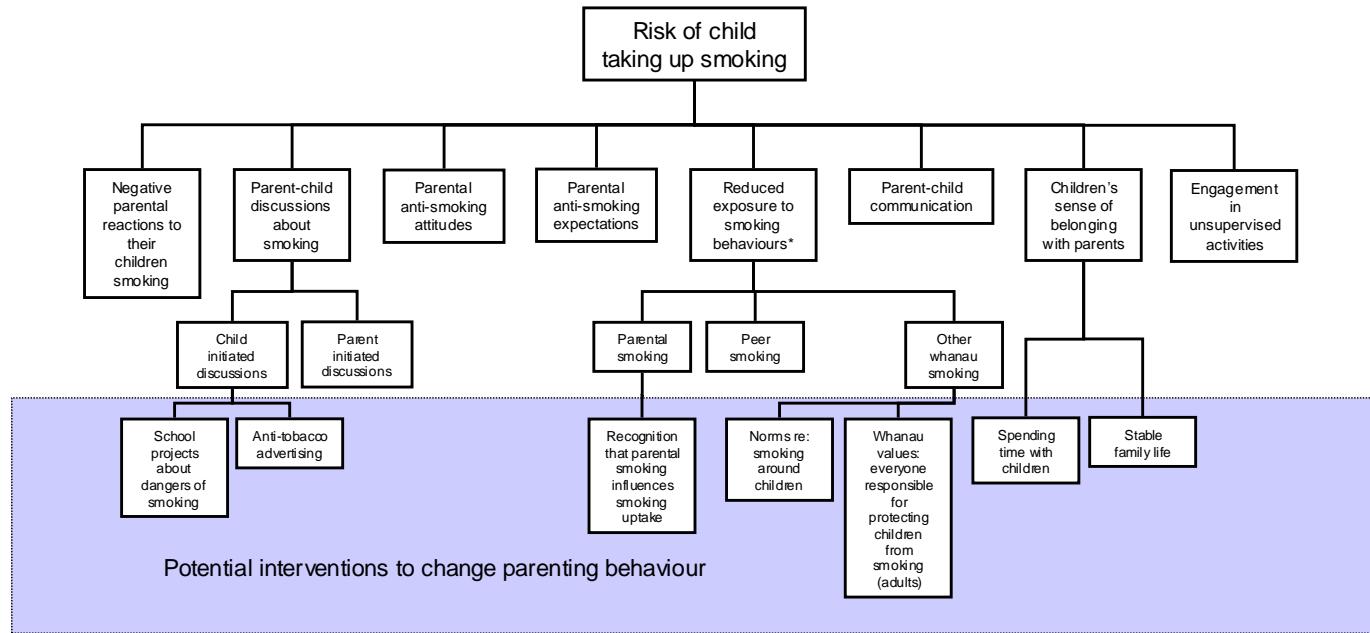
- Parent-child communication
- Children's sense of belonging with parents
- Engagement in unsupervised activities.

*Parent-child communication* was seen as an important factor that was closely related to parenting values (e.g. being involved with their children) as well as being an essential pre-requisite for engaging in discussions about smoking specific behaviours.

Parents who had separated commonly talked about the need to ensure their children continued to feel loved and have stable living environments. Some participants reflected on their own experience of parents separating. Both sources of information highlighted the need to ensure that *children felt a sense of belonging with parents* as a protective factor against smoking.

*Engagement in unsupervised activities* is related to general monitoring described in Figure 4.1 for the quantitative analysis. As a potential determinant it relates to the increased possibility that children who spend a lot of time engaged in activities that their parents do not know about are at risk of being exposed to, and taking up smoking

The determinants described in the model were used to inform the development of the explanatory model described in the next chapter.



**Figure 5.1. Potential determinants of smoking uptake and interventions to prevent uptake based on in-depth in**

## Chapter 6: Synthesis and discussion of findings

The final chapter focuses on the central aim of this thesis, to *build a model of smoking uptake among Māori youth based on the plausible mechanisms of parental influence*. This is achieved by synthesising findings from the quantitative research, the qualitative research and the literature review described in the previous chapters.

### **6.1 An explanatory model of parental influences on smoking uptake among Māori youth**

*Smoking uptake* was identified as the primary outcome for the explanatory model. Literature suggests that smoking uptake can occur over five stages and parents have most influence over the initial susceptibility, experimenting and transition to more regular use stages. Some potential determinants identified in the quantitative research were specific to susceptibility to smoking. However, other determinants were not specific to a particular stage of uptake, rather they were associated with smoking uptake in general. Therefore, a single outcome (uptake) was used to be inclusive of all findings within a single model.

The first step for developing the explanatory model was to summarise key determinants identified in the outcomes hierarchies at the conclusion of Chapters 2, 4 and 5 on to Tables 6.1 and 6.2. Potential determinants were grouped according to smoking socialisation behaviours and more general parental behaviours. Smoking socialisation behaviours were those parental actions directly related to smoking that could socialise a child towards or against smoking. These behaviours included child directed (e.g. talking to children about smoking) and non-child directed (e.g. smoking a cigarette while their child was present). General parental behaviours could include both non-child directed behaviours (e.g. relationships between parents) and child directed behaviours. However, all the general parental behaviours identified within the qualitative and quantitative data analyses were child directed (and as such can be

referred to as *parenting* behaviours). Potential determinants were organised on to the tables according to common themes and are described as summary determinants in the first two columns of each table.

The second step was to use the potential determinants identified from the quantitative study as a basis for developing the draft summary determinants. The qualitative study determinants were then used to aid interpretation of these summary determinants in terms of providing the context in which they may occur and informing their plausibility (where findings were available).

As part of this process the summary determinants were also reviewed in relation to potential determinants identified from the literature review. There was very little literature on determinants for smoking uptake for Māori and other indigenous peoples. Therefore, the focus was to review the summary determinants in terms of similarities or differences to the existing literature. Changes were made to the themes if the literature provided insights in terms of how determinants were phrased, plausible explanations for linkages between determinants or where determinants were potentially generalisable from other youth populations.

In some cases themes were identified where qualitative findings were sufficiently supported by the literature, but not from the quantitative study. This may have been because no data were available to test the relationship, or no association was found in the quantitative study. For example, the quantitative findings indicated no associations between parental smoking and uptake (or possibly a protective relationship). However, the weight of evidence presented in the literature review suggested that there was a relationship. In this case, parental smoking being associated with uptake was presented as a theme despite the quantitative research findings, but as noted in Chapter 4 should be an area of further investigation.

**Table 6.1 Summary table of parental pro or anti smoking socialisation behaviours associated with smoking uptake among Māori youth**

Summary determinant	Literature review	Quantitative study	Qualitative study
Parental anti-smoking expectations	Rules about smoking (protective) Parental expectations about not smoking (protective)	No parental anti-smoking expectations (risk)	Parental anti-smoking expectations (protective)
Exposure to smoking behaviour prompts	Exposure to SHS at home	Restricting smoking in the home (protective)	7 day SHS exposure (risk) N/A <sup>lxxxv</sup>
	Parental smoking	Parental smoking (risk) Parental cessation (protective)	Parental smoking (protective/not significant)
	Smoking among the wider whānau	N/A	Parental smoking (risk) Other whānau smoking (risk)
	Visibility and access to smoking paraphernalia	Access to tobacco at home (risk)	N/A Limiting exposure/access to smoking paraphernalia <sup>lxxxvi</sup> (risk)
Parental anti-smoking attitudes	N/A <sup>lxxxvii</sup>	No parental anti-smoking attitudes (risk)	Negative parental reactions to their children smoking (protective) Parental anti-smoking attitudes (protective)
Anti-smoking discussions with children	Talking about smoking with children (protective)	No parental anti-smoking attitudes <sup>lxxxviii</sup> (risk)	Parent-child discussions about smoking (protective)

<sup>lxxxv</sup> Participants reported that they did not allow smoking in the home, however the rationale for this was to reduce SHS exposure, not reducing uptake.

<sup>lxxxvi</sup> Not identified by participants but a potential consequence of perceptions of smoking paraphernalia.

<sup>lxxxvii</sup> While no literature was identified for anti-smoking attitudes, findings such as anti-smoking expectations being protective, would suggest that these parents would also hold anti-smoking attitudes.

<sup>lxxxviii</sup> Anti-smoking attitudes repeated under both “Parental anti-smoking attitudes” and “Anti-smoking discussions with children” as one of the questions it was based on for Year 6 students assessed parental discussions about smoking.

**Table 6.2 Summary table of general parental behaviours associated with smoking uptake**

Summary determinant		Literature review	Quantitative study	Qualitative study
Poor parent-child relationships	General relationship	Involve ment with children (protective) Good parent-child attachment (protective)	N/A	Lack of sense of belonging with parents (risk)
	Poor parent-child communication	Communication with children (protective)	Low communication with parents (risk)	Good parent-child communication (protective)
Lack of monitoring of child's behaviour	Lack of knowledge of unsupervised behaviour	Monitoring child's behaviour (protective)	Low rule enforcement and general monitoring (risk)	Engagement in unsupervised activities (risk)
	Unsupervised spending of pocket money	Pocket money given to children (risk)	Pocket money (risk) Lack of monitoring of pocket money (risk)	N/A
Lack of reinforcement of rules or expectations	N/A		Low rule enforcement and general monitoring (risk)	N/A

N/A = Determinants not identified in the literature, measured in the quantitative study, or discussed in the qualitative research.

N/S = Variable not statistically significantly associated with smoking uptake.

The summary determinants described in Tables 6.1 and 6.2 formed the basis of the explanatory model for parental influences on smoking uptake presented in Figure 6.1. Henceforth the summary determinants are once again referred to as the *potential parental determinants* (or *determinants* for short) for smoking uptake. *Potential parental determinants* are referred to in the model as the information on which it was built was not sufficient, in most cases, to categorically determine causality. Rather the information has provided the basis for a model that provides insights into parental influences but that should be further investigated and assumptions tested. Each of the potential parental determinants are described in the following two sections.

### **6.1.1 Potential parental determinants for smoking socialisation**

Four key determinants were identified in relation to smoking socialisation: *Parental anti-smoking expectations*; *Exposure to smoking behaviour prompts*; *Parental anti-smoking attitudes*; and *Anti-smoking discussions with children*. Quantitative findings indicated parental anti-smoking expectations were likely to be specific to preadolescent Māori youth (and smoking susceptibility), while anti-smoking attitudes and parental smoking (a contributor to smoking behaviour prompts) were likely to be specific to adolescents.

The absence of *parental anti-smoking expectations* was based on a measure of whether parents would be upset if their children were caught smoking in the quantitative analyses. An absence of perceived parental expectations that their children should not smoke was associated or seen to be associated with increased risk of uptake. A specific behaviour associated with this determinant was a lack of parental negative reactions to finding out children had been smoking. As part of the qualitative study some participants reported that after their parents had found out they were smoking they had continued to smoke because no negative consequences followed. These results were also supported by the literature review findings.

Four related determinants associated with risk of uptake were identified: parental smoking; smoking in the wider whānau; exposure to SHS in the home (as a potential source of role modelling of smoking behaviour); and visibility and access to smoking

paraphernalia such as cigarettes, cigarette brands and matches. These were summarised by the overarching determinant *Exposure to smoking behaviour prompts*.

Exposure to SHS was a common potential determinant for preadolescent and adolescent youth identified in the quantitative analysis and literature review. Parental smoking was identified as a potential determinant based on the qualitative research and the weight of evidence in the existing literature. However, it should be acknowledged that parental smoking was not associated with increased risk in the quantitative data analysis, and literature on parental smoking in relation to Māori and other indigenous peoples was extremely limited. Smoking among the wider whānau was only identified as a potential risk factor in the qualitative study. It has been included in the explanatory model on the basis that caregiving roles played by whānau members and potentially frequent exposure of children to whānau who smoke increases risk of exposure to smoking behaviour prompts.

As a potential determinant *smoking behaviour prompts* is similar to the construct of observational learning that is part of Social Cognitive theory and proposes that an important part of acquiring a new behaviour (e.g. smoking) is learning from role models and environmental cues.<sup>20</sup>

*Parental anti-smoking attitudes* was defined as parents expressing negative opinions about smoking. An absence of such attitudes was found to be associated with increased risk of smoking uptake in both the qualitative study and quantitative data analyses. The latter analysis found the association was restricted to adolescent youth.

Closely related to parental anti-smoking attitudes and expectations, *anti-smoking discussions* between parents and their children were identified as protective in the qualitative analysis and the literature review (they were not assessed in the quantitative study). They are indicated in the model as being independent of parental anti-smoking attitudes because it is possible that a parent could have a discussion with their children about them not smoking but not actually hold anti-smoking attitudes or expectations for their children. For example, some participants in the qualitative research had spoken to their children about not smoking but thought it was their child's decision about whether they chose to smoke.

The qualitative analysis identified two possible prompts for parents to discuss smoking with their children. The first was child initiated discussions and the second

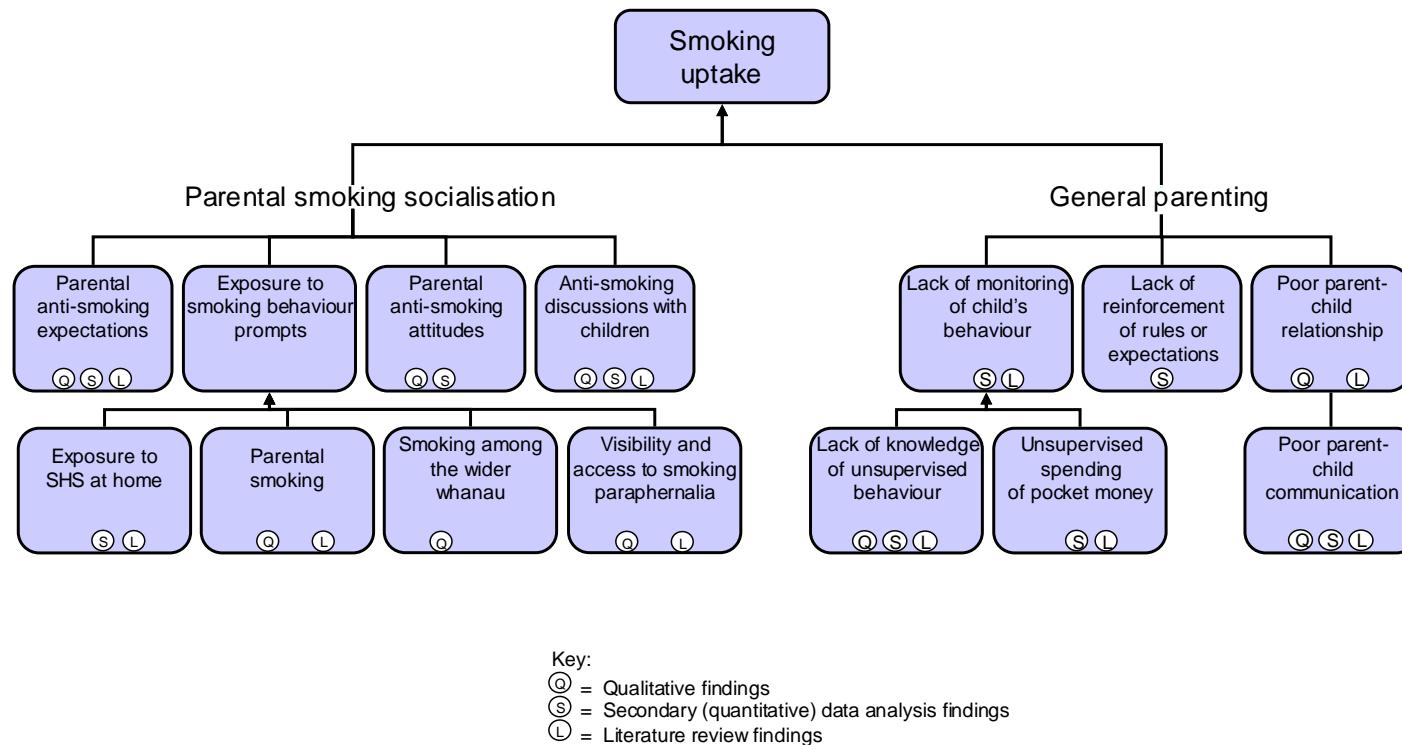
parent initiated. Either of these prompts could be amenable to intervention. For example, child initiated discussions were described as being prompted as a result of school projects and anti-smoking television advertisements.

### **6.1.2 Potential determinants for general parenting**

Five potential determinants that were all associated with increased risk of uptake were identified in relation to general parenting behaviours: *Poor parent-child relationships; Lack of monitoring of child's behaviour; and Lack of reinforcement of rules or expectations*. It was difficult to determine whether any of these potential determinants were specific to preadolescents or adolescents as in many cases information was only available for one of these groups (e.g. communication), therefore comparisons were not possible.

*Poor parent-child relationships* was identified as a potential determinant in the qualitative interviews and literature review. In this context relationships were variously described as attachment or bonding between parents and their children. Findings from the qualitative research suggested in the absence of a good relationship and feeling attached to parents children may associate with other people where smoking was normal. In addition, poor relationships may act as a barrier for parents to discuss smoking related issues with their children.

Parent-child relationships are largely an outcome of parenting behaviours that are often associated with parenting style. While an assessment of associations between parenting style and parent-child relationships was beyond the scope of this thesis, one dimension (parent-child attachment) was assessed among preadolescents in the quantitative analysis. Attachment was measured in terms of the degree children trusted their parents, whether they felt alienated from their parents, and how well they felt they communicated with their parents. Of these constructs, only communication was consistently found to be associated with uptake. Where communication was poor, youth were at greater risk of being susceptible to smoking. These findings were also supported by the literature review and qualitative study. In the latter, some participants reported in the absence of being able to set rules about smoking, it was important that they were able to communicate well with their children. This communication included discussing issues related to smoking.



**Figure 6.1. Explanatory model for parental influence on smoking uptake among Māori children**

Attachment theory suggests that having secure emotional attachments to people, in particular parents, enables normal social and emotional development.<sup>157-158</sup> A cross-sectional study that used a measure of parent-child attachment derived from attachment theory found low parent-child attachment was associated with increased risk of smoking regardless of ethnicity and parental smoking.<sup>159</sup> While no literature was available on attachment and links to smoking among Māori youth a paper by Atwool<sup>160</sup> suggested that concepts of *whakawhānaungatanga* (the act of connecting with others and establishing and maintaining relationships) were similar to the notion of attachment. A key distinction between the two concepts is that attachment could be considered a state, whereas *whakawhānaungatanga* a process. In the context of attachment, whānau and smoking, being able to engage in *whakawhānaungatanga* implies that a person has a secure sense of who they are, are attached to their immediate and wider whānau (not just their parents), and communicate well with them.

Findings from the quantitative data analysis and literature review supported a *lack of monitoring of child's behaviour* as being a potential determinant for smoking uptake. Two key contributing determinants were identified in relation to monitoring: *lack of knowledge of unsupervised behaviour* and *unsupervised spending of pocket money*. An explanation for the former contributing determinant was that children who regularly engaged in unsupervised activities were at risk of engaging in risk behaviours that included smoking.

While pocket money was found to be independently associated with smoking, it was unclear whether the source of pocket money was only from parents. Therefore, unsupervised spending of pocket money was included as a potential determinant. This is of particular relevance for older Māori youth as they may be more likely to be able to purchase tobacco, possibly have more pocket money available to them and, in the absence of parental knowledge, perceive tobacco as a viable option for spending their pocket money.

Although *lack of reinforcement of rules or expectations* was measured as a single variable along with *parental monitoring* behaviours they are identified independently in Figure 6.1. This is because, by definition, *reinforcement* is a set of behaviours that occur (or in this case do not occur) after parents have engaged in monitoring. While

reinforcement requires rules to be set and monitored the reverse is not necessarily true (rules can be set but not enforced). In the context of the explanatory model reinforcement of rules or expectations are seen as the extent to which young people perceive there are consequences if they break rules or family/whānau norms. This concept is similar to the “expectations” construct from Social Cognitive Theory. According to this theory the degree to which people expect a negative or positive outcome (reinforcement) to occur following engaging in a given behaviour (e.g. smoking) will influence the likelihood a person will engage in that behaviour.<sup>20</sup> An example from the qualitative research was where a participant reported when they told their parents they had started smoking there were no negative consequences and this was, in part, a reason why they continued to smoke.

### **6.1.3 Contextual considerations for an explanatory model**

In addition to specific potential determinants discussed above Māori identity and values were identified as contextual factors that may affect whānau and parenting behaviours.

#### ***6.1.3.1 Māori identity and smoking***

Models of Māori health and wellbeing often refer to Māori identity as promoting health and wellness. However, no results from the qualitative or quantitative study supported Māori identity as being protective of smoking uptake. Findings from the qualitative study suggested that some participants believed that connection to identity as Māori may be an important component for Māori achieving their full potential. Findings from the quantitative study suggested identification as being Māori was not associated with increased or decreased risk of smoking or smoking susceptibility. In addition, quantitative study findings associated attendance at marae in the past month with increased risk of smoking.

These findings indicate that relationships between Māori identity and smoking uptake need to be better explored and understood. A United States study that investigated how ethnic pride and self-control were related to determinants of tobacco use among African American rural youth<sup>161</sup> found parental “racial socialisation” (e.g. engagement in culture) were related to ethnic pride. Higher ethnic pride was associated with beliefs that being a smoker (smoker prototypes) were at odds to their

identity. Findings from this study suggested that if smoking is not seen as a normal or acceptable behaviour within an ethnic group, then those identifying with the group are less likely to smoke. Applied within a whānau context this means that parents can (and do) play an important role in connecting their children with their identity as Māori. This can include connecting children to other whānau members and other important aspects of Māori culture such as marae. However, this may only be protective of smoking if smoking within whānau, at marae, and other Māori settings is not seen as normal (i.e. few people smoke and promote smoking behaviours in these settings).

Within a Māori development context enabling children and young people to connect and express their identity as Māori is vital for the continuation of Māori as a distinct, indigenous peoples. However, findings from this thesis suggest that for this to happen within a whānau and in a way that reduces risk of smoking uptake requires concurrent activity to ensure that smoking is not normal within the whānau environment.

#### ***6.1.3.2 Whānau values***

In contemporary society whānau can be conceived in many ways. The present thesis focused on parenting within a whakapapa<sup>lxxxix</sup> whānau context. However, as within society in general whakapapa whānau can include a variety of living situations. For example, among those who participated in the qualitative research notions of whānau could include multiple households, single households, those living close to their turangawaewae, those living away from their turangawaewae, nuclear families, single parent families and extended families.

If whānau are to be considered an intervention group for reducing smoking uptake then it is important that they are understood and included in their many varied forms. It is also important to recognise that despite the observed diversity in conceptions of whānau a common set of core whānau and parenting values were identified. While it was out of the scope of the present thesis to present a full set of values, those that were identified for whānau related to manaaki (caring) for other immediate and wider family members, a focus on the wellbeing of children and whakawhānaungatanga (connections) between whānau members.

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<sup>lxxxix</sup> Defined by biological relationships between members and connections with a common ancestor.

In the context of the explanatory model described in Figure 6.1 the first of the whānau values, notions of manaaki, implies those being cared for are safe from harm, secure and are comfortable. This provides a basis for protecting people from smoking and SHS and is supported by findings from the qualitative research that suggest whānau members actively protect others from smoking. A focus on the wellbeing of children ensures that they are a priority in terms of being protected from smoking. Finally promoting whānau connectedness as discussed previously is an important dimension of attachment and identity.

#### ***6.1.3.3 Parenting values***

Core parenting values identified in the qualitative research included ensuring: children and young people are safe now and in the future; they feel loved and supported; they have a secure sense of identity; and they are able to communicate meaningfully with their children. Values of safety reiterate the whānau value of manaaki and can include health promoting behaviour such as protecting children from smoking. Other dimensions of safety were seen by parents as more important (for example safety from strangers). However, this may in part be due to parents not being aware of the potential influence they have in protecting their children from smoking or seeing smoking as an important parenting issue.

Values of love, support and stability are linked to parent-child relationships and were recognised in the qualitative research as an important dimension for ensuring children are connected with their parents. Findings from the literature and quantitative research suggested feeling connected with parents was protective of uptake. The importance of identity has been discussed previously and is linked to young people feeling connected with their whānau and culture. Finally the importance of communication has been discussed in-depth elsewhere in this thesis and, in summary, is seen as an important precursor for good parent-child relationships and parents actively supporting their children not to smoke.

## **6.2 Relevance to a Māori model of health**

There are a range of Māori frameworks for health and wellbeing that have been developed to help understand how health is conceptualised from a Māori perspective. Of these frameworks Te Whare Tapa Whā is one of the most widely promoted. This section seeks to critique the explanatory model in relation to the Te Whare Tapa Whā.

### **6.2.1 Te Whare Tapa Whā**

Te Whare Tapa Whā was first articulated by Mason Durie who, in summing up key points from a Māori health hui held in 1982, described them in terms of presenting a holistic perspective on Māori health.<sup>162</sup> Durie characterised this perspective by four cornerstones: *taha tinana* (physical), *taha hinengaro* (emotional/psychological), *taha whānau* (social), and *taha wairua* (spiritual).

A study by Glover<sup>163</sup> critiqued Te Whare Tapa Whā in terms of smoking cessation. In her critique she highlighted *te taha hinengaro* as reflecting the subjective (intrapersonal) experience of smoking, *te taha wairua* where smoking could be seen as a breach of a person's tapu, *te taha tinana* as linked to the actual physical impact smoking has on a person's body, and *te taha whānau* as recognising the influence of social factors and attachment on smoking.

#### **6.2.1.1 Te Taha Hinengaro**

Within the explanatory model determinants relating to Te Taha Hinengaro are reflected in the psychological effect of those behaviours that can socialise and affect decisions of young Māori to smoke. Experiences of parenting may affect a young persons feelings of wellbeing in general and may be expressed in terms of support and attachment to their parents.

#### **6.2.1.2 Te Taha Tinana**

The rationale for the explanatory model is that smoking ultimately affects the health of the smoker and the wellbeing of those around them. Therefore, the ultimate goal is to reduce the physical (as well as social) harms from tobacco.

### **6.2.1.3 Te Taha Whānau**

Te Taha Whānau is perhaps the most relevant to this thesis. This is partly for practical reasons (a model of smoking uptake has to start somewhere) but mainly because of the central role that whānau plays for children and within a Māori world view.

### **6.2.1.4 Te Taha Wairua**

Connection to identity as Māori discussed in the previous section links to the notion of Te Taha Wairua. It should be noted that in the explanatory model connection to identify as Māori was not indicated as a potential determinant. Instead it was indicated as an underlying principle for Māori development. This was because there was insufficient information to establish a relationship between identity and smoking.

## **6.3 Application of the Explanatory model**

As described in the methods section of this thesis, the purpose of explanatory models is to identify determinants that contribute to a phenomena of interest and explain how these factors interact to produce the phenomena. These determinants, either separately or collectively become the focus of development of public health interventions that seek to change them in a desirable way. The explanatory model described in Figure 6.1 has grouped determinants according to whether they directly relate to promoting smoking socialisation behaviours or whether they affect more general parenting behaviours that have direct and indirect influence over smoking. Because smoking socialisation behaviours are conceived as being directly related to health behaviours (smoking) they are within the scope of public health interventions. General parenting behaviours may be seen as removed from being within the scope of public health. While there are some international examples where parenting behaviours have been a focus of intervention (e.g. the *Got a minute? Give it to your kids a minute* campaign that was implemented in the United States<sup>164</sup>) these may be the exception rather than the rule. This suggests that the design of any parent focused interventions should include collaboration with sectors outside of health, for example, those that provide parenting programmes.

It is possible that the general parenting behaviours identified in the model may reflect causal factors related to the uptake of a range health behaviours among Māori youth. For example, these factors may be shared with determinants of early alcohol use (along with specific alcohol related determinants such as access to alcohol in the home). As such they could be used as a basis for understanding and developing parent and whānau focused interventions for addressing other health behaviours affecting Māori youth.

### **6.3.1 Implementation of a pilot project in Whanganui**

At the time this thesis was being researched a pilot project focusing on reducing smoking uptake among Māori youth was launched in Whanganui. The project aimed to:

1. Improve engagement of parents in their children's lives
2. Increase discouragement of smoking by parents and caregivers.

These aims reflected parental smoking socialisation practices and more general parenting behaviours as described in this thesis. Preliminary thesis findings helped to inform the development of the pilot project in Whanganui. While the pilot project appeared to suffer from resourcing shortages and changes in staff, those involved with the project reported they thought the model it was based on had value and was worthy of further investigation.<sup>165</sup>

### **6.4 Strengths, limitations and further research**

The strengths and limitations of the quantitative and qualitative studies are explored within their respective discussion sections.

A strength of the mixed methods approach to developing the explanatory model described in Figure 6.1 is that it allowed associations to be tested, while recognising other sources of (qualitative) data that helped to provide context and plausible explanations for any associations (or non-associations). A drawback of this approach was that the explanatory model reflects a process that, while based on logic and best available information, should only be seen as a starting point for inquiry into parent (or more general) related determinants for smoking uptake among Māori youth. This is due to limitations in the information sources used for the model as well as the

relatively unexplored area of comprehensive models of parental influence on uptake, particularly in relation to Māori and other indigenous peoples.

A further limitation was that the quantitative research was derived from existing data. Therefore, results may in part reflect what was available in the data. Future research could employ a more theory driven approach. Qualitative methods could be used to develop theory and context, while quantitative methods could be used to test the theory. The explanatory model described in Figure 6.1 could be used as the starting point for such a theory. Ideally any quantitative studies should employ cohorts that follow representative samples of Māori and non-Māori children from preadolescence through until adolescence.

Outcomes hierarchies were used to demonstrate relationships between variables. Such hierarchies have the benefit of presenting relatively complex information in a way that can be easily interpreted and clearly demonstrates how each variable affects other variables in the hierarchy (causal relationships). A drawback of the use of hierarchies as presented in this thesis is that they potentially over-simplify complex relationships and assume that relationships are causal, when data may not support this claim. Another drawback of hierarchies is that they can be seen as reducing outcomes to components that if considered individually may have little meaning. An alternative to this approach is to attempt to show how determinants relate to each other, with the drawback that the model quickly becomes complex and difficult to interpret.

Another potential limitation of this thesis was that it was based on existing quantitative data and used qualitative research techniques that are largely based within a Western paradigm of research. As such they may have failed to fully appreciate experiences of whānau, parenting and smoking from within a Māori worldview. Such an appreciation would require use of Kaupapa Māori methods of inquiry and reporting.

### ***6.3 Final conclusions***

This thesis has identified a range of potential determinants for smoking uptake and attempted to link them within an explanatory model of parental influences on smoking uptake. While many determinants reflect those already identified in the literature, others are unique to the thesis. Findings also indicate two important conclusions. First that identification as Māori is not a risk factor for smoking uptake. Rather, identification as Māori is likely to be marker of being more likely to be exposed to risk factors for uptake

The second important conclusion is that even if parents find they are unable to quit smoking, there are other actions they can take to reduce the risk of their children taking up smoking. Moreover, many parents and caregivers of Māori children are already engaged in these actions.

Actions that parents can take are broadly seen as related to smoking specific behaviours and parenting styles in general. As such this suggests that reducing smoking uptake among Māori youth requires collaboration from within and outside the health sector.

The development of the explanatory model in the concluding chapter of the thesis demonstrates that it is possible to synthesise data from a mixed methods approach, with each method having its own benefits and drawbacks, to provide insights into processes of taking up smoking.

## Kupu whakamutunga: Epilogue

*Whānau ora karanga*

*Karanga ra te kaupapa*

*I roto i te aroha*

*Whānau ora*

*Kia kaha*

The above waiata was composed by Te Inupo Farrar and used at many of the hui held by the Whānau Ora Taskforce to inform their report *Whānau Ora: Report of the Taskforce on Whānau-Centred Initiatives*.<sup>166</sup> This waiata highlights the importance of collective whānau wellbeing, love, caring and strength for ensuring that whānau, in its many conceptions, continues to be a cornerstone for Māori society. This thesis has been a journey for me within my own whānau, as a person who did not grow up near his own marae, as a child of a parent who smoked but never smoked himself, and as a parent focussed on the wellbeing of my own children. The notion of wellbeing to me is a hugely subjective one, but has its roots in not only the end result of being ‘well’ but also the process through which wellness is achieved. Perhaps paramount are the core parenting values and general parenting behaviours that have been identified in this thesis such as loving your children, ensuring they have a strong sense of who they are and making sure that good communication is always maintained.

With that in mind it is now time to finish this thesis and go and spend time with my own whānau...

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## Chapter 7: References

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## **Appendix A. Agency websites accessed for unpublished literature**

### **New Zealand**

- ASH New Zealand: <http://www.ash.org.nz/>
- Cancer Society of New Zealand: <http://www.cancernz.org.nz/>
- Heart Foundation of New Zealand: [www.nhf.org.nz/](http://www.nhf.org.nz/)
- Health Sponsorship Council<sup>xc</sup>: <http://www.hsc.org.nz/>
- Ministry of Health<sup>1</sup>: <http://www.moh.govt.nz>
- Public Health Units/District Health Boards:
  - Northland: <http://www.northlanddhb.org.nz/health/>
  - Auckland: <http://www.arphs.govt.nz/>
  - BOP: <http://www.bopdhb.govt.nz/ToiteOra/>
  - Canterbury: <http://www.cpublicehealth.co.nz/>
  - Hawkes Bay: [http://www.hawkesbaydhb.govt.nz/web\\_content2.asp?ID=100000224](http://www.hawkesbaydhb.govt.nz/web_content2.asp?ID=100000224)
  - Wellington: <http://www.hutvalleydhb.org.nz/Article.aspx?ID=834>
- Te Hotu Manawa Māori : <http://www.tehotumanawa.org.nz/>
- Te Reo Marama: <http://www.tereomarama.co.nz/>

### **International**

#### **Websites for global organisations**

- Cochrane/DARE: <http://www.cochrane.org/>
- World Health Organisation: <http://www.who.int/topics/tobacco/en/>
  - Tobacco Free Initiative: <http://www.who.int/tobacco/en/index.html>

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<sup>xc</sup> Literature also accessed in person.

## Australia

- Cancer Council of Victoria: [www.cancervic.org.au/](http://www.cancervic.org.au/)
- Cancer Council of New South Wales: [www.cancer council.com.au](http://www.cancer council.com.au)
- New South Wales Department of Health: [www.health.nsw.gov.au/](http://www.health.nsw.gov.au/)
- VicHealth: [www.vichealth.vic.gov.au/](http://www.vichealth.vic.gov.au/)

## Canada

- Health Canada: [www.hc-sc.gc.ca/index\\_e.html](http://www.hc-sc.gc.ca/index_e.html)
- Ontario Tobacco Research Unit: <http://www.otru.org/index.html>

## United Kingdom

- ASH Scotland: [www.ashscotland.org.uk/](http://www.ashscotland.org.uk/)
- ASH UK: [www.ash.org.uk/](http://www.ash.org.uk/)
- Health Scotland
- Institute for Social Marketing: <http://www.ism.stir.ac.uk/index.htm>

## United States

- California Department of Health Services: [www.dhs.ca.gov/](http://www.dhs.ca.gov/)
- Campaign for Tobacco Free Kids: [www.tobaccofreekids.org/](http://www.tobaccofreekids.org/)
- Centres for Disease Control: <http://www.cdc.gov/>

## Appendix B. Glossary of key terms

### Family context

- *Family functioning:* Some studies used a general measure of family functioning. Higher values are seen as having ‘better’ functioning families.
- *Family structure:* Generally refers to how the family is organised:
  - *non-standard:* Common term (or similar) used in international studies. Defined as any family other than a two biological, nuclear family. “Non-standard” can include single parent, step-families and extended families. ‘Standard’ (nuclear) families are commonly used as the reference point for non-standard families
  - *low parent age at birth:* Refers to low parent age (particularly mother) when child was born
  - *4 + children:* Indicates larger families (NB these types of families can still be defined as ‘standard’ if both biological parents live at home).
- *Parental psychiatric disorders:* Included substance use disorders. In the studies reviewed for this thesis parental psychiatric disorders were assessed using the DSM-IV and ICD-10.
- *Family stress:* Amount of stress family members (in particular children) experience as a result of conditions within the family.
- *SES:* Socio-economic status. Most studies only measured part attributes of SES for example:
  - *parental income and education:* In this context low income and education seen to be associated with lower SES
  - *low father occupational status:* Occupational status categorised according to whether it is associated with SES. Low occupational status seen as indicator of low SES.

## Parenting

- *General parenting:* Some studies used a general parenting score. Higher scores indicate more positive parenting styles.
- *Monitoring:* Refers to how parents monitor their children and the knowledge they have of their children's activities.
- *Communication:* Refers to how much and the way parents communicate with their children. Better communication was associated with parents consulting their child for their opinion and talking about important issues.
- *Involvement/time:* How involved parents are with their child's daily lives. Also a function of how much time parents spend with their children.
- *Control:* The amount of control a parent exerts over their child. Can be separated into 'restrictive' control (e.g. rule setting) that is seen as functional and 'psychological or coercive' control that is seen as dysfunctional.
- *Support:* The amount and type of support and affection a parent gives their child.
- *Authoritative parenting:* A style of parenting characterised as parents being highly responsive to their child's needs while at the same time expecting high standards in relation to responsible behaviour. Compared to other parenting styles (e.g. authoritarian, permissive) authoritative is often seen as better enabling child development.
- *Permissive parenting:* A style of parenting characterised by parents having high responsiveness to their child's needs but not placing high expectations on their child's behaviour.
- *Disengaged parenting:* A style of parenting characterised by parents having low responsiveness to their child's needs and low expectations of their child's behaviour.
- *Access to R-rated films:* Generally refers to access to R-rated films at home, either through television, DVD/video or internet.

- *Parental acculturation:* The degree to which parents who were not born in the country of the study have assimilated into the norms, beliefs and behaviours of that country.
- *Level of self care:* Refers to how much children have to look after themselves because parents are absent. High self-care children are often referred to as latch-key youth.
- *Pocket money:* Generally a self-reported measure of the amount of money a child receives over a given period of time.

## **Parent-child relationships**

- *Parent-child relationships:* Can be seen as an outcome of parenting style. For example, authoritarian parenting is often seen as leading to poor parent-child relationships.
- *Attachment:* Degree of attachment a child feels towards their parents.

## **Anti/pro smoking socialisation**

- *General anti-smoking socialisation:* A general measure of parental practices that can deter children from smoking and includes many of the determinants described below.
- *Smoking related discussions:* Generally in the context of parents communicating the negative effects of smoking.
- *Parental expectations:* Generally refers to child's understanding of their parents' expectations on them not to smoke.
- *Parental confidence:* Confidence that a parent has that they can influence their child not to smoke.
- *Smoking rules:* Smoking rules that parents have expressed to their children. Most commonly refers to whether smoking is allowed in the household.
- *SHS exposure:* Degree that people (usually children) report to being exposed to other peoples tobacco smoke, or having people smoke around them indoors.

- *Rewards for not smoking:* Where parents may offer incentives to their child not to smoke.
- *Access to tobacco:* Whether children are able to access tobacco in the home.
- *Parental smoking:*
  - *any:* Either parent smokes
  - *number of parents who smoke:* Number usually in the form of none, one or both parents smoke
  - *mothers smoking:* Some studies only focused on mothers so only produced results for mothers. Some studies only found mothers smoking status to be predictive
  - *fathers smoking:* Some studies only focused on fathers so only produced results for fathers
  - *parental cessation vs never:* Compares the influence of parents who have quit smoking on their child's uptake to children with parents who have never smoked
  - *parental cessation vs smoking:* Compares the influence of parents who have quit smoking on their child's uptake to children with parents who continue to smoke
  - *step-parent smoking:* Smoking behaviour of step-parents who live with child.
  - *prenatal tobacco exposure:* Smoking behaviour of mother while still pregnant.
- *Peer socialisation to smoke:* Measure of the social influence of peers on smoking uptake.
- *Peer selection:* Measure of degree people actively select smoking or non-smoking friends.
- *Parent smoking:* Any parent smokes.
- *Friend smoking:* Best friend or other friends who smoke.

- *Sibling smoking:* Any smoking among siblings (though usually interested in older siblings).
- *Childs age:* Used as an indicator of their development.

## **Appendix C. Parent/Primary caregiver interview schedule**



### **PARENT or PRIMARY CARE-GIVER INTERVIEW SCHEDULE (V2)**

#### ***Introduction***

*Thank you for agreeing to take part. The purpose of this study is to better understand what is important to parents in raising their children, particularly in relation to smoking.*

*What you say will be entirely confidential. No one except myself or my supervisors will know what you said. You do not have to answer any questions that you do not want to. The interview should take about an hour.*

*The interview is divided into five sections. The first two are about the makeup of your family and what is important to you as a parent. The third and fourth is about smoking and your children. The last section links back to the first and is about smoking in the context of your family.*

*Before we start do you have any questions?*

*Check which term do you prefer: whānau or family?*

## **Overarching whānau system**

*The first questions I have are about your family/whānau.*

1. Please describe all the members of your family/whānau who you have regular contact with?

**Prompt:**

- Family members (children, parents/caregivers, grandparents, other relatives, other people)
- Who lives with them
- Who are involved in daily decision making
- Who is the main influence on norms

2. Can you tell me about a time when your family/whānau came together?

**Probe:**

- What was the occasion?
- Who was there?
- Can you briefly describe what happened at the occasion?
- Thinking about what happened, what sort of family/whānau values, if any, did the occasion reflect?
- Are there any other values that are important for your family/whānau?
- How do these values affect you as a parent?

## **Parenting**

*The next questions are about you and your child/children.*

3. What's most important for you in the way you raise your children?

**Probe:**

- How do these things affect your parenting style?
4. How would you describe your relationship with your child(ren)?
  5. How do you feel about this relationship?

## **Parental smoking**

*Now I'm going to ask you some questions about your smoking.*

6. Can you tell me a bit about your smoking:

**Prompt:**

- How long been smoking
- How often/much smoke now
- Where typically smoke

7. What are the main reasons you smoke now?

- How do you feel about being a smoker?

### **Smoking and children**

*The next questions are about you as a parent who smokes*

8. How do you feel about being a smoker as well as being a parent?

**Probe:**

- Whether separate issues
- Whether has influenced smoking behaviour

9. What sorts of things have you done (if any) to protect your child(ren) from smoking?

**Probe:**

- Why (e.g. because asked to, health home, prevent smoking in the future)

10. How much influence do you think you have over whether your children smoke or not?

**Probe:**

- Why

### **Smoking and the whānau context**

*The last questions about smoking in the broader context of*

11. How normal is smoking within your wider family/whānau?

**Prompt:**

- How do you feel about this?

12. How do you think smoking relates to the values within your family/whānau that we discussed earlier?

*That's all the questions I have, before we finish is there anything else that you would like to add?*

*Thank and finish*

## **Appendix D. Information sheet for research participants**



### **INFORMATION SHEET FOR RESEARCH PARTICIPANTS**

Thank you for taking part in this research.

Please read this information sheet carefully before deciding whether or not to take part. If you decide not to take part there will be no disadvantage to you of any kind. This research has been reviewed and approved by the research ethics process of the Department of Public Health, University of Otago (Wellington).

#### **What is this study about?**

The aim of this research is to explore what influences how parents think and what they do in relation to preventing their children from taking up smoking. A focus of the research is with in Māori families/whānau. Results from this study will be written up as part of a Thesis to be submitted as part of a Masters of Public Health, University of Otago.

#### **Who is being asked to take part?**

We are talking to Māori smokers who are parents of children aged 5 to 13.

#### **What are we asking you to do?**

To take part in an interview with a researcher to discuss smoking the context of your family/whānau, how this may affect your children and anything that is being done to protect them from smoking. There are no right or wrong answers.

#### **How would the interview be carried out?**

The interview would last up to an hour and would be carried out in your home, or somewhere else if you prefer.

We will ask your permission to tape the interview to record what you say. This will help us to make sure that what you say is recorded accurately.

#### **How will we use the material from the interviews?**

Your interviews, along with the others that participate in this study will all be made anonymous. That is, no one will be able to identify who said what. Only those working on this study will know that you took part

The interviews will be analysed to identify the main themes which will then be summarised and written up as part of the Masters Thesis. The results may also be published in a scientific journal, newsletters and presented at hui, conferences and workshops.

Interview notes and associated material will be securely stored (in locked filing cabinets or password protected computers as appropriate) in such a way that only the researcher and their supervisors (named below) will be able to gain access to it. No one else will have access to it.

At the end of the project any personal information except your consent form will be destroyed. Your consent form will be destroyed after five years.

Should you wish, we will send you the report describing the results of the project.

### **Can I withdraw from the research project?**

Yes. You may decide not to answer any questions, and you may withdraw from the research at any stage, without giving a reason and without any disadvantage to yourself of any kind.

### **What if I have any questions?**

If you have any questions about our project, either now or in the future, please feel free to contact any of the researchers listed below:

#### **Thesis candidate:**

Andrew Waa

Phone: 027 4 896 119

Email: [andrew.waa@otago.ac.nz](mailto:andrew.waa@otago.ac.nz)

University of Otago, Wellington

#### **Supervisors:**

Dr Richard Edwards

Bridget Robson

Phone: 04 385 5541 x5089

Phone: 04 3855924

Email: [richard.edwards@otago.ac.nz](mailto:richard.edwards@otago.ac.nz)

Email: [bridget.robson@otago.ac.nz](mailto:bridget.robson@otago.ac.nz)

University of Otago, Wellington

University of Otago, Wellington

## Appendix E. Consent form for research participants



### CONSENT FORM FOR PROJECT PARTICIPANTS

I have read and understood the Information Sheet describing this project and all my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage. I know that:

1. My participation in the project is entirely voluntary;
2. I am free to withdraw from the project at any time without any disadvantage;
3. The interview will be recorded and I may choose to have the recording machine stopped at any time;
4. My name and address will be destroyed at the end of the research, but this consent form will be stored securely for five years, after which these items will be destroyed;
5. If, during the interview, the discussion develops in such a way that I feel hesitant or uncomfortable, I may decline to answer any particular question(s) or participate further in the interview, and/or may withdraw from the project at any time without any disadvantage for me of any kind;
6. The results of the project may be made available to other people and published but my identity will be kept confidential;
7. This project has been reviewed and approved by the Department of Public Health, University of Otago.

I agree to take part in this project.

.....(Signature of participant)

(Name)

First name

Middle names

Last names

..... / .....  
Day      Month      Year

(Date)

Would you like to receive a copy of the research report?

Yes

No

## Appendix F. Tables for non-parent related variables

**Table F4.1 Associations between non-parental variables and current smoking among Year 10 students**

Variable		Māori n = 649 <sup>i</sup>	Non-Māori n= 2512 <sup>iii</sup>	Unadjusted OR	Adjusted OR <sup>ii</sup>	Unadjusted OR	Adjusted OR <sup>iv</sup>
<b>Age</b>	14	1.00	1.00	1.00	1.00	1.00	1.00
	15	1.32 (0.91 to 1.91)	1.07 (0.65 to 1.79)			1.07 (0.81 to 1.42)	0.96 (0.68 to 1.38)
<b>Gender</b>	Male	1.00	1.00	1.00	1.00	1.00	1.00
	Female	<b>2.35</b> <b>(1.64 to 3.37)</b>	<b>2.65</b> <b>(1.60 to 4.39)</b>			<b>1.79</b> <b>(1.36 to 2.36)</b>	<b>1.75</b> <b>(1.22 to 2.50)</b>
<b>School decile</b>	High	1.00	1.00	1.00	1.00	1.00	1.00
	Medium	<b>2.15</b> <b>(1.23 to 3.76)</b>	1.50 (0.70 to 3.24)			<b>1.81</b> <b>(1.31 to 2.49)</b>	1.46 (0.97 to 2.20)
	Low	<b>2.33</b> <b>(1.35 to 4.02)</b>	1.34 (0.63 to 2.85)			<b>1.82</b> <b>(1.27 to 2.60)</b>	1.12 (0.69 to 1.84)
<b>Friend smoking</b>	0 smoke	1.00	1.00	1.00	1.00	1.00	1.00
	1≤ smoke	<b>13.56</b> <b>(6.48 to 28.38)</b>	<b>7.90</b> <b>(3.44 to 18.14)</b>			<b>27.04</b> <b>(15.42 to 47.42)</b>	<b>14.58</b> <b>(7.72 to 27.53)</b>
<b>Normative belief peer smoking</b>	Under half	1.00	1.00	1.00	1.00	1.00	1.00
	Half and over	<b>2.34</b> <b>(1.59 to 3.45)</b>	NS			<b>2.86</b> <b>(2.17 to 3.76)</b>	NS
<b>Sibling smoking</b>	0 smoke	1.00	1.00	1.00	1.00	1.00	1.00
	1≤ smoke	<b>3.12</b> <b>(2.18 to 4.47)</b>	<b>2.14</b> <b>(1.32 to 3.48)</b>			<b>4.00</b> <b>(3.03 to 5.28)</b>	<b>1.76</b> <b>(1.23 to 2.52)</b>
<b>School performance</b>	Good	1.00	1.00	1.00	1.00	1.00	1.00
	Av	<b>1.70</b> <b>(1.14 to 2.54)</b>	NS			<b>2.69</b> <b>(1.95 to 3.71)</b>	<b>1.93</b> <b>(1.29 to 2.88)</b>
	Below av	<b>2.26</b> <b>(1.25 to 4.06)</b>	NS			<b>6.31</b> <b>(4.14 to 9.62)</b>	<b>2.96</b> <b>(1.65 to 5.30)</b>
<b>Family Structure</b>	Nuclear	1.00	1.00	1.00	1.00	1.00	1.00
	1 parent	<b>2.00</b> <b>(1.26 to 3.18)</b>	<b>2.11</b> <b>(1.12 to 3.95)</b>			<b>2.76</b> <b>(1.95 to 3.90)</b>	NS
	Extended	1.13 (0.73 to 1.76)	0.94 (0.52 to 1.69)			<b>2.20</b> <b>(1.58 to 3.05)</b>	NS
	Other	1.84 (0.99 to 3.39)	1.37 (0.57 to 3.32)			<b>2.28</b> <b>(1.23 to 4.24)</b>	NS
<b>Been to marae</b>	No	1.00	1.00	1.00	1.00	1.00	1.00
	Yes	<b>2.53</b> <b>(1.74 to 3.67)</b>	<b>1.90</b> <b>(1.17 to 3.10)</b>			<b>2.59</b> <b>(1.68 to 4.00)</b>	<b>1.94</b> <b>(1.11 to 3.40)</b>
<b>Kapa haka</b>	No	1.00	1.00	1.00	1.00	1.00	1.00
	Yes	<b>2.16</b> <b>(1.48 to 3.16)</b>	NS			<b>3.94</b> <b>(1.99 to 7.80)</b>	NS

<sup>i</sup> Unadjusted n = 589 to 649, adjusted n = 618.

<sup>ii</sup> Adjusted friend smoking, sibling smoking, family structure, been to marae, demographic variables, and other smoking socialisation and general parenting behaviours.

<sup>iii</sup> Unadjusted n = 2310 to 2512, adjusted n = 2220.

<sup>iv</sup> Adjusted friend smoking, sibling smoking, school performance, been to marae, demographic variables, and other smoking socialisation and general parenting behaviours.

**Table F4.3. Associations between non-parental variables and smoking susceptibility among current non-smoking Year 10 students**

Variable	Māori n= 466 <sup>i</sup>		Non-Māori n= 2251 <sup>iii</sup>	
	Unadjusted OR	Adjusted OR <sup>ii</sup>	Unadjusted OR	Adjusted OR <sup>iv</sup>
<b>Age</b>	14	1.00	1.00	1.00
	15	0.91 (0.61 to 1.36)	<b>0.51</b> <b>(0.30 to 0.87)</b>	0.88 (0.73 to 1.06)
<b>Gender</b>	Male	1.00	1.00	1.00
	Female	<b>1.47</b> <b>(1.01 to 2.14)</b>	<b>1.67</b> <b>(1.01 to 2.76)</b>	<b>1.36</b> <b>(1.14 to 1.61)</b>
<b>School decile</b>	High	1.00	1.00	1.00
	Medium	1.15 (0.70 to 1.89)	0.90 (0.48 to 1.72)	1.15 (0.95 to 1.40)
	Low	1.05 (0.65 to 1.68)	<b>0.46</b> <b>(0.23 to 0.91)</b>	0.79 (0.63 to 1.00)
<b>Ever smoked</b>	No	1.00	1.00	1.00
	Yes	<b>7.00</b> <b>(4.51 to 10.89)</b>	<b>11.07</b> <b>(5.94 to 20.63)</b>	<b>7.00</b> <b>(5.76 to 8.52)</b>
<b>Friend smoking</b>	0 smoke	1.00	1.00	1.00
	1≤ smoke	<b>3.51</b> <b>(2.35 to 5.24)</b>	<b>3.31</b> <b>(1.95 to 5.62)</b>	<b>3.51</b> <b>(2.93 to 4.21)</b>
<b>Normative belief peer smoking</b>	Under half	1.00	1.00	1.00
	Half and over	<b>1.82</b> <b>(1.25 to 2.65)</b>	<b>1.81</b> <b>(1.07 to 3.06)</b>	<b>1.38</b> <b>(1.16 to 1.66)</b>
<b>Sibling smoking</b>	0 smoke	1.00	1.00	1.00
	1≤ smoke	<b>1.75</b> <b>(1.17 to 2.60)</b>	NS	<b>2.18</b> <b>(1.74 to 2.74)</b>
<b>School performance</b>	Good	1.00	1.00	1.00
	Av	1.34 (0.91 to 1.98)	NS	<b>1.92</b> <b>(1.60 to 2.30)</b>
	Below av	1.53 (0.77 to 3.07)	<b>0.35</b> <b>(0.15 to 0.83)</b>	<b>2.90</b> <b>(2.03 to 4.16)</b>
<b>Family Structure</b>	Nuclear	1.00	1.00	1.00
	1 parent	0.84 (0.50 to 1.41)	<b>0.52</b> <b>(0.27 to 0.99)</b>	<b>1.34</b> <b>(1.04 to 1.74)</b>
	Extended	0.99 (0.64 to 1.53)	NS	1.25 (1.00 to 1.56)
	Other	0.56 (0.28 to 1.13)	<b>0.34</b> <b>(0.14 to 0.83)</b>	0.91 (0.55 to 1.50)
<b>Been to marae</b>	No	1.00	1.00	1.00
	Yes	0.99 (0.66 to 1.48)	NS	0.88 (0.59 to 1.30)
<b>Kapa haka</b>	No	1.00	1.00	1.00
	Yes	0.92 (0.59 to 1.43)	<b>0.54</b> <b>(0.30 to 0.97)</b>	1.42 (0.68 to 2.96)

<sup>i</sup> Unadjusted n = 356 to 466, adjusted n = 439<sup>ii</sup> Adjusted ever smoked, friend smoking , normative beliefs about peer smoking, school performance, family structure, participated in Māori cultural activities, demographic variables, and other smoking socialisation and general parenting behaviours.<sup>iii</sup> Unadjusted n = 2076 to 2251, adjusted n = 2157<sup>iv</sup> Adjusted for ever smoked, friend smoking, school performance, demographic variables, and other smoking socialisation and general parenting behaviours.

**Table F4.5. Associations between non-parental variables and smoking susceptibility among Year 6 never smokers**

Variable		Māori (n=348)		Non-Māori (n=1305)	
		Unadjusted OR (CI)	Adjusted OR (CI)	Unadjusted OR (CI)	Adjusted OR (CI)
Normative belief	≈<1/4	1.00	1.00	1.00	1.00
	≈ ½	0.49 (0.23 to 1.08)	0.47 (0.18 to 1.25)	1.30 (0.88 to 1.94)	1.17 (0.75 to 1.82)
	≈>¾	0.75 (0.36 to 1.56)	0.46 (0.19 to 1.10)	1.20 (0.77 to 1.86)	1.02 (0.62 to 1.67)
Smoking status of friends	None	1.00	1.00	1.00	1.00
	At least 1	<b>4.72</b> <b>(2.16 to 10.32)</b>	<b>8.79</b> <b>(3.25 to 23.77)</b>	<b>2.06</b> <b>(1.22 to 3.49)</b>	1.77 (0.93 to 3.37)
School performance	Good	1.00	1.00	1.00	1.00
	Average	1.83 (0.79 to 4.20)	<b>4.71</b> <b>(1.90 to 11.70)</b>	1.27 (0.87 to 1.86)	1.16 (0.77 to 1.76)
	Below average	2.50 (0.83 to 7.54)	1.43 (0.35 to 5.81)	<b>3.00</b> <b>(1.83 to 4.92)</b>	<b>2.75</b> <b>(1.62 to 4.68)</b>
Been to marae	No	1.00	1.00	1.00	1.00
	Yes	<b>2.05</b> <b>(1.06 to 3.98)</b>	1.13 (0.47 to 2.69)	1.62 (0.93 to 2.82)	<b>2.27</b> <b>(1.25 to 4.14)</b>
Likes Māori activities	No	1.00	1.00	1.00	1.00
	Yes	<b>2.87</b> <b>(1.52 to 5.43)</b>	<b>6.13</b> <b>(2.43 to 15.49)</b>	0.94 (0.51 to 1.71)	1.00 (0.53 to 1.89)
Visited place of worship	No	1.00	1.00	1.00	1.00
	Yes	1.63 (0.84 to 3.16)	<b>3.80</b> <b>(1.53 to 9.48)</b>	<b>0.65</b> <b>(0.44 to 0.95)</b>	<b>0.55</b> <b>(0.35 to 0.88)</b>

**Table F4.5.Continued**

Variable		Māori (n=348)		Non-Māori (n=1305)	
		Unadjusted OR (CI)	Adjusted OR (CI)	Unadjusted OR (CI)	Adjusted OR (CI)
11 Age	10	1.00	1.00	1.00	1.00
	11	0.68 (0.36 to 1.28)	<b>0.43</b> <b>(0.21 to 0.90)</b>	1.40 (0.98 to 2.00)	1.22 (0.83 to 1.81)
School decile	High	1.00	1.00	1.00	1.00
	Medium	1.22 (0.46 to 3.22)	0.43 (0.12 to 1.51)	1.12 (0.75 to 1.68)	1.17 (0.75 to 1.82)
	Low	1.24 (0.54 to 2.88)	0.39 (0.11 to 1.32)	0.83 (0.53 to 1.29)	<b>0.60</b> <b>(0.37 to 0.97)</b>
Gender	Male	1.00	1.00	1.00	1.00
	Female	0.75 (0.36 to 1.28)	0.45 (0.20 to 1.01)	0.74 (0.52 to 1.04)	1.02 (0.69 to 1.51)
Family structure	Nuclear	1.00	1.00	1.00	1.00
	Extended	<b>2.27</b> <b>(1.04 to 4.92)</b>	<b>3.10</b> <b>(1.09 to 8.85)</b>	1.10 (0.65 to 1.86)	1.12 (0.66 to 1.92)
	Single parent	1.71 (0.75 to 3.92)	1.33 (0.46 to 3.86)	0.88 (0.55 to 1.41)	0.62 (0.35 to 1.11)
	Other	1.07 (0.32 to 3.62)	1.81 (0.40 to 8.16)	1.39 (0.52 to 3.67)	1.99 (0.58 to 6.84)

- In the adjusted analysis each variable was adjusted for all other variables in the model.
- Gender, parental smoking, general parent created rules, parental anti-smoking attitudes and normative beliefs about adult smoking were not found to be significantly associated with susceptibility to smoking.

**Table F4.7. Year Māori never smoker associations between non-parental variables and smoking susceptibility for Year 6 and 10 students**

Variable		Year 6 Never smokers (n = 348 <sup>i</sup> )		Year 10 Never smokers (n = 167 <sup>iii</sup> )	
		Unadjusted OR (95%CI)	Adjusted OR <sup>ii</sup> (95%CI)	Unadjusted OR (95%CI)	Adjusted OR <sup>iv</sup> (95%CI)
Age	10/14 years	1.00	1.00	1.00	1.00
	11/15 years	0.68 (0.36 to 1.28)	0.61 (0.29 to 1.25)	0.71 (0.29 to 1.72)	0.58 (0.23 to 1.67)
Gender	Male	1.00	1.00	1.00	1.00
	Female	0.75 (0.40 to 1.41)	0.78 (0.38 to 1.59)	1.10 (0.52 to 2.28)	0.91 (0.38 to 2.20)
School deciles	High SES	1.00	1.00	1.00	1.00
	Med SES	1.22 (0.46 to 3.22)	1.01 (0.33 to 1.24)	0.98 (0.38 to 2.51)	1.10 (0.43 to 3.27)
	Low SES	1.24 (0.54 to 2.88)	0.77 (0.29 to 2.03)	1.76 (0.69 to 4.48)	1.93 (0.61 to 6.07)
Friend smoking	0 smoke	1.00	1.00	1.00	1.00
	1≤ smoke	<b>4.72</b> <b>(2.16 to 10.32)</b>	<b>7.92</b> <b>(3.42 to 18.38)</b>	1.92 (0.94 to 4.11)	<b>2.73</b> <b>(1.11 to 6.73)</b>
Sibling smoking	0 smoke	1.00	1.00	1.00	1.00
	1≤ smoke	1.66 (0.79 to 3.49)	NS	1.59 (0.67 to 3.80)	NS
School performance	Good	1.00	1.00	1.00	1.00
	Av	1.83 (0.79 to 4.20)	<b>2.16</b> <b>(1.03 to 4.51)</b>	0.98 (0.47 to 2.07)	NS
	Below av	2.50 (0.83 to 7.54)	NS	0.84 (0.09 to 8.06)	NS
Family Structure	Nuclear	1.00	1.00	1.00	1.00
	1 parent	1.71 (0.91 to 2.81)	NS	0.56 (0.20 to 1.58)	NS
	Extended	<b>2.27</b> <b>(1.04 to 4.92)</b>	NS	0.53 (0.21 to 1.32)	NS
	Other	1.07 (0.32 to 3.62)	NS	1.00 <sup>xci</sup>	NS

<sup>i</sup> Unadjusted n = 337 to 348, adjusted n = 319<sup>ii</sup> Adjusted for friend smoking, school performance, demographic variables, and other smoking socialisation and general parenting behaviours.<sup>iii</sup> Unadjusted n = 149 to 167, adjusted n = 145<sup>iv</sup> Adjusted for friend smoking, school performance, demographic variables, and other smoking socialisation and general parenting behaviours.<sup>xci</sup> Only 11 participants fitted in this category and all indicated they were non-susceptible to smoking.

**Table F4.8. Non-Māori never smoker associations between non-parental variables and smoking susceptibility for Year 6 and 10 students**

Variable		Year 6 Never smokers (n = 1305 <sup>i</sup> )		Year 10 Never smokers (n = 1429 <sup>iii</sup> )	
		Unadjusted OR (95%CI)	Adjusted OR <sup>ii</sup> (95%CI)	Unadjusted OR (95%CI)	Adjusted OR <sup>iv</sup> (95%CI)
Age	10/14 years	1.00	1.00	1.00	1.00
	11/15 years	1.40 (0.98 to 2.00)	1.39 (0.96 to 2.02)	0.72 (0.55 to 0.95)	0.71 (0.53 to 0.96)
Gender	Male	1.00	1.00	1.00	1.00
	Female	0.74 (0.52 to 1.04)	0.86 (0.60 to 1.23)	<b>1.29</b> <b>(1.00 to 1.66)</b>	<b>1.32</b> <b>(1.00 to 1.75)</b>
School deciles	High SES	1.00	1.00	1.00	1.00
	Med SES	1.12 (0.75 to 1.68)	1.08 (0.71 to 1.65)	1.20 (0.91 to 1.57)	1.01 (0.75 to 1.37)
	Low SES	0.83 (0.53 to 1.29)	0.70 (0.43 to 1.14)	0.73 (0.50 to 1.05)	0.60 (0.40 to 0.90)
Friend smoking	0 smoke	1.00	1.00	1.00	1.00
	1≤ smoke	<b>2.07</b> <b>(1.22 to 3.49)</b>	NS	<b>2.39</b> <b>(1.83 to 3.11)</b>	<b>2.21</b> <b>(1.65 to 2.95)</b>
Sibling smoking	0 smoke	1.00	1.00	1.00	1.00
	1≤ smoke	1.69 (0.99 to 2.89)	NS	<b>1.96</b> <b>(1.35 to 2.84)</b>	NS
School performance	Good	1.00	1.00	1.00	1.00
	Av	1.27 (0.87 to 1.86)	NS	<b>1.33</b> <b>(1.03 to 1.72)</b>	NS
	Below av	<b>3.00</b> <b>(1.83 to 4.92)</b>	<b>2.80</b> <b>(1.77 to 4.44)</b>	1.67 (0.94 to 2.97)	NS
Family Structure	Nuclear	1.00	1.00	1.00	1.00
	1 parent	0.88 (0.55 to 1.41)	NS	1.18 (0.80 to 1.74)	NS
	Extended	1.10 (0.65 to 1.86)	NS	1.18 (0.85 to 1.65)	NS
	Other	1.39 (0.52 to 3.67)	NS	1.04 (0.48 to 2.25)	NS

<sup>i</sup> Unadjusted n = 1252 to 1305, adjusted n = 1196<sup>ii</sup> Adjusted school performance, demographic variables, and other smoking socialisation and general parenting behaviours.<sup>iii</sup> Unadjusted n = 1299 to 1429, adjusted n = 1278<sup>iv</sup> Adjusted for friend smoking, demographic variables, and other smoking socialisation and general parenting behaviours.

**Table F4.9. Year 6 and Year 10 comparisons by age for non-parental variables**

Variable		Māori Yr6/Yr10		Non-Māori Yr6/Yr10	
		Yr 6	Yr 10	Yr 6	Yr 10
Demographics	Age	10/14 years	-	-	-
		11/15 years	↓NS	↓NS	↑NS ↓S
Gender	Male	-	-	-	-
	Female	↓NS	↓NS	↓NS ↑S	
School deciles	High SES	-	-	-	-
	Med SES	↑NS	↑NS	↑NS	↑NS
	Low SES	↓NS	↑NS	↓NS	↓S
Other	Friend smoking	0 smoke	-	-	-
		1≤ smoke	↑S	↑S	N/A ↑S
	Sibling smoking	0 smoke	-	-	-
		1≤ smoke	N/A	N/A	N/A N/A
	School performance	Good	-	-	-
		Av	↑S	N/A	N/A N/A
		Below av	N/A	N/A	↑S N/A
	Family Structure	Nuclear	-	-	-
		1 parent	N/A	N/A	N/A N/A
	Extended		N/A	N/A	N/A N/A
	Other		N/A	N/A	N/A N/A