Framing the impact of climate change on health: the case of New Zealand’s online media

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A thesis submitted for the degree of Master of Public Health
At the University of Otago, Dunedin, New Zealand

March, 2017
Abstract

Climate change is a major threat to public health both in New Zealand and abroad. Conversely, mitigation and adaption efforts offer numerous opportunities to improve health and equity. Despite this, comprehensive, government-led climate action is not forthcoming. The media plays an important role in shaping public opinion and support for policy change, and therefore may be critical for encouraging comprehensive climate action.

In this research I undertook a qualitative thematic analysis of climate change and public health media coverage within the New Zealand Herald Online and Scoop, in order to examine how the relationship between climate change and public health is reported within New Zealand online media. The main objectives were: to examine how the relationship between climate change and public health is framed in the New Zealand Herald Online; to compare this framing with that of the content published in independent news repository Scoop; and to outline recommendations for public health advocates and journalists based on my results. To achieve these objectives, I undertook a thematic analysis of data collected from the New Zealand Herald Online and Scoop and interpreted key thematic frames within both outlets. These were based on a number of frames identified in the previous literature, and were also developed inductively as I engaged with the data.

The overall thematic ‘story’ of each outlet was relatively similar. Content in both emphasised the negative threat that unchecked climate change poses to health. Press releases within Scoop were more likely to frame climate change in terms of the need for action and the possible health co-benefits of action, meaning the overall story in Scoop was more action-orientated and positive than in the New Zealand Herald Online. Coverage within both outlets framed ‘health’ in very limited terms and did little to discuss climate solutions that operate outside a free-market model of economic growth. Further, content in both outlets, Scoop in particular, emphasised contextually rich, de-personalised accounts of the health effects of climate change. Existing literature has suggested this impersonal and ‘boring’ framing may fail to capture audience attention about an already complex and largely ‘invisible’ issue. Public health advocates and journalists may wish to seek ways to make the issue of climate change and public health more personally relevant to New Zealand audiences, and more positive.

The results of my research suggest that as a mainstream media outlet, the New Zealand Herald Online does not drastically reframe the issue of climate change and public health from how it is portrayed within press releases in Scoop. Therefore, advocates may need to adapt how they frame their press releases, not only so that the issue is considered more ‘newsworthy’ to mainstream media outlets, but also to more effectively encourage public understanding of, and support for climate action.
Acknowledgements

I would like to thank my supervisors Dr. Alex MacMillan and Dr. Chris Rudd for their incredible support and guidance throughout this research project, which has been immensely helpful.

I would also like to thank my family for their constant encouragement and ceaseless belief in my ability, which has seen me through the periods of stress and frustration.
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<td>Health Care Without Harm</td>
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<td>IPCC</td>
<td>Intergovernmental Panel on Climate Change</td>
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<td>NZCPHM</td>
<td>New Zealand College of Public Health Medicine</td>
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1 Introduction

Anthropogenic climate change has been identified as the greatest threat to public health of this century, with the potential to negatively impact the wellbeing of billions worldwide (Costello et al., 2009; McMichael, Woodruff, & Hales, 2006; Myers & Patz, 2009; World Health Organization [WHO], 2015a). Increases in air pollution (McMichael et al., 2006; Myers & Patz, 2009), the severity of extreme weather events (Costello et al., 2009; Reisinger et al., 2014), and the spread of various diseases (Dekker, 2014, February; McMichael et al., 2006) are just some of the direct health impacts anticipated to occur on a global scale. Climate change also threatens key social determinants of health, such as food security, adequate housing and access to income (Dekker, 2014, February). New Zealand will not be immune from these effects (Reisinger et al., 2014). In addition, the negative health impacts of climate change are likely to exacerbate existing health inequities by disproportionately affecting Māori, Pacific and low income groups (Jones, Bennett, Keating, & Blaiklock, 2014; New Zealand Medical Association, 2015, August; Reisinger et al., 2014; Harris et al., 2006).

At the same time, it has been argued that well-planned action to mitigate and adapt to climate change offers the greatest health opportunity of the 21st century (Watts et al., 2015). Possible co-benefits of action include, for example, the promotion of diets with reduced intakes of meat and dairy (Friel et al., 2009), greater use of active transport (Woodcock et al., 2009), and improved insulation and energy efficiency in homes (Wilkinson, Smith, Beever, Tonne, & Oreszczyn, 2007).

Despite such evidence, the independent scientific assessment Climate Action Tracker (2016, November) has recently condemned the New Zealand Government’s “inadequate” (para. 2) efforts to reduce greenhouse gas emissions and weakening climate policy in recent years. Further, the Government's recent climate change target consultation document made no mention of the health risks associated with climate change (Ministry for the Environment, 2015, May), signalling a lack of recognition of the issue.

Internationally, research has begun to focus on how the political will and public engagement required to urgently tackle climate change can be brought about in a way that ensures health and social equity. Analysis of how the media reports the links between climate change and health is important for understanding how to most effectively encourage public and political support for climate action. This is because the media has the ability to reach mass audiences, and plays a critical role in the political and ideological framing of issues within public discourse (Cooper, 2011; Nisbet, 2009; Stamm, Clark, & Eblacas, 2000; Trumbo & Shanahan, 2000).
Framing climate change as a public health issue may make the issue appear more personally relevant to people (Maibach, Nisbet, Baldwin, Akerlof, & Diao, 2010). Further, a positive focus on the possible health co-benefits of climate action may encourage the general public to support climate policy, regardless of whether they are concerned about climate change itself or not (Bain et al., 2016).

Existing research relating to climate change and the media has been extensive, and continues to expand and diversify (Schäfer & Schlichting, 2014). Despite this, there is virtually no research which focusses specifically on the media’s framing of climate change as a health issue. As a result, little is known about how the issue is framed in online and New Zealand media, and whether such framing has changed over time. From a public health perspective, a clearer understanding of how New Zealand media frames the relationship between climate change and health may help advocacy organisations to develop more effective media strategies for encouraging public and political support for urgent and meaningful action.

The aim of my research is to examine how the relationship between climate change and public health is reported within New Zealand media. It is hoped that this research will help to provide a better understanding of how current narratives may encourage or hinder meaningful climate action and policy. To address this research aim, three specific research questions were addressed:

1: How is the relationship between climate change and public health framed in the New Zealand Herald Online, and has such framing changed over time? Further, does coverage include a holistic, ecological understanding of health and health equity?

2: How does the New Zealand Herald Online’s framing of climate change and public health compare with how this relationship is framed in the press releases published within online news repository Scoop?

3: What are the implications of these results for public health advocates and journalists?

To answer these questions, I have adopted a critical, social constructivist theoretical approach, and undertaken a qualitative thematic analysis of data collected from the New Zealand Herald Online and Scoop. Key thematic frames were interpreted within content from each outlet both deductively and inductively, and were then discussed in the broader context of existing literature.

In the next chapter I will give an overview of the literature which summarises the direct and indirect threats that unchecked climate change poses to public health, and the possible health
co-benefits of climate action. This clarifies why climate change is a priority for those concerned with public health. It also identifies the basis of the search terms I used to collect data for analysis. In this chapter I will also give a brief overview of the role of public health media advocacy in attempts to raise awareness about the need for climate action.

In chapter three I discuss the role of the media in agenda-setting and the framing of issues, and how this may affect audience support for climate action and policy. I also discuss the institutional and ideological constraints within which journalists must operate and how this affects the nature of their reporting. This includes a more specific look at the specialist environmental and public health reporters who report on climate change and health.

Having established the importance of studying how the media frames the issue of climate change and public health, in chapter four I review the existing literature that has examined media coverage of climate change and of public health as separate issues. This is followed by a systematic review of research specifically focused on media coverage of the relationship between climate change and public health. This systematic review provides insights about existing research gaps and methods that helped to shape my research.

In chapter five I discuss the epistemological and methodological positions which informed my research approach, while in chapter six I outline my data collection method and the qualitative thematic analysis method I used to analyse my data.

In chapter seven I discuss the results of my thematic analysis of data collected from the New Zealand Herald Online and Scoop. This involves an in-depth breakdown of the deductive and inductive themes I interpreted in the data, supported by data excerpts. These results provide the basis for my discussion in chapter eight. There I discuss my results from the New Zealand Herald Online in relation to the existing literature, and then compare this to the framing within content published in Scoop. Implications for public health advocates and journalists seeking to encourage public support for climate action will be outlined, along with limitations of this thesis and areas for future research.

The primary supervisor for this thesis, Dr Alex Macmillan, is a co-convenor of OraTaiao (The New Zealand Climate & Health Council), which is a not-for-profit society that seeks to raise awareness of the challenges of climate change for health, and opportunities of climate action (OraTaiao, 2015). OraTaiao has produced a significant amount of media material about climate change and public health in New Zealand since its inception in 2009. Therefore, some media content written by Alex has been collected and analysed as part of this research.
Climate Change, Public Health and Health Advocacy

2.1 Introduction

As introduced in chapter one, we are at a critical juncture globally for climate change and public health. In this chapter I give an overview of the extensive literature which demonstrates that unchecked climate change poses a serious threat to public health, and that climate action offers multiple opportunities to improve health and equitable health outcomes. In addition to justifying the premise of this research, this chapter also outlines the background knowledge that informed my analysis of climate change and health framing within the New Zealand Herald Online and Scoop. I will also discuss public health advocacy efforts which seek to raise awareness about the need for urgent climate action, and how media advocacy is a key aspect of this.

2.2 Public health definition

Firstly, my understanding of public health itself must be clarified. As part of this research, I have adopted Dahlgren and Whitehead's (1991) social-ecological framework to inform my conception of ‘public health’. While the individual is at the centre of this model, it extends beyond a narrow biomedical focus on behavioural and lifestyle factors as the determining factors of health and wellbeing. Rather, this model illustrates how individual health is influenced by a series of interconnected and mutually reinforcing factors at various social, cultural and environmental levels within society (Dahlgren & Whitehead, 1991; Gebbie, Rosenstock, & Hernandez, 2003). Key determinants of health which are shaped by the economic and social policies developed at these levels include access to healthcare services, water and food security, and adequate living conditions (Dahlgren & Whitehead, 1991; WHO, 2016b). Recognising the external influences on health also allows my research to acknowledge the causes and impacts of health inequities; that is, unequal health outcomes which are socially, economically or systematically produced, and can therefore be avoided (WHO, 2016b). Importantly, Dahlgren and Whitehead's (1991) ecological perspective recognises the impact of the physical environment on human health. In its Ottawa Charter, the WHO (1986) itself recognises the “inextricable links between people and their environment” (WHO, 1986, para. 12), extending this definition to include the natural environment.

In addition to this ecological approach, my research also recognises the four cornerstones of health embodied in Durie's (2004) Te Whare Tapa Whā model: physical (taha tinana); mental and emotional (taha hinengaro); social (taha whānau); and spiritual well-being (taha wairua). In this research, I adopt the holistic understanding that all four dimensions of health are
interlinked and in turn necessary to ensure a person’s health and well-being (Boulton & Gifford, 2014; Durie, 2004). In summary, when the term ‘public health’ is used throughout this thesis, the term should be understood to refer to both individual, societal and ecological determinants of health, which play out on multiple levels. This includes at the global level, which is particularly relevant given the scale of climate change. Further, ‘health’ in this research’s view refers equally to an individual’s physical, mental, social and spiritual wellbeing, as well as the critical importance of equitable health outcomes.

2.3 Direct impacts on health

Perhaps the greatest direct threat that climate change poses to health is the increased occurrence and severity of extreme weather events such as flooding, storms and torrential rainfall (Costello et al., 2009; Myers & Patz, 2009). Such events will result in a higher number of deaths and injuries, while damage to key infrastructure will impact on people’s ability to access healthcare and other essential services (Galvão, Edwards, Corvalan, Fortune, & Akerman, 2009; McMichael & Githeko, 2001). Access to safe drinking water in such situations may be compromised, leading to water insecurity (Galvão et al., 2009; Myers & Patz, 2009) and the spread of water-borne diseases (McMichael & Githeko, 2001). Damage to housing by extreme weather events also threatens the basic need for shelter, and pressures on the availability of suitable housing can lead to overcrowding and inadequate living conditions (Howden-Chapman, Chapman, Hales, Britton, & Wilson, 2010). This in turn can increase the spread of diseases such as meningococcal disease and measles (Baker et al., 2000; Myers & Patz, 2009). Increased indoor moisture, as a result of flooding and storms, can also result in the growth of mould and its associated risk to respiratory health (Kinney, 2008).

Rising temperatures are already contributing to increasingly severe heat waves in a number of regions globally, leading to an increase in heat-related deaths (Costello, Maslin, Montgomery, Johnson, & Ekins, 2011; Luber & McGeehin, 2008). Within New Zealand, those aged 65 and above are particularly vulnerable (Howden-Chapman et al., 2010; New Zealand College of Public Health Medicine [NZCPHM], 2013). Prolonged heat waves have a range of other health impacts, including increased violent aggression and assault (Anderson, 2001); longer and more severe pollen seasons (D’Amato & Cecchi, 2008; Myers & Patz, 2009); heightened food insecurity (Confalonieri et al., 2007; Tirado & Meerman, 2012); and an increased risk of forest fires, which threaten lives and contribute to health-damaging air pollution (Howden-Chapman et al., 2010).
In addition to physical health, extreme weather events will also have serious implications for people's mental wellbeing (Fritze, Blashki, Burke, & Wiseman, 2008; NZCPHM, 2013; Page & Howard, 2010). The experience of trauma following natural disasters and extreme weather can have ongoing psychological impacts, as can the implications of damaged housing, a lack of access to core infrastructure, and social disruption more widely (Berry, Bowen, & Kjellstrom, 2010; Doherty & Clayton, 2011).

Another major implication of climate change will be its effect on the spread of infectious disease (Myers & Patz, 2009). Within New Zealand, the outbreak of vector-borne diseases not typically found here, such as dengue fever and the Ross River virus, are likely to occur as a result of warmer temperatures and increased migrant flows from countries with disease-carrying mosquitoes (Woodward, Hales, & de Wet, 2001). Areas in the North Island are the most likely to be affected (Howden-Chapman et al., 2010), which is concerning due to its high population concentrations. Threats to clean water from excessive rainfall and higher temperatures will also lead to an increase in the spread of water and food-borne diseases, including enteric infections (Britton, Hales, Venugopal, & Baker, 2010; NZCPHM, 2013) and cryptosporidiosis (Lal et al., 2015). Within New Zealand, rural populations that lack access to a public water system will be the most vulnerable (Lal et al., 2015). Such outbreaks will add additional pressure to existing healthcare infrastructure, possibly delaying timely care.

Finally, climate change is anticipated to increase the concentration of air pollutants in the atmosphere (Dekker, 2014, February), further accelerating the decline of air quality. Air pollution already contributes to an estimated 5.5 million premature deaths per year worldwide (Brauer, 2016, February), and therefore any increase would exacerbate an already significant health threat. Within New Zealand, those living in large urban areas are at particular risk from declining air quality due to climate change (NZCPHM, 2013), as are those living in areas with increased risk of forest fires (Howden-Chapman et al., 2010).

2.4 Social and ecological determinants of health

The indirect effects of climate change on public health will be diverse and complex. From an economic perspective, unchecked climate change poses a serious risk to the global economy (Stern, 2006). The flow-on effects of any global economic downturn will be felt in New Zealand. A likely decline in demand for our agricultural and tourism industries, combined with stress on agricultural production and supply due to extreme weather events, will have negative and widespread effects for our economy (New Zealand Climate Change Centre, 2014; Office of the Prime Minister’s Science Advisory Committee, 2013). Without an adaptive economy,
unemployment is anticipated to rise, which will directly impact household incomes (Dekker, 2014, February). This in turn will influence people's ability to afford key determinants of health, such as adequate housing and healthcare. Furthermore, the cost of nutritious food is likely to rise in the event of increased global demand and shortage of supply (Dekker, 2014, February; Tirado & Meerman, 2012).

Increased economic pressure is likely to impact negatively on people's mental health, including their sense of self-worth and ability to cope with stress (Fritze et al., 2008). Unemployment, a lack of financial security, and high living costs have all been associated with chronic stress and depression, therefore impacting on people’s emotional and spiritual wellbeing (Fritze et al., 2008; Linn, Sandifer, & Stein, 1985; WHO, 2007). Chronic stress is also associated with physical harm, including an increased risk of cardiovascular disease (American Psychological Association, 2017; Schneiderman, Ironson, & Siegel, 2005).

Added to these pressures, changing weather patterns and rising sea levels globally will threaten the ability of millions of people to inhabit certain regions and low-lying islands, leading to mass forced migration (Warner, Ehrhart, Sherbinin, Adamo, & Chai-Onn, 2009; Wong et al., 2014). Large influxes of displaced populations from such areas may lead to social disruption and, in some instances, violent conflict (Barnett & Adger, 2007; Reuveny, 2007). New Zealand is likely to experience increased migration from Pacific Island countries in particular (Campbell & Warrick, 2014; Nurse et al., 2014).

2.5 Health inequities

It is widely acknowledged that those already experiencing inequitable health outcomes will be further disproportionately affected by climate change (Costello et al., 2009; Woodward et al., 2001). This is particularly relevant in New Zealand. Māori and Pacific peoples, for example, already experience disproportionately high rates of chronic and infectious disease due to poor socioeconomic factors and institutional racism (Harris et al., 2006; Jones et al., 2014; NZCPHM, 2013). It is predicted that the flow-on effects of climate change will exacerbate such inequities (Jones et al., 2014; NZCPHM, 2013). Increases in the price of energy and other goods and services that are critical for maintaining good health are also likely to disproportionally affect Māori, Pacific and low income groups (Dhar, Macmillan, Lindsay, & Woodward, 2009; NZCPHM, 2013). Further, the Māori economy is disproportionally invested in primary industries, which are climate sensitive (King, Penny, & Severne, 2010). The strong relationship that Māori maintain with the natural environment is also intrinsically tied to Māori perceptions of health and wellbeing (Durie, 1985). Climate change, however, directly threatens existing
ecosystems and the continued viability of people to live on their traditional land, primarily through rising sea levels and erosion (Jones et al., 2014; King et al., 2010).

2.6 Health co-benefits of action

Well-planned climate action can not only minimise the harm of unchecked climate change, but also actively improve health and equitable health outcomes. For example, policies and other initiatives which increase the uptake of active transport, such as walking or biking, offer public health benefits such as: a reduction in obesity, cardiovascular disease, and depression rates associated with increased physical fitness (Woodcock et al., 2009); a reduction in the number of injuries and deaths associated with vehicle use (Roberts & Arnold, 2007); and a reduction in transport poverty (Kahn Ribeiro et al., 2007). Further, reducing vehicle pollution will lower the concentration of health-harming air pollutants in the atmosphere (Haines et al., 2009), while also cutting the transport emissions which are a substantial contributor to climate change (Kahn Ribeiro et al., 2007; Younger, Morrow-Almeida, Vindigni, & Dannenberg, 2008).

A greater emphasis on vegetable-based diets also offers health co-benefits (Friel et al., 2009; Stehfest et al., 2009). Agricultural emissions related to food production are a major contributor to climate change, accounting for about a fifth of greenhouse gas emissions (McMichael, Powles, Butler, & Uauy, 2007). Reducing consumption of meat and dairy products is therefore a key strategy for lowering emissions (McMichael et al., 2007). It would also encourage healthier diets that minimise the over-consumption of livestock products, which are strongly associated with an increased risk of obesity, heart disease and some cancers (Friel et al., 2009).

The use of clean, renewable energy for power generation will also play a vital role in reducing carbon emissions, while simultaneously improving air quality by switching away from harmful energy sources such as coal, oil and gas (Haines et al., 2009). Additionally, greater energy efficiency within buildings will reduce emissions associated with power generation and heating, while at the same time reducing the negative health outcomes associated with poorly heated and damp dwellings (WHO, 2011). Within New Zealand, it has been shown that retrofitting housing insulation can reduce carbon emissions while at the same time improving long-term health outcomes (Chapman, Howden-Chapman, Viggers, O’Dea, & Kennedy, 2009).

2.7 Health sector contributions

A final aspect of the relationship between climate change and health concerns the role of the health sector itself. Globally, health systems contribute significantly to greenhouse gas
emissions through the consumption of technology and resources, the procurement of goods and services, building design, and waste output (Health Care Without Harm [HCWH], 2011; McMichael, Friel, Nyong, & Corvalan, 2008). Due to a growing understanding of the substantial impact that health systems have on harmful global emissions, it has been argued that health sectors worldwide have an ethical and professional obligation to reduce their carbon footprint (HCWH, 2011; WHO & HCWH, 2009).

The health co-benefits of reducing the sector’s carbon footprint are also increasingly understood. In particular, reducing harmful air pollution from the energy use in buildings and transport associated with healthcare services will reduce the burden of respiratory and cardiovascular disease (WHO & HCWH, 2009). Developing greater energy efficiency across health systems also offers potential health budget savings by shifting away from a reliance on fossil fuel energy, which experiences high price volatility (NZCPHM, 2015, June; Pencheon, Rissel, Hadfield, & Madden, 2010; WHO & HCWH, 2009).

2.8 Major advocacy efforts

There are increasing efforts to raise awareness about the relationship between climate change, climate action and public health by key organisations such as the World Medical Association (2015), the Intergovernmental Panel on Climate Change [IPCC] (Watts et al., 2015) and the UK’s Faculty of Public Health (2008) (See also: NZCPHM, 2013; New Zealand Nurses Organisation, 2016, March). The New Zealand Medical Association (2015, August) has explicitly stated its belief that health professionals have a duty to advocate for action on health issues, including that of climate change. Many argue that public health professionals have a moral and ethical responsibility to engage in health advocacy, particularly on behalf of the most disempowered and vulnerable within society (McCoy & Watts, 2014; McMichael et al., 2008; WHO, 2015, September). Health professionals in this sense refers to medical staff such as doctors and nurses, as well as academics and health promoters.

In the lead up to the 2015 COP21 Paris Climate Change talks, the WHO (2015b) issued a call “for urgent action to protect health from climate change” (para. 1), urging those nations in attendance to agree upon a “strong and effective climate agreement, that will save lives, both now and in the future” (para. 5). The call was publicly supported by various health advocacy associations such as the World Medical Association (2015) and The Royal Australasian College of Physicians (2016).
Within academic journals, various commentaries and editorials have also sought to raise awareness about the links between climate change and health, and called for health professionals to become climate action advocates (e.g. Blashki et al., 2012; Richards, 2009; Sweet, 2011; Tillmann, Baker, Crocker-Buque, Rana, & Bouquet, 2014). The Lancet (2009) has called for “a new public health advocacy movement” which would work to “usher in an unprecedented era of cooperation” (p. 1659) between those seeking to encourage comprehensive climate action. In 2015, The Lancet Commission on Health and Climate Change reiterated the need to rapidly move towards a decarbonised society, and argued that the potential co-benefits of action offer the greatest health opportunity of the century (Watts et al., 2015).

Advocacy has also taken form in the creation of international advocacy alliances that aim to develop coordinated, cross-national networks of health professionals and other key stakeholders calling for climate action. Such associations include The Global Climate and Health Alliance (2017), HCWH (2017), and the Health and Environment Alliance (2017). Within New Zealand OraTaiao, The New Zealand Climate and Health Council, is a coalition of health professionals seeking to raise awareness about the health impacts of climate change, as well as the many positive opportunities that climate action offers for health and equity (OraTaiao, 2015). They also advocate for action to reduce greenhouse gas emissions within both the health sector and society more generally (OraTaiao, 2015). Their advocacy efforts include issuing media releases, offering opinion editorials to prominent New Zealand newspapers, giving television and radio interviews, and submission-making. They participated in the WHO’s Call to Action on climate change, joining an international coalition of health professional organisations demanding climate action, in addition to issuing their own Call to Action in New Zealand (Jones, 2015).

2.9 Public health media advocacy

Many of the climate change and health advocacy efforts described above have made use of the media in order to help spread their message to the greatest possible audience. Brunner, Fowlie, and Freestone (2011) argue that media interaction is an essential aspect of public health work. They specifically define public health media advocacy as “a strategy that changes the frame for health from individual responsibility to focus on environmental causes of ill health, and proposes specific policy solutions” (Brunner et al., 2011, p. 6). Dorfman and Krasnow (2014) further argue that by addressing the social determinants of health, media advocacy helps transform public debate about a given issue so that it centres around values of social justice. George (2004) describes media advocacy which seeks this transformation as a form of “critical
political activity” (p. 6). There is debate about the distinction between ‘advocacy’ and ‘activism’ (Laverack, 2013; Zoller, 2005). However, for the purposes of this research it should be understood that by using the news to appeal directly to audiences, health professionals engaging in media advocacy are attempting to challenge the existing narratives surrounding climate change and public health in a way that by-passes direct engagement with policymakers.

Health professionals engaging in media advocacy face numerous challenges. In particular, advocates who bring with them an empirical-based worldview inadvertently ignore how non-experts define health threats, which is largely based on emotive responses and not data-based risk assessments (Chapman, 2001). As a result, health professionals and the public risk speaking in different ‘languages’. Advocates must frame narratives of climate action and sustainable development in ways that are compatible with existing social norms and personal experiences, otherwise audiences are likely to reject or misunderstand the message being presented to them (Godemann & Michelsen, 2011).

Advocates must also recognise that simply focussing media attention on a particular health issue does not guarantee the subsequent policy change desired. Shiffman (2008) argues that those health policy issues which make it onto the political agenda do so seemingly in contrast to criteria “that many observers would call rational or equitable” (p. 60). In order to understand why some issues struggle to become part of the public discourse or gain political traction, it is important to consider the role that the media plays in setting the public and political agenda. This has inspired my focus on how a New Zealand mainstream media outlet frames climate change and public health, and whether this differs to the way the issue is framed within the public debate in Scoop. An understanding of media framing may be particularly useful for health professionals, who have traditionally received little professional training in media advocacy and have little understanding of how health issues come to be on the public and political agenda (Chapman, 2001; Shiffman, 2008).

2.10 Summary

It is clear that unchecked climate change presents a host of potentially devastating impacts for public health and health equity, while well-planned climate action offers the opportunity to improve health and equity outcomes. There is also growing awareness of the need to reduce health sector contributions to global carbon emissions. Despite the overwhelming evidence linking climate change to serious health consequences, there remains little public or political recognition of the issue. Media advocacy will play an increasingly important role in public health efforts to raise awareness about the relationship between climate change and health, and
to mobilise support for climate action. In the following chapter I will discuss the role of the media in agenda-setting and framing, in order to provide a clearer understanding of how an issue such as climate change and health comes to be portrayed the way it is within mainstream public discourse.
3 The Media and News Reporting

3.1 Introduction
In the previous chapter I discussed the extensive evidence linking climate change with public health. I also discussed public health media advocacy, and highlighted the importance of understanding how issues come to be discussed in particular ways within mainstream public debate. Therefore, in the first half of this chapter, I will discuss how media coverage can influence public opinion and policy through agenda-setting, priming and framing. The media has an extremely limited attention span (Yach & Bettcher, 1998), and issues that gain media attention often have particular qualities that are considered ‘newsworthy’. It is critical for public health advocates to understand how the media choses which stories to report on, and how these issues are framed. I will therefore give an overview of the role of journalists in the news selection process in the second part of this chapter, as well as the institutional and ideological pressures which affect how they report on issues such as climate change and public health.

3.2 The role of the media
Conceptualisations of ‘the mass media’ are complex and therefore prone to generalisation. In undertaking this research, I acknowledge that referring to ‘the media’ risks the misleading perception that there exists a singular entity which is homogeneous in nature, form and content (Graber, 2003). However, in acknowledging the scope limitations of this research, I will adopt this umbrella term in order to refer to the vast array of media platforms and content types that exist, without going into further analysis.

Media outlets play an important role in society and an independent, pluralistic media system is seen to be essential to the proper functioning of democracy (Jackson & Stanfield, 2004). An important aspect of the media's role is to help communicate information to the general public about the various political, social and economic issues that occur within society (Jackson & Stanfield, 2004; McCombs & Shaw, 1972). This is particularly true regarding issues which the public has little or no direct experience with, which often appear to have no tangible consequence for individuals (Ader, 1995). This includes, for example, environmental issues. Ader (1995) argues that “the public needs the media to tell them how important an issue the environment is,” as “individuals do not learn this from real-world cues” (p. 130). Climate change is a particularly complex and seemingly ‘invisible’ issue due to its interwoven relationship with existing climate phenomena (Moser, 2010). The media therefore performs the crucial role of simplifying and navigating its scientific complexities on behalf of the general
public (Boykoff, 2009). However, the need to simplify often risks decontextualising and misrepresenting the issue of climate change (Boykoff, 2009). The way the media selects which issues to report on, and how they report on them, can have a powerful influence on how audiences understand the world around them. This notion will be explored further in the following sections on agenda-setting, priming and framing.

3.3 Agenda-setting

In their seminal work on agenda-setting, McCombs and Shaw (1972) argue that in choosing what to report on from a large pool of potential stories, the media has significant influence on the general public’s awareness of various issues, as well as how important they perceive such issues to be. In this sense, they “set the agenda” (McCombs & Shaw, 1972, p. 176). Expanding on this idea, Ader (1995) argues that media agenda-setting refers to “a relationship between the relative emphasis given by the media to various topics and the degree of salience these topics have for the general public” (p. 300). Increased exposure in turn increases the agenda-setting effect on audience members, and such effects are further compounded as audiences assign credibility to particular media outlets, therefore becoming increasingly reliant on them for information (Wanta & Hu, 1994). Rosenberg (2008) argues that the mainstream media’s influence is such that it helps to determine society’s discussion agenda, and that once set, this agenda “is very difficult to rearrange, even with quite literally the best information in the world” (p. 61). Gaining as much media coverage as possible is therefore of great importance for public health advocates trying to raise awareness about the health impacts of climate change.

3.4 Priming

Closely related to agenda-setting is the concept of priming. Whereas agenda-setting refers to the relationship between the amount of media attention given to an issue and the subsequent saliency of that issue in the public’s mind, the notion of priming describes how this increased exposure affects audiences’ value judgements. Iyengar and Kinder (2010) define priming as the “changes in the standards that people use to make political evaluations” (p. 63) as a result of their exposure to media coverage of an issue. In this way, priming helps to shape the criteria by which the general public form opinions and judge the political performance of policymakers (Behr & Iyengar, 1985; Weaver, 2007). Therefore, increased media coverage may result in the public more readily challenging policymakers and the political status quo in regards to a specific issue. This in turn may influence demand for policy change. Combined, theories of agenda-setting and priming help to form a clearer picture of how exposure to media coverage influences
not only what audiences think about, but also how they form political judgements in regards to those issues (Cohen, 1963).

3.5 Framing

The focus of framing extends beyond the concerns of agenda-setting and priming in attempting to understand the influence of media reporting on public opinion and policy. Drawing on psychology, framing is less concerned with the effects of mere exposure to an issue than with trying to understand how the way in which an issue is presented can influence audiences. Scheufele and Tewksbury (2007) describe the distinction between agenda-setting and framing as being “between whether we think about an issue and how we think about it” (p. 14). Framing theory is also interested in the way that the media organise and frame issues in order to present them to audiences. According to Entman (1993):

To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described. (p. 52)

Media frames have been defined as “a central organizing idea or story line that provides meaning to an unfolding strip of events” (Gamson & Modigliani, 1987, p. 376), as well as “ways of organizing ideas (often highly contested) into meaningful categories” that “privilege some aspects over others” (Anderson, 2009, p. 174). Framing therefore involves the reproduction of news content within particular narrative frameworks in order to attract audience interest and reduce often complex issues into easily accessible content (Scheufele & Tewksbury, 2007). An example of this includes the use of sensationalism to frame the negative health impacts of climate change. By adopting highly dramatic language, such as suggesting that climate change will result in apocalyptic versions of plague and famine, sensationalism aims to capture audience attention. It may also help audiences to better comprehend the seriousness and urgency of the issue, rather than if they simply received statistics on predicted increases in the incidence of disease.

This is not to say that audiences passively accept media framing; rather, it is acknowledged that audiences actively interpret the information they receive, based on their own personal experiences (Pan & Kosicki, 1993). Nevertheless, frames tend to appeal to widely held social values or assumptions, thereby increasing the likelihood that audience effects can be broadly predicted (Pan & Kosicki, 1993). An understanding of framing is critical for health advocates engaging in media advocacy, as it allows them to better understand how public discussion regarding a given issue comes to be defined, which can in turn affect support for policy change.
Analysing how the *New Zealand Herald Online* frames climate change and public health, and whether this has changed over time, is therefore a central aim of my research.

### 3.6 The role of journalists in reporting news

It is important to understand the role of journalists in the news production process, including how they come to frame the issues they report on. As intermediaries between any given news event and its audience, journalists do not simply report the objective reality of news, so much as they communicate a certain “representation of reality” (Rupar, 2006, p. 128). Through the use of framing, journalists adopt particular ways of presenting and communicating information. In this way, they contribute to the social construction of news and of audience knowledge more generally. Therefore, the media not only reflects the existing ideological positions held within society but also acts as an agent which produces or reinforces them (Carvalho, 2007).

Despite the key role that journalists play in communicating issues to audiences, their actions are constrained by the institutional culture and structures within which they operate. Many of those constraints can be attributed to an increasingly commercialised media landscape. Globally, deregulation and the increasing concentration of media ownership has resulted in the development of major transnational media conglomerates who wield increasing amounts of political power (Croteau & Hoynes, 2006; Jackson & Stanfield, 2004). The result has been the prioritisation of short-term profit-making (Hope & Myllylahti, 2013; Rosenberg, 2008), and what McGregor (2007, August) describes as the “homogenisation of content” (p. 5).

New Zealand’s highly concentrated media system is no exception. It is dominated by foreign-owned and commercially-oriented companies (Hope & Myllylahti, 2013). Norris (2002) argues that foreign ownership of New Zealand’s media is unparalleled amongst other developed nations, threatening the prevalence of local-based and local-generated content. Two transnational companies, Fairfax Media and New Zealand Media and Entertainment, hold what is essentially a duopoly over the newspaper market (Myllylahti, 2016; Rosenberg, 2008), and a possible merger is currently being considered (Myllylahti, 2016). The financialization of New Zealand’s media system is also evident, with the 2016 JMAD New Zealand Media Ownership Report stating that New Zealand’s media companies “are exclusively owned by financial institutions” (Myllylahti, 2016, para. 2). The financial ownership of New Zealand’s media can be linked to various deregulation policies implemented by government from the 1980’s, which were the product of a much broader international paradigm shift towards neoliberalism and an emphasis on free-market ideology (Debrett, 2005; Hope & Myllylahti, 2013). This has resulted
in the increasingly commercialised nature of publicly owned media, which is forced to operate within the same contested market space (Rosenberg, 2008).

Heightened commercialism and economic competition within the media industry globally has been characterised by cost-cutting and job losses, particularly of specialist and investigative journalists (Murcott & Williams, 2013; Phillips, 2009). Job cuts have increased the workload of those remaining journalists, while time pressures have been exacerbated by the growth of online news, which demands a greater amount of content with greater turnaround time (Murcott & Williams, 2013; Phillips, 2009; Witschge & Nygren, 2009). Combined, these pressures compromise journalists’ capacity to adequately fact-check sources and undertake in-depth, investigative journalism (Phillips, 2009; Williams & Clifford, 2008). Journalists are therefore increasingly reliant on press releases and press conferences as sources of news content (Brown, Bybee, Wearden, & Murdock Straughan, 1987; Williams & Clifford, 2008). Murcott and Williams (2013) argue that this has resulted in a “shift in the balance of power” (p. 155) between sources who supply raw news material and journalists themselves.

A reliance on press releases often risks favouring certain viewpoints within society, by making journalists susceptible to reporting on content that is biased towards the source. In theory, if journalists are heavy reliant on public health advocates as sources, this would suggest they will end up favouring their narratives on climate change and health. However, Craig's (2008) finding that environmental reporting in New Zealand has overwhelmingly favoured bureaucratic and industry sources suggests they may also dominate climate change and health coverage. Comparing the framing between the New Zealand Herald Online and the diverse range of press releases within Scoop will offer some insight into whether the former favours particular viewpoints at the expense of others found within the latter.

Within the context of a highly commercialised media industry, journalists also face increasing pressure regarding how they frame news items. Anderson (2009) argues that commercialisation has prioritised episodic reporting, human interest stories, and those containing a high entertainment factor. Driving this is the media’s need to maintain a regular audience, and remain commercially competitive. As a result, content selection is driven by a populist approach, which compromises diversity of coverage and the generation of debate on important societal issues (Debrett, 2005; Hope & Myllylahti, 2013). More specifically, Anderson (2009) argues that an emphasis on sensationalist reporting has compromised meaningful discussion on complex issues such as climate change.
Journalists operate within a media environment which is increasingly defined by the need to attract advertisers and protect media companies’ commercial interests. Reduced advertising income has exacerbated the pressure on news outlets to remain financially viable, due in part to a technological shift from physical print to online platforms (Myllylahti, 2015, December; Hope & Myllylahti, 2013). Journalists are therefore more vulnerable to engaging in risk aversion concerning the publishing of content which may fail to align with such interests (Hollings, Samson, Tilley, & Lealand, 2007). Within New Zealand, a study of journalists found that over half of those agreed that their newsrooms had experienced pressure to write particular stories because they related to a commercial stakeholder within the company (Hollings et al., 2007).

Journalists are also vulnerable to self-censorship, an often subconscious process that results when reporters come to anticipate what type of content will be accepted by their editors (Anderson, 2009). The result, Rosenberg (2008) argues, is a media landscape increasingly defined by "political conservatism" (p. 64). Rosenberg (2008) further argues that media owners in New Zealand have benefited from heightened commercialism of the media, and therefore critiques of the policies and ideology that led to deregulation would be against their own interest. Therefore, major challenges to the status quo are not forthcoming. In the context of neoliberalism’s ideological dominance, Craig's (2008) finding that New Zealand coverage of environmental issues is often framed within an economic perspective should come as no surprise. It is therefore anticipated that the issue of climate change and public health will tend to be framed within a worldview broadly informed by neoliberal values, which promotes market-based solutions rather than challenging the underlying ideology of unfretted free-market capitalism.

3.7 Reporting on health and the environment

The relationship between climate change and health is at once an issue for environmental and health journalists, both specialist fields which are particularly problematic to report on. Journalists in both fields, and of science reporting more generally, play an especially important role in bridging the communication gap between academia and the general public. They help to raise public attention to scientific developments they are otherwise unlikely to hear about (Murcott & Williams, 2013). Further, they are required to ‘translate’ highly complex issues and technical jargon so that such developments are accessible to non-experts (Murcott & Williams, 2013; Schwartz & Woloshin, 2004). Despite their important role, specialist journalists have been particularly hard-hit by cost-cutting across the industry (Boykoff, 2009; Gibson, Craig,
This has been coupled with increased time pressures, raising concerns about risks to the quality of environmental and health reporting (Gibson et al., 2016).

The increasing reliance on sources described earlier in this chapter is relevant to both groups of specialist reporters, although health journalists have traditionally relied very strongly on expert sources to explain the complex nature of new developments in health and medicine research (Leask, Hooker, & King, 2010; Tanner, 2004). Environmental reporters have tended to be specialists themselves, and have therefore been more capable of following new developments and understanding how ecological issues connect to society more broadly (Gibson et al., 2016). However, job cuts to specialist reporters have meant that non-expert journalists are increasingly covering environmental issues, threatening to compromise the overall quality of such reporting (Gibson et al., 2016). Increased workloads and time constraints have meant science journalists in general are increasingly reliant on press releases, and have less ability to check the credibility of their sources (Murcott & Williams, 2013; Shuchman & Wilkes, 1997). This transitioning of journalists “from active news-gatherers to passive processors of material” (Davies, 2009, p. 113) is particularly problematic for environmental and health reporters given their complex subject matter. A lack of in-depth journalism risks the misreporting of facts to lay audiences who rely on media coverage for their knowledge of such subjects.

As has been discussed, the increasing commercialisation of the media industry has also put significant pressure on journalists to constantly produce ‘newsworthy’ stories. Health journalism is progressively characterised by a predisposition to focus on new and novel developments (Viswanath et al., 2008). As such, there is a tendency to frame new research in ‘breakthrough’, sensationalist terms, which contrasts strongly with the slow-moving incrementalism that characterises scientific development (Leask et al., 2010; Murcott, 2009; Shuchman & Wilkes, 1997) and climate change itself. Dentzer (2009) criticises this preoccupation with ‘new developments’ for its resulting failure to provide necessary background context. The importance of new evidence or research can be easily overstated if it is not situated within the broader context of previous findings.

A preoccupation with ‘human interest’ framing can further undermine accurate portrayals of the context of health issues, but is pursued in order to make such stories more interesting and accessible to audiences (Hodgetts, Chamberlain, Scammell, Karapu, & Waimarie Nikora, 2008; Tanner, 2004; Viswanath et al., 2008). Similarly, a tendency to focus on individual responsibility often comes at the expense of framing health in terms of their wider social determinants (Hodgetts et al., 2008). This lack of context in health journalism may be
particularly counterproductive to efforts to encourage support for changes in relevant policy. Health journalists themselves have noted the difficulty they face in trying to gather the necessary data and information to accurately report from a public health perspective, which further limits their use of this framing (Coleman & Thorson, 2002). Climate change reporting, on the other hand, is somewhat difficult to take out of context. Due to its ongoing, slow-moving and largely impersonal nature, it is particularly challenging to frame the issue in ‘newsworthy’ terms. In order to keep producing ‘new’ angles, environmental reporters have therefore had to discuss climate change in relation to a wide variety of ecological, economic and social issues (Gibson et al., 2016).

More broadly, environmental and health journalists face particular challenges regarding their unique roles as ‘translators’ of scientific developments. While it is acknowledged that all reporting is to some degree subjective (Boykoff, 2009; Carvalho, 2007), there remains debate as to whether science-based journalists should merely re-present the technical information they receive from expert sources, or whether they should engage in critical analysis and in-depth fact-checking (Meyer, 2006; Murcott & Williams, 2013; Phillips, 2009). Adherence to a positivist understanding of ‘objectivity’ remains prized by many health reporters, and is characterised by a reliance on expert sources and balanced coverage (Leask et al., 2010). This tendency to accept scientific information without scrutiny is in part due to broader concerns that non-expert journalists risk misreporting and misinforming audiences about important, highly specialised issues (Urycki & Wearden, 1998). On the other hand, a failure by journalists to adequately assess the reliability of their sources risks placing a disproportionate amount of trust on what may be unreliable and ultimately misleading evidence (Phillips, 2009). Further, failure to adequately judge when to deviate from the journalistic norm of giving ‘balanced’ coverage to conflicting scientific views can be problematic (Shuchman & Wilkes, 1997). For example, in their study of American mass media coverage, Boykoff (2007b) found that adherence to ‘balance’ gave the incorrect and misleading impression that the science on anthropogenic climate change was not settled. Both environmental and health journalists therefore carefully negotiate a contested role in which they are both active critics and mere messengers, with great influence over how science-related issues are understood by the general public.

3.8 Summary

This chapter has given an overview of how the media can influence public opinion and policy through agenda-setting, priming and framing. It has also focused more closely on the role of
journalists as pivotal agents who help to bridge the communication gap between experts and the general public, and the increasingly commercialised media landscape they operate within. For public health advocates, an understanding of both the influences on and impacts of media coverage is critical if efforts to encourage climate action are to be successful. As such, there is an emerging interest in the way that the relationship between climate change and health is portrayed across various media platforms. In the following chapter, I will discuss the existing research which has been undertaken in this area, as well as the gaps that remain.
4 Existing Research: The Media, Climate Change and Public Health

4.1 Introduction
As I discussed in my previous chapter, the media plays a critical role in informing audiences and setting the public agenda. It is therefore an important tool for raising awareness about the threats of climate change to health, and for encouraging support for climate action and policy change. In this chapter I will give a broad overview of the existing literature which has focused on media coverage of climate change, followed by that which has examined media coverage of public health issues. It was necessary to analyse climate change and public health coverage separately in order to properly inform my thematic analysis and frame development, as the literature specifically focussing on climate change as a health issue is extremely limited. This overview is followed by a systematic review of the literature specifically related to media coverage of the relationship between climate change and health.

4.2 Media coverage of climate change
The existing literature which examines media coverage of climate change is extensive, and covers a wide variety of topics. In their meta-analysis of 133 relevant studies, Schäfer and Schlichting (2014) found that qualitative and quantitative methodological approaches were adopted in roughly equal measure, although quantitative studies were slightly more common. They also found that the existing research was predominantly comprised of ‘snap-shot’ case studies which covered a short period of time, while longitudinal studies were the second most common (Schäfer & Schlichting, 2014). Previous longitudinal studies have shown that total coverage of climate change has universally increased, albeit in a non-linear fashion, with major lulls and peaks since the early 1990’s (Schmidt et al., 2013). A number of longitudinal studies have also shown that major peaks in media coverage of climate change often coincide with key political events, the release of major reports, and important international climate agreements (e.g. Ahchong & Dodds, 2012; Fernández-Reyes, Piñuel-Raigada, & Vicente-Mariño, 2015; Sampei & Aoyagi-Usui, 2009).

In terms of the type of media analysed, existing research on climate change coverage has been dominated by a focus on print newspapers (Schäfer & Schlichting, 2014). This has reflected the traditionally strong influence of print newspapers within the media landscape (Boykoff, 2007b; Pew Research Center, 2006). However, the importance of the print press, and even television news, has more recently been in steady decline (Pew Research Center, 2012). Schäfer and Schlichting (2014) are critical of the continuing lack of research examining online and social
media, particularly given the significant increase in use of such platforms by both traditional news outlets and other non-traditional media sources. More specifically, Schäfer (2012a) argues that research on online climate change communication has focused disproportionately on NGO’s use of the medium, at the expense of other users such as news outlets themselves. In recognising the shifting nature of media platforms, I have focused my research on the use of online media by a mainstream news outlet and independent news repository site.

While research on media coverage of climate change is increasingly interested in a diverse range of countries, the existing literature has been highly concentrated around Europe and North America (Schäfer, 2012b; Schäfer & Schlichting, 2014). In regards to New Zealand, Schäfer and Schlichting (2014) found that research on media coverage of climate change was moderate to low, representing about 3% of the studies reviewed. The lack of focus on New Zealand is another interesting knowledge gap, as New Zealand’s total emissions were the fifth highest per capita amongst developed countries in 2012 (Ministry for the Environment, 2016, May).

How the media frames the issue of climate change is a prominent area of focus within existing research, and there is substantial variety in the frames that are used to code media representations. McComas and Shanahan's (1999) influential content analysis of two prominent U.S. print newspapers led to the development of the following frames: new evidence or research; general science background; controversy among scientists; consequences of warming; economics/costs of remedy; domestic politics; international relations; current weather. These frames have been adopted by many subsequent researchers (e.g. Brossard, Shanahan, & McComas, 2004; Gordon, Deines, & Havice, 2010; Takahashi & Meisner, 2013). Kenix (2008) too adapted and renamed a number of these frames in her comparative analysis of New Zealand’s mainstream print newspaper The New Zealand Herald and alternative online news outlet Scoop. However, Kenix (2008) additionally coded for sensationalism and morality to cover key themes absent from McComas and Shanahan's (1999) initial analysis.

More broadly, Dirikx and Gelders (2010) adopted the following set of generic news frames from Semetko and Valkenburg (2000) in their quantitative content analysis of Dutch and French newspapers: attribution of responsibility; human interest; conflict; (economic) consequences; morality. The attribution of responsibility frame blames people, institutions, or groups for a given problem, or requires them to take action to remedy that problem. The human interest frame approaches an event or issue from an emotional or personalised angle, in order to capture the interest of audiences. The conflict frame emphasises conflict and disagreement between various social actors, while the (economic) consequences frame is concerned with how an issue
or event will affect various actors, institutions, states or geographic regions, particularly in economic terms. Finally, the *morality* frame describes an issue or event in relation to religious or moral principles. These generic frames are much broader than those developed by McComas and Shanahan (1999). However, what is gained from an increased ability to compare with other research findings is lost in terms of a more sophisticated understanding of climate change coverage specifically. A combination of the frames I have discussed here provided the basis for the deductive frames I used within my thematic analysis. These frames will be discussed in further detail in chapter five.

In terms of findings, media coverage in the U.S. has a strong tendency to frame the scientific basis of climate change in a way that implies debate and uncertainty (e.g. Antilla, 2005). This has in part been attributed to a continued adherence to the journalistic norm of ‘balanced’ coverage (Boykoff, 2007a; Brossard et al., 2004; Good, 2008; Nisbet, 2009; Xie, 2015). This adherence to ‘balance’ is concerning, as it creates the impression that the science linking human activity to climate change is not settled. It also fails to adequately inform audiences about the causes, effects and possible responses to climate change. In contrast, New Zealand newspaper coverage has shown a much greater tendency to be scientifically accurate and avoid false ‘balance’ by rejecting climate sceptics (Chetty et al., 2015; Dispensa & Brulle, 2003; Kenix, 2008).

Beyond uncertainty and conflict, Chetty et al.’s (2015) analysis of New Zealand print newspaper coverage found an emphasis on the use of economic and political frames when discussing climate change. This emphasis on economic framing likely reflects the prevailing dominance of neoliberal ideology in New Zealand’s current socio-political context, as discussed in chapter three. Also within New Zealand, Kenix (2008) found a tendency to emphasise the negative consequences of climate change, which she argues may leave the audience with a sense of unease and lack of self-efficacy. Somewhat conversely, however, Chetty et al. (2015) found a strong focus on ‘social progress’ framing in New Zealand newspaper coverage, which emphasised optimism that climate action was a move ‘forward’ to a better future. Surprisingly, Kenix (2008) found “almost no difference” (p. 132) between the framing used within *Scoop* content and that used by mainstream print newspaper outlet, *The New Zealand Herald*. This suggests that my analysis of the online version of the paper may produce similar findings regarding coverage of climate change and public health.
4.3 Media coverage of public health issues

The existing literature on media coverage of health issues is incredibly diverse, and covers topics such as healthcare, health promotion and scientific or medical developments. However, as I discussed earlier in chapter two, I am interested in an ecological understanding of public health which recognises that an individual’s health is influenced by the social, environmental and economic conditions in which they live. Examples of topics examined from a public health perspective include poverty (Redden, 2011), the social determinants of childhood obesity (Hawkins & Linvill, 2010) and tuberculosis (Lawrence, Kearns, Park, Bryder, & Worth, 2008), and how health inequities across ethnic lines are reported (Kim, Kumanyika, Shive, Igweatu, & Kim, 2010).

Similar to the existing research on media coverage of climate change, quantitative content analysis is a particularly common method used to examine how the media frames public health, and how often (e.g. Commers, Visser, & De Leeuw, 2000; Hayes et al., 2007; Kim, Carvalho, & Davis, 2010; Wang & Gantz, 2010; Westwood & Westwood, 1999). Also similar is an emphasis on print newspapers (e.g. Hawkins & Linvill, 2010; A. E. Kim et al., 2010; Lawrence et al., 2008), and on coverage in the U.S. (e.g. Coleman, Thorson, & Wilkins, 2011; Gollust & Lantz, 2009; Wang & Gantz, 2010). However, unlike research on climate change coverage, analysis has typically been interested in coverage of public health issues over long periods of time (e.g. Hawkins & Linvill, 2010; Hayes et al., 2007; A. E. Kim et al., 2010).

Previous research on public health coverage has found that there is very little attention given to the social determinants of health, particularly in comparison to a focus on healthcare (Gasher et al., 2007; Hodgetts et al., 2008). For example, Hayes et al. (2007) found that the presence of a public health perspective in Canadian newspapers was “virtually non-existent” (p. 1848). Further, previous research has found little mention of health inequities (e.g. Commers et al., 2000); A. E. Kim et al. (2010) actually found a decline in such coverage in U.S. newspapers over time. Discussion of health in relation to the physical environment is also much less common relative to coverage of healthcare and communicable disease (Hayes et al., 2007), including within New Zealand (McCool, Cussen, & Ameratunga, 2011). Finally, Wang and Gantz (2010) found that mental health is a severely underreported aspect of health coverage across U.S. television channels, while aspects of physical health are dominant. As part of my research, I am interested in understanding whether a holistic, ecological understanding of public health is evident in climate change and health coverage in the New Zealand Herald Online.
In terms of frames, those which attribute poor health to personal behaviour and individual responsibility have been found to dominate news reporting on issues such as obesity (Hawkins & Linvill, 2010), type 2 diabetes (Gollust & Lantz, 2009), poverty (Redden, 2011), and even racial and ethnic disparities in health (A. E. Kim et al., 2010). This limited focus on the individual narrows the debate surrounding the causes of and solutions to poor health, which in turn can discourage support for policy change (Dorfman, Wallack, & Woodruff, 2005; Gollust & Lantz, 2009). This emphasis on individual responsibility contrasts strongly with the focus on government and policymakers in climate change coverage, although this is unsurprising given climate change’s complex, global scale.

Existing research has also shown that thematic framing is significantly underreported in health coverage, especially in comparison to episodic framing (e.g. Coleman et al., 2011; Lawrence et al., 2008). Episodic frames have traditionally been found to dominate news coverage (Iyengar, 2005). They are defined as frames which focus on specific events or cases when discussing an issue, whereas thematic frames place issues within a broader context (Iyengar, 1994). Episodic framing is characterised by a sense of novelty and makes issues easier to understand, while thematic framing is generally better at giving a detailed explanation of the causes and implications of an issue or event. Dorfman et al. (2005) are particularly critical of the lack of context in health coverage, arguing that it reflects the dominance of broader cultural, political and economic ideologies which emphasise individualism and “market justice” (p. 321) over that of social justice. This links back to previously discussed concerns about the influence of neoliberal ideology on the increasing commercialisation and deregulation of the media landscape, and of society more generally. As climate change and public health are both highly complex issues, it is likely that context-rich framing will dominate New Zealand Herald Online coverage.

Finally, in examining the role of journalists, previous research has found that health reporters do not consider social determinants of health to be very ‘newsworthy’, and instead prefer sensationalism, novelty, localised content and conflict (Gasher et al., 2007; Lawrence et al., 2008; Leask et al., 2010). Human interest angles are also prized for their ability to appeal to audiences and reduce the complexity associated with wider determinants of health (Chapman, McCarthy, & Lupton, 1995; Gasher et al., 2007). Finally, Hodgetts et al. (2008) found that journalists in New Zealand will often avoid covering health stories that relate to minority populations, as they are under pressure to report on issues that appeal to the broadest possible audience. The disproportionate impact of climate change on those already experiencing
inequitable health outcomes is therefore unlikely to be considered very ‘newsworthy’ by the *New Zealand Herald Online*.

In summary, the existing literature has primarily focused on the total amount of media coverage that climate change and public health receive as separate issues, as well as how they are framed. The emphasis has therefore been on issue salience and framing, two important aspects of the media’s influence that were discussed previously in chapter three. However, gaps within the literature remain. While the lack of diversity in terms of geographic focus is shifting, a continuing preoccupation with print newspapers is particularly problematic in light of its declining importance as a news medium. My research therefore represents a break from the traditional emphasis on print newspapers and the geographical regions of North America and Europe. Further, while the existing literature on climate change has developed a diverse range of frames, a public health frame remains largely absent. In recognising this, both Zamith, Pinto, and Villar (2013) and Lee, Hong, Kim, Hong, and Lee (2013) call for research to focus specifically on how the media frames public health messages in relation to climate change. I will look at the existing literature which has sought to fill this knowledge gap for the remainder of this chapter.

4.4 Systematic review: Coverage of climate change as a public health issue

I undertook a systematic review in order to identify the existing literature which has analysed climate change and health coverage specifically. Following initial trial searches of ten databases, I found three to have the best balance of feasibility and relevance of results: ProQuest Central (all dates), Scopus (1960 to present), and Science Direct (1995 to present). These databases returned several key ‘index’ articles that I had identified prior to undertaking the literature review, and which I used to help test the relevancy of each database’s results. These index articles were not found in other databases which were excluded from my review. Searches which returned over 10,000 results were considered too large and were refined. A detailed summary of these database searches can be found in Appendix A. In addition to searching these electronic databases, I also searched the reference lists of relevant texts. Finally, I contacted the authors of the three articles I found which specifically focused on media coverage of climate change and health, and they confirmed they did not know of any other such studies at the time.
In order to be included in my review, articles needed to be either specifically focused on media coverage of the relationship between climate change and health; or, they needed to examine media coverage of climate change, in which health was a distinct category of analysis. In this instance, ‘health’ referred to all aspects of human health, not just ecological ‘public health’ perspectives. ‘Global warming’, ‘greenhouse effect’ or ‘greenhouse gas*’ were accepted as synonyms for the term ‘climate change’. Results were excluded if ‘health’ or ‘climate change’ was only mentioned in passing, rather than being a distinct frame or category of focus. Results were not limited by language, date, content type, or geographic focus. The total number of
possibly relevant results that I found from my electronic database searches and other relevant sources was 44,903. Of these, 7,011 were excluded on review of their publication title or abstract. I excluded another 37,812 because particular searches were abandoned after 100 consecutive irrelevant results. I then undertook a closer reading of the remaining 80 articles. Of these, 70 were excluded on the basis that they failed to meet the inclusion criteria, or were duplicates. The remaining ten articles were included for analysis. A summary of search results is described in Figure 4.1. The characteristics of the ten included articles are summarised in Table 4.1.

**Table 4.1 Articles included for review**

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Type of media</th>
<th>Method</th>
<th>Country of focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahchong &amp; Dodds</td>
<td>2011</td>
<td>Print newspapers</td>
<td>Quantitative content analysis</td>
<td>Canada</td>
</tr>
<tr>
<td>Feldman</td>
<td>2013</td>
<td>Satirical news television shows</td>
<td>Quantitative content analysis</td>
<td>United States</td>
</tr>
<tr>
<td>Hart &amp; Feldman</td>
<td>2014</td>
<td>Network televisions</td>
<td>Quantitative content analysis</td>
<td>United States</td>
</tr>
<tr>
<td>Hart &amp; Nisbet</td>
<td>2012</td>
<td>News articles</td>
<td>Randomised, controlled message experiment</td>
<td>United States</td>
</tr>
<tr>
<td>Liu, Vedlitz &amp; Alston</td>
<td>2008</td>
<td>Print newspapers</td>
<td>Quantitative content analysis</td>
<td>United States</td>
</tr>
<tr>
<td>Miah, Kabir, Koike &amp; Akther</td>
<td>2011</td>
<td>Print newspapers</td>
<td>Quantitative content analysis</td>
<td>Bangladesh</td>
</tr>
<tr>
<td>Myers, Nisbet, Maibach &amp; Leiserowitz</td>
<td>2012</td>
<td>News articles</td>
<td>Randomised, controlled message experiment (online)</td>
<td>United States</td>
</tr>
<tr>
<td>Nisbet, Price, Pascual-Ferra &amp; Maibach</td>
<td>2010</td>
<td>Print newspapers</td>
<td>Quantitative content analysis</td>
<td>United States</td>
</tr>
<tr>
<td>Weathers</td>
<td>2013</td>
<td>Print newspapers</td>
<td>Quantitative content analysis</td>
<td>United States</td>
</tr>
<tr>
<td>Weathers &amp; Kendall</td>
<td>2015</td>
<td>Print newspapers</td>
<td>Quantitative content analysis</td>
<td>United States</td>
</tr>
</tbody>
</table>
4.4.1 Study designs

Of the final ten articles included for analysis, eight used a content analysis method to analyse news coverage (Ahchong & Dodds, 2012; Feldman, 2013; Hart & Feldman, 2014; Liu, Vedlitz, & Alston, 2008; Miah, Kabir, Koike, & Akther, 2011; Nisbet, Price, Pascual-Ferra, & Maibach, 2010; Weathers, 2013; Weathers & Kendall, 2015). The remaining two conducted randomised, controlled message experiments in order to understand the influence of certain framings on audience members (Hart & Nisbet, 2012; Myers, Nisbet, Maibach, & Leiserowitz, 2012). Eight articles analysed print newspapers (Ahchong & Dodds, 2012; Hart & Nisbet, 2012; Liu et al., 2008; Miah et al., 2011; Myers et al., 2012; Nisbet et al., 2010; Weathers, 2013; Weathers & Kendall, 2015), while the remaining two examined television content; one with a focus on U.S. network news (Hart & Feldman, 2014) and the other on satirical U.S. news shows (Feldman, 2013). The focus on American media was a dominant theme, with the only exceptions being Ahchong and Dodds' (2012) analysis of Canadian newspapers and Miah et al.'s (2011) examination of daily newspapers in Bangladesh. None were undertaken in New Zealand.

Six of the studies which conducted a content analysis examined the total amount of media coverage over a sustained period of time (Ahchong & Dodds, 2012; Feldman, 2013; Hart & Feldman, 2014; Liu et al., 2008; Miah et al., 2011; Nisbet et al., 2010), while the remainder undertook ‘snapshots’ of coverage over a maximum period of one year (Weathers, 2013; Weathers & Kendall, 2015). In addition to analysing the levels of media coverage, several studies also examined the following attributes of media articles which discussed climate change and health: article scope; use of images; included participants; issue salience; and sources cited (Ahchong & Dodds, 2012; Liu et al., 2008). Hart and Feldman (2014) also noted how media coverage reported the timing and likely location of the impacts of climate change.

Of all ten included studies, six conducted research in which health was only one of many categories of focus (Ahchong & Dodds, 2012; Feldman, 2013; Hart & Feldman, 2014; Liu et al., 2008; Miah et al., 2011; Myers et al., 2012). The remaining four focused entirely on climate change as a health issue (Hart & Nisbet, 2012; Nisbet et al., 2010; Weathers, 2013; Weathers & Kendall, 2015). Hart and Nisbet (2012) exposed U.S. audience members to simulated news stories about the health impacts of climate change in order to study the impact of political affiliation on support for climate action. The other three studies examined how the media portrays the issue of climate change as a health issue. In explaining this specific focus, Weathers and Kendall (2015) argue that a health focus makes climate change more “personally relevant” (p. 5) to audiences. Weathers (2013) and Weathers and Kendall (2015) adopted the same search terms under six distinct health categories, which drew very strongly on those developed
previously by Nisbet et al. (2010). This makes comparisons between the three studies much easier, although it still means our current understanding of climate change and health framing is limited to the quantitative analysis of U.S. print newspapers.

4.4.2 Framing

Framing was an important focus of all those studies which examined climate change and health coverage, whether it was how the media frames the issue, or how various health framings impact audience opinion. Definitions of ‘health’ or ‘public health’ frames varied across the studies. Feldman's (2013) ‘public health’ frame provided the broadest definition, referring to disease and illness, but also harm from natural disasters and the effects of water and food insecurity. In contrast, for example, Ahchong and Dodds (2012) referred only to “increased health risks” (p. 56). Hart and Feldman's (2014) definition of ‘public health’ referred to physical health impacts, while the forced displacement of peoples and violent conflict, both social determinants of health, were instead included in a distinct ‘national security’ frame. Of those three studies which focused solely on how the media frames climate change as a health issue, only Nisbet et al. (2010) mentioned mental health, while all three did not explicitly refer to wider social or economic determinants of health (Nisbet et al., 2010; Weathers, 2013; Weathers & Kendall, 2015).

The social determinants of health are recognised by the WHO (1986) as being the conditions which help to determine people’s ability to lead healthy lives. Therefore, a narrow focus on physical impacts in the existing literature fails to account for all the ways in which climate change is predicted to affect health and wellbeing. Weathers and Kendall’s (2015) definition of public health does, however, recognise that the impacts of climate change will disproportionally affect those already most vulnerable. Further, Myers et al. (2012) explicitly broadened their definition of health to include “the potential benefits to health of adaptation and mitigation-related actions” (p. 1108).

Beyond health frames more generally, both Weathers (2013) and Weathers and Kendall (2015) were also interested in the use of episodic and thematic framing. As discussed earlier in this chapter, episodic framing treats issues in terms of case studies or one-off events, while thematic framing situates issues within rich background context descriptions. Both studies were also interested in comparing the use of dramatic and substantive framing. Dramatic frames are said to dilute the complexity of issues, as well as avoid in-depth analysis of context and policy in favour of crisis and conflict (Bennett, 2016). Substantive frames, on the other hand, clearly define the causes and effects of an issue, pass some form of moral judgement and offer insight

4.4.3 Findings

In terms of the total amount of climate change coverage, Ahchong and Dodds (2012) found that personal impacts, such as those on health, were “rarely shown” (p. 58). Nisbet et al. (2010) argue that while general coverage of climate change has increased over two decades in both The New York Times and Washington Post, attention to the public health threats associated with climate change has “remained relatively stable” (p. 21). They found that at its peak, discussion of climate change and health still only represented 4.7% of all climate change reporting. They also found that health-related coverage of climate change has followed its own media ‘cycle’, peaking when climate events had direct health-related impacts, such as record-breaking heat waves which resulted in deaths (Nisbet et al., 2010). This contrasted with general climate change coverage, which peaked when major report releases, developments in climate policy, and climate-related meetings took place.

Overall, Nisbet et al. (2010) concluded that public health is a “dramatically underreported” (p. 28) aspect of climate change coverage. The implication of this, they argue, is that audiences are not receiving the information they need to make important decisions about how and why they need to take climate action (Nisbet et al., 2010). Weathers (2013) too found that the health threats of climate change were significantly underreported across five U.S. print newspapers. Of those covered, weather-related health impacts were the most common, while heat-related and lung or respiratory-related impacts were the least (Weathers, 2013). More positively however, Weathers and Kendall’s (2015) follow-up study found that while the total number of articles discussing climate change had declined, the proportion of those articles focussing on threats to health had increased from 13.9% in 2007-2008 to 27.2% in 2011-2012.

In terms of framing, a number of the studies found that media coverage tended to emphasise the threats of climate change (Ahchong & Dodds, 2012; Hart & Feldman, 2014; Liu et al., 2008). Further, Hart and Feldman (2014) found that while the health impacts of climate change accounted for 13.2% of U.S. network television coverage, health was only featured in 1.4% of those news segments which discussed positive actions to address climate change. Several studies also found that it was governments and policymakers who were primarily assigned responsibility for responding to climate change (Ahchong & Dodds, 2012; Liu et al., 2008), similar to findings from previous research on climate change coverage more generally.
In focusing on U.S. print newspaper coverage, Weathers (2013) found that articles were overwhelmingly thematically framed, with only 15.5% episodically framed. Weathers (2013) argues that this is potentially problematic, as episodic framing may help audiences to better draw personal connections to what is an otherwise large, complex and seemingly ‘distant’ issue. This argument contrasts with prevailing consensus, which states that for most major news issues, episodic framing takes events out of their broader context and may in turn compromise support for policy change (Hart, 2011). Weathers (2013) also found that the vast majority of articles used substantive framing (62.4%) in contrast to dramatic framing (37.6%). Again, she raised concerns about this trend, arguing that while a more impersonal, detailed account of climate change’s threat to health is important for informing audiences, an increase in dramatic framing may actually be better for helping to engage audiences with the issue in the first place (Weathers, 2013).

In terms of the effects of coverage on audiences, Myers et al.’s (2012) online survey of U.S. residents found that a public health frame was more likely to evoke a sense of hope and support for climate action than an ‘environmental’ or ‘national security’ frame. Further, in their study of American adults’ reactions to articles about the health impacts of climate change, Hart and Nisbet (2012) found that a factual understanding of climate change was not associated with audience support for action, but that “identification with victims influenced policy support” (p. 175), albeit along party affiliation lines. The need to be able to identify with those whose health will be impacted by climate change suggests that a greater focus should be given to local-level impacts. Despite this, both Ahchong and Dodds (2012) and Liu et al. (2008) found that regional U.S. newspaper coverage of climate change was primarily concerned with impacts at the national and international level.

Overall, the previous literature which has specifically examined media coverage of climate change and health has been extremely limited, and there are significant knowledge gaps. For example, there is no examination of online news outlets, despite their increasing importance in the media landscape. Nor has there been a focus on New Zealand, despite the fact that our emissions profile is disproportionally high. Further, narrow definitions of ‘health’ have meant that there is still no clear understanding of how climate change is reported in relation to health and wellbeing more broadly. In adopting a broader definition of ‘public health’ for this research, I have allowed for non-physical aspects of health and their wider determinants to be included in my thematic framing analysis. My research also contributes to the field by comparing how the issue of climate change and public health is framed in a mainstream media outlet, with how it is framed in the public debate within an independent news repository site. By adopting a
qualitative thematic analysis method, I have sought to gain a richer understanding of how the public health impacts of climate change are framed, and to avoid simply quantifying the data as previous studies have. Finally, while I draw on a number of frames from within the existing literature on climate change coverage more generally, my analysis also allows for inductive frames that accurately capture the unique discussion relating to climate change as a public health issue.

4.5 Summary

The amount of research which has analysed media coverage of the relationship between climate change and health has been extremely limited. As such, I extended my focus to include an overview of key findings from research on climate change coverage and on public health coverage respectively. These overviews provided the basis for the deductive frames I used in my thematic analysis, which will be discussed in the following chapter. They further identified key characteristics of coverage which informed my thematic analysis, such as a traditional emphasis on episodic, sensationalist and human interest framing. Within the literature specifically focused on climate change and health, there has been an emphasis on Northern American countries, on print newspaper coverage, on a narrow definition of ‘health’, and on the use of quantitative content analysis. Within this chapter I have therefore identified significant knowledge gaps in the existing literature. In particular, a New Zealand study is important to form a clearer picture about whether or not current media representations frame the issue of climate change and public health in a way that is most likely to inspire New Zealand audiences to support climate policy and action. In the following chapter I will discuss the methodological positions I have adopted in this research.
5 Methodological Positions

5.1 Introduction
It is clear that climate action is urgently required in order to protect health and wellbeing from the effects of unchecked climate change. It is also clear that media framing of the issue can play an important part in influencing public support for climate action and policy change. Despite this, there is extremely little literature which has examined how the media frames the relationship between climate change and health. I seek to contribute to this emerging area in a number of ways, by addressing several of the knowledge gaps I outlined in chapter four. In this chapter I explain my adoption of a qualitative research paradigm, and outline the ontological and epistemological positions I bring to this research. Finally, I discuss how thematic analysis and framing theory will inform my analysis of how New Zealand media frames climate change and public health.

5.2 Personal research approach
According to Lincoln and Guba (2000), reflexivity involves the “conscious experiencing of the self” (p. 183). Engaging in reflexivity gives researchers an opportunity to identify and confront their instinctively held assumptions and biases, by moving away from an individual-centric worldview and locating oneself within one’s broader cultural, social and political contexts (Alvesson & Sköldberg, 2000; Kincheloe, 2005). By recognising that researchers cannot avoid subjective interpretations of the world, I am kept aware of how personal biases may inform the underlying assumptions I make in this research. It is therefore important for me to acknowledge that as a Pākehā New Zealander of middle-class upbringing, my worldview has been informed in large part by the systematic privilege that is afforded to me on the basis of my cultural heritage and socioeconomic status. Reflecting on this privilege has inspired in me a life-long interest in social justice for all. My worldview is also strongly shaped by my academic background in political science and my long-term stake in the future protection of the planet as a young adult. Therefore, the core values I bring to this research include a strong sense of social justice and equity, a concern for the natural environment and intrinsic belief in its importance for human health and wellbeing, a left-wing political leaning, and a critical tendency towards questioning existing power structures and assumed truths within society. These values have driven not only the theoretical and methodological approaches I adopted in this thesis, but also inspired my interest in this particular subject in the first place.
5.3 Methodological perspectives

5.3.1 *Ecological understanding of public health*

Building on the social-ecological model described in chapter two, this research recognises the impacts of climate change on various direct and indirect determinants of health. I am interested in whether media coverage of the relationship between climate change and health embodies this richer, more complex understanding of health. I am also interested in whether existing coverage discusses the need for action and policy at various social and political levels in order to counter the effects of climate change. As Morris (2010) argues, the complex health threats posed by climate change require an ecological public health response, and warns against a “compartmentalized” (p. 37) approach which treats climate change as merely an environmental threat. Within my research, an ecological perspective also allows for recognition of the media’s role as an important social institution. As previously discussed in chapter three, the media is highly influential in shaping the cultural narratives and norms which prevail within a given society. It is therefore a key social actor which plays an important role in influencing attitudes and policy on health issues (Cohen, Scribner, & Farley, 2000).

5.3.2 *Qualitative research paradigm*

A qualitative research paradigm informs my approach to this research, allowing me to gain a richer understanding not only of how media coverage discusses climate change and health, but also the wider social context within which such media representations are situated. The qualitative research paradigm comprises a broad, complex series of assumptions and practices which resists a singular definition (Braun & Clarke, 2013; Denzin & Lincoln, 2000). Broadly, however, qualitative inquiry accepts the existence of multiple versions of reality and emphasises the need to position the phenomenon being studied within its broader social, cultural and political context (Braun & Clarke, 2013; Guba & Lincoln, 1994). According to Denzin and Lincoln (2000), qualitative researchers “stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry” (p. 8). Rather than focusing on measures of frequency and causal relationships, qualitative research is concerned with understanding how experiences and realities are socially constructed. In this way, qualitative research rejects the positivist tradition of inquiry and its emphasis on the existence of an objective, singular reality which can analysed, discovered and quantified (Guba & Lincoln, 1994; Schwandt, 2000). Qualitative inquiry also rejects as false the division between the researcher and the research being undertaken (Denzin & Lincoln, 2000). That is, interpretations of the research will always be based on the subjective...
judgement of the researcher, and therefore be actively constructed by the researcher as they engage with the data.

More practically, qualitative research is interpretative and primarily concerned with words as its source of data. Its focus on meaning results in the analysis of complex, often contradictory ‘rich data’ (Braun & Clarke, 2013; Denzin & Lincoln, 2000). Qualitative analysis therefore offers a means with which to engage in a rich, context-sensitive analysis of media coverage of climate change and health (Hertog & McLeod, 2001; Maher, 2001).

5.3.3 Critical realism

In this research I have adopted a critical realist ontological position which acknowledges the existence of an objective reality, but contends that it can only be understood through subjective and contextually-situated human interpretation. Critical realism, by its very nature, rejects a relativist belief that “reality itself is a product of this knowledge derivation process” (Krauss, 2005, p. 762). Rather, critical realists “invoke a real and knowable world which sits ‘behind’ the subjective and socially located knowledge a researcher can access” (Braun & Clarke, 2013, p. 27). This understanding of reality sits well with my social constructivist epistemological position, described in the following section, as well as my understanding that media representations of reality are inherently subjective and can influence audiences’ worldviews. My adoption of a critical realist perspective therefore represents a centrist approach between the pure relativist and realist positions (Stainton Rogers & Stainton Rogers, 1997). I also adopt the argument by Andrews (2012) that social constructivism, discussed below, is distinctly interested with epistemological questions, and therefore does not concern itself with ontological enquiries regarding the nature of being.

5.3.4 Social constructivism

A social constructivist epistemological position informs my view that an individual’s knowledge is constructed as the result of their everyday interactions with society (Andrews, 2012). In this way, what constitutes ‘truth’ is temporal and highly contextualised, and knowledge is not value-free (Braun & Clarke, 2013; Epstein, 2012; Kincheloe, 2005). Social constructivism rejects a positivist account of knowledge, which claims an objective truth exists ‘out there’ and can be discovered through scientific reasoning and experimentation (Hesmondhalgh & Toynbee, 2008; Young & Collin, 2004).
A social constructivist understanding of knowledge aligns with the nature and values of my research in several ways. Firstly, many social constructivists distance themselves from an individual-centric approach which emphasises that individual agency is independently formed and distinct from social processes (Burr, 1998). This sits well with the ecological perspective I adopted in this research, which rejects a purely individual-centric understanding of health. Secondly, a social constructivist perspective provides useful insight into the role of media as a social institution, both in terms of understanding how media frames construct reality, and how audiences are influenced by them. Rather than being value-free, media content is deeply reflective of its own social and cultural positioning, resulting in highly contextualised narratives which relay “reality through a cultural prism” (Watson, 2008, p. 145). As such, chapter three discussed the ideological context and real-world pressures that influence how media outlets and journalists frame climate change and health. In fitting with a social constructivist position, I am primarily concerned with how the framing of media coverage is an exercise in knowledge creation regarding the ‘reality’ of the relationship between climate change and health.

5.3.5 Critical theory

In this research I also draw on critical theory, adding a critical aspect to my social constructivist understanding of knowledge. Whereas a constructivist position simply seeks to raise awareness about the social construction of our known ‘reality’, a critical perspective is concerned with identifying and challenging the underlying power structures behind those constructed realities. A critical, social constructivist epistemological position therefore provides a useful approach for critiquing the role of media narratives in relation to dominant power structures within society (Godemann & Michelsen, 2011; Stocchetti & Kukkonen, 2011). A critical perspective looks for the purposes that media frames serve, and how these tie to elite or hegemonic structures (Reese, 2007). As discussed previously in chapter three, the media represents a powerful social institution which both relays and actively contributes to the production of dominant narratives within a given society. Major ideological shifts informed in part by neoliberalism have produced a societal emphasis on values of individualism, free-marketism and consumerism, which have strongly influenced the nature of media workplaces and reporting. This includes increasing pressure to produce ‘newsworthy’ stories that are novel, sensationalised and episodic. A critical approach encourages one to confront these assumed value-systems, which is useful given my focus on how a highly commercialised mainstream media outlet, the *New Zealand Herald Online*, frames climate change and public health.
A critical approach is further informed by the assumption that “societal conditions are historically created and heavily influenced by the asymmetries of power and special interests, and that they can be made the subject of radical change” (Alvesson & Sköldberg, 2000, p. 110).

As discussed in chapter two, many forms of health advocacy seek transformation of the status quo by way of action outside the traditional political framework (George, 2004; Zoller, 2005). An ecological approach to public health sits comfortably with the critical objective of bringing about change, in that it helps to identify the various levels of influence on health and wellbeing, and the power structures that may help or hinder policy change. McLeroy, Bibeau, Steckler, and Glanz (1988) recognise this, and argue that health advocates must consider the “community power structures” (p. 364) that may challenge health-promoting policies which conflict with their own political or economic interests. More radically, Klein (2014) issues a direct challenge to the existing neoliberal order itself, arguing it has made “revolutionary levels of transformation to the market system now our best hope of avoiding climate chaos” (p. 56).

While it was not the direct intention of this research to seek ways to instigate this transition, a critical interest in transformation, and in questioning the values which inform media representations, provides a valuable theoretical perspective for beginning my media analysis. For this research, I therefore use a critical perspective to understand how public health advocates may change the public narratives surrounding climate change and health through media framing. This is done with the intention of encouraging comprehensive climate policy and action which promotes positive, equitable health outcomes.

5.4 Thematic analysis

In this research I adopted Braun and Clarke's (2006) thematic analysis framework as my method for analysing data. A step-by-step guide to this process will be discussed in detail in chapter six. This approach contrasts with the tendency to use quantitative content analysis methods within media communication research. Such methods have been challenged for their belief in the objective, semantic description of media content (Elo & Kyngäs, 2008; Joffe & Yardley, 2004; Kohlbacher, 2006, January). In offering a flexible, “theoretically independent” (Braun & Clarke, 2016, p. 1) method, qualitative thematic analysis gives the opportunity to gain a rich analysis of complex media content by keeping it situated within its socio-political context (Braun & Clarke, 2013; Joffe & Yardley, 2004; Vaismoradi, Turunen, & Bondas, 2013). As a research analysis method, thematic analysis has historically been poorly defined, and is therefore vulnerable to misunderstanding about what it actually involves (Dixon-Woods, Agarwal, Jones, Young, & Sutton, 2005; Vaismoradi et al., 2013). In response, Braun and
Clarke (2006) developed their widely accepted thematic analysis approach, which they define as “a method for identifying, analysing and reporting patterns (themes) within data” (p. 79). Braun and Clark’s 6-phase thematic analysis method offers a detailed, systematic ‘how-to’ guide particularly useful for researchers new to qualitative study (Braun & Clarke, 2013; Joffe & Yardley, 2004; Vaismoradi et al., 2013).

Due to its theoretical flexibility, thematic analysis fits well with the critical, social constructivist perspective I adopted in this research. Thematic analysis allows for a thorough examination of “the ways in which events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society” (Braun & Clarke, 2006, p. 81). It recognises that themes are actively constructed by the researcher throughout the analysis process, rather than existing as objective, decontextualized truths which the researcher simply ‘reveals’ (Braun & Clarke, 2016). Undertaken with a constructivist perspective, thematic analysis allows for a focus on the latent content within data. This allows one to understand the underlying assumptions, values and ideologies that inform the media content that we as audiences take at ‘face value’ (Braun & Clarke, 2006; Macnamara, 2005; Vaismoradi et al., 2013). This method is therefore well suited to the aims of this research in analysing how New Zealand media frames the relationship between climate change and public health.

5.4.1 A deductive approach

A key characteristic of my thematic analysis approach is that it is primarily deductive in nature. A deductive approach recognises the researcher’s interpretation of data based on their understanding of the existing literature and relevant theories (Braun & Clarke, 2012; Gibbs, 2008; Lambert & O’Halloran, 2008). This contrasts with a purely inductive approach, in which the development of codes and themes is driven solely by interaction with the data (Fade & Swift, 2011). A deductive approach is often undertaken from a critical, constructivist perspective, as it is generally concerned with “examining how the world is put together (i.e., constructed) and the ideas and assumptions that inform the data” (Braun & Clarke, 2012, p. 59).

My analysis process was primarily deductive, as I began with a set of existing frames to guide my thematic interpretation of the data. These frames will be discussed in greater depth in the following section. A deductive approach also allowed me to draw on the reviews I undertook in chapters two and three, of the relationship between climate change and health, the role of media health advocacy, and the current media landscape. Although I began with a pre-existing set of frames, I also allowed for unanticipated themes to be inductively coded for as I undertook the analysis. This ensured a degree of flexibility, so that I did not miss key aspects of the data.
This is a common approach which recognises that researchers cannot completely ignore content which may not fit into predefined theoretical concepts (Braun & Clarke, 2012).

5.5 Framing theory

In adopting a primarily deductive approach, framing theory strongly influenced my thematic analysis. As discussed previously in chapter three, framing is not concerned with the amount of exposure given to an issue by the media, but rather with how the issue is presented (de Vreese, 2005). This includes an interest not only in what is explicitly included, but also what information is left out or left unsaid (Entman, 1993). Framing theory aligns closely with the spirit of a social constructivist epistemological perspective, in that it “privileges a fluid and interactive construction of reality” (Wright & Reid, 2011, p. 1391). In this way, framing theory acknowledges that frames are not static constructs, but rather products of the socio-political contexts within which they are produced (de Vreese, 2005).

This research was primarily interested in the thematic nature of climate change and health framing, which is constructed during the frame-building stage. A focus on frame-building seeks to understand what influences the framing of news content (Scheufele, 1999), and is therefore interested in the social and structural factors that influence how journalists package and present a given issue to audiences. Again, this is important because how the media frames news content has the ability to influence how audiences understand the issue (Entman, 1993). While a singular definition of what constitutes a media frame remains elusive, this research adopts a focus on the “central organizing idea” (Gamson & Modigliani, 1989, p. 3) which underpins a frame. As such, I used Braun and Clarke’s (2006) thematic analysis method to search for the thematic structures and patterns which help constitute media framings of climate change and health.

As part of my deductive approach I drew on a combination of generic climate change frames adopted by McComas and Shanahan (1999), Kenix (2008), and Dirikx and Gelders (2010), all of which were identified in my literature review in chapter four. A summary of these frames, adapted for my specific focus on climate change and public health, can be found in Table 5.1. McComas and Shanahan's (1999) frames were developed on the basis of pilot studies conducted by the authors themselves. They were duplicated by Brossard et al. (2004) and later adapted by Kenix (2008). Dirikx and Gelders (2010) adopted Semetko and Valkenburg's (2000) five generic news frames, which were developed on the basis of a literature review of common coding frames across a variety of news subjects, and which drew on the earlier work of Neuman, Just, and Crigler (1992). While the frames identified in Table 5.1 guided my interpretation of
the data, inductive coding of other thematic patterns was allowed. Further, the existing frames were open to modification in order to ensure a rich, accurate reflection of my interpretation of the data. This flexibility was particularly important, as the existing frames were not developed in relation to media reporting of climate change and health specifically.

Table 5.1 Initial frames for thematic analysis

<table>
<thead>
<tr>
<th>Frames</th>
<th>Definition</th>
<th>Source adapted from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attribution of responsibility</td>
<td>Who is responsible for responding to climate change, and possible solutions</td>
<td>Dirikx &amp; Gelders (2010)</td>
</tr>
<tr>
<td>Human Interest</td>
<td>Personal stories or examples of those affected by climate change</td>
<td>Dirikx &amp; Gelders (2010)</td>
</tr>
<tr>
<td>Conflict</td>
<td>Debate and disagreement between individuals, groups, parties or countries</td>
<td>Dirikx &amp; Gelders (2010)</td>
</tr>
<tr>
<td>Morality</td>
<td>Moral messages, religious tenets or social prescriptions</td>
<td>Dirikx &amp; Gelders (2010)</td>
</tr>
<tr>
<td>Sensationalism</td>
<td>Extreme or deliberatively provocative language</td>
<td>Kenix (2008)</td>
</tr>
<tr>
<td>Consequences</td>
<td>Health consequences of climate change</td>
<td>McComas &amp; Shanahan (1999); Kenix (2008)</td>
</tr>
<tr>
<td>New evidence</td>
<td>Announcement of new report or study</td>
<td>McComas &amp; Shanahan (1999); Kenix (2008)</td>
</tr>
<tr>
<td>Scientific background</td>
<td>General scientific or technological background</td>
<td>McComas &amp; Shanahan (1999); Kenix (2008)</td>
</tr>
<tr>
<td>International relations</td>
<td>International meetings, agreements and action</td>
<td>McComas &amp; Shanahan (1999); Kenix (2008)</td>
</tr>
</tbody>
</table>

5.6 Summary

In this chapter I have outlined the methodological positions which inform my thematic analysis of climate change and public health framing within New Zealand Herald Online and Scoop content. More specifically, I have illustrated how my ecological understanding of public health
recognises that factors external to an individual’s control can determine their ability to lead healthy lives, and how this applies to the impacts of climate change and the need for climate policy. I have also outlined how a social constructivist approach recognises the media as a key social actor that influences how audiences construct their understanding of reality through the framing of news content. My decision to undertake a qualitative thematic analysis allows me to provide a rich, detailed examination of climate change and public health framing that accounts for the broader context within which such frames occur. More specifically, it allows me to engage with the latent content of the data, in order to understand the assumptions and worldviews that underlie the ‘surface level’ meaning of media content. In the following chapter I turn to the specific methods I used to conduct my thematic analysis, which includes an in-depth discussion of the thematic analysis process.
6 Methods

6.1 Introduction

In this chapter I outline the methods I used to collect data and conduct my thematic analysis. I begin with an overview of why I chose to examine the *New Zealand Herald Online*’s framing of the relationship between climate change and public health. I will also explain why I chose to compare this with how the issue is framed within press releases published in *Scoop*. I will then go on to discuss the search strategy I used for collecting my raw data. Finally, I will give a step-by-step outline of the thematic analysis method I used to analyse this data.

6.2 *New Zealand Herald Online* and *Scoop*

I chose to focus on the framing of climate change and public health within the *New Zealand Herald Online* as it is an important source of online news in the New Zealand media scene. It is owned by New Zealand Media and Entertainment, a commercially run business with multiple branded media platforms. Their website states that:

> As a business we’re focussed on delivering the very best in news, sport and entertainment to New Zealanders, ensuring we’re in step with our audiences and attuned to the wants and wishes of our advertising partners. (New Zealand Media and Entertainment, 2017a, para. 7)

The *New Zealand Herald Online* has a strong online presence, recently reaching a monthly record of 1.82 million readers (*New Zealand Herald*, 2016, December 17). Audience demographics are fairly evenly split across gender, age and household income (*New Zealand Media and Entertainment*, 2017b). With such broad audience outreach, it is therefore a significant player in the online New Zealand mainstream media scene.

*Scoop* is self-described as New Zealand’s leading source of independent news, with monthly readership of more than 450,000 (*Scoop*, 2017a). Due to its high readership and presentation of raw news material, *Scoop* is an important alternative source of online news. Content published in *Scoop* includes, for example, speech transcripts; policy submissions; and press releases from advocacy groups, government departments, and universities. As part of its “no spin media environment” (*Scoop*, 2017a, para. 3), *Scoop*’s mission is to deliver unprocessed news content “just as the sources intended” (*Scoop*, 2016, para. 1). As the only limit on what *Scoop* publishes is material that is hateful or defamatory (*Scoop*, 2017b), there is virtually no editorial oversight of content. Therefore, *Scoop* itself does not engage in reframing the content it receives from contributors, as journalists and editors do within the *New Zealand Herald Online*. Any framing is instead done by those who submit original content to *Scoop*, and not *Scoop* itself. *Scoop* states
that in being an independent outlet that delivers real-time, uncensored media content, its vision is “to be an agent of positive change” (Scoop, 2016, para. 5).

*Scoop*’s role as a repository for news content generated by a diverse range of contributors means that it acts somewhat as a ‘proxy’ for the public debate regarding climate change and public health in New Zealand. Comparing content within the *New Zealand Herald Online* and *Scoop* therefore offers a useful insight into whether mainstream media outlets accurately reflect the range of frames used by independent news sources, or whether journalists act as ‘gatekeepers’ and filter out certain types of frames.

Due to the sheer scale of possible media sources available, I decided to focus on the above two outlets in order to keep my research manageable. Further, the decision to focus specifically on online news content stems from an acknowledgement that physical newspaper readership has generally been declining across the industry (Barthel, 2016, June; Mace, 2012, August 10).

### 6.3 Search strategy

Data for my research was collected from the *New Zealand Herald Online* (www.nzherald.co.nz) and *Scoop* (www.scoop.co.nz) using Google’s search engine to internally search both sites. This was done by entering keywords into the main Google search bar and adding the search term ‘site:nzherald.co.nz’ or ‘site:scoop.co.nz’ to each search request. An initial decision to use the online database Factiva was eventually discarded, as the results for both the *New Zealand Herald Online* and *Scoop* were highly irrelevant to the topic in question. An earlier, preliminary search of both media outlets using their own internal search bars had returned a large number of relevant articles which were missing from the Factiva searches. Further, when searching for ‘*New Zealand Herald*’ in Factiva, 967 of the total 1,005 articles were from the physical *New Zealand Herald* newspaper version, not the *New Zealand Herald Online*. This was problematic, as the *New Zealand Herald Online* itself has stated that content published online is not necessarily printed in the physical newspaper version, and that similar content may be edited and therefore differ between the two versions (New Zealand Herald, 2008, November).

A decision was also made against manually searching the *New Zealand Herald Online* and *Scoop* using their internal search tools, as the Google search function produced greater consistency and relevancy of results. For example, using the Google internal search function allowed for the use of search operators such as ‘OR’ and ‘AND’ to more clearly define the search terms and minimise irrelevant results. In addition, using the Google search function allowed for greater consistency, as the same tool could be used for both media websites. Both
searches were therefore conducted in an identical manner, and the relevancy of results from both sites was judged according to the Google search in a similar way.

I searched for relevant data from the 1st of January 2001 until the 14th of April 2016, the date which I first began conducting searches. The year 2001 was chosen as the starting point for collecting data, as it was an important year in the recognition of the relationship between climate change and health. It was in 2001 that the IPCC issued its Third Assessment Report on climate change, which included the first clear evidence of the impacts of climate change on health (McMichael & Githeko, 2001; WHO, 2016a). Further, search results for both the New Zealand Herald Online and Scoop websites only backdated as far as the year 2000. The day I started collecting my data, the 14th of April 2016, was chosen as my cut-off date to ensure a consistent timeline across search results.

As has been mentioned, searches were conducted by adding the following search terms in the Google search bar: ‘site:nzherald.co.nz’ or ‘site:scoop.co.nz’. This ensured that the search was limited to each respective website. In addition, all searches included the following keywords: (“climate change” OR “global warming”). Additional keywords were used to limit the results to those relevant to health. These keywords drew on Weathers and Kendall's (2015) six categories of health-related impacts: “general public health impacts”; “heat-related health impacts”; “weather-related health impacts”; “respiratory-related health impacts”; “water and food borne disease-related health impacts”; and “vector and rodent borne disease-related health impacts”. In addition, search terms were adopted from my background review of climate change and public health in chapter two. From this, the following main themes were identified: the changing nature of the spread of disease; food and water insecurity; population displacement; an increase in extreme weather events; increased threats to respiratory health; and mental health impacts associated with stress and trauma (See: Costello et al., 2009; Fritze et al., 2008; Galvão et al., 2009; IPCC, 2014; Watts et al., 2015; WHO, 2015a).

The following terms relating to the health co-benefits of climate action were included: an increase in active transport; poverty alleviation; reductions in air pollution; energy efficient housing; and an emphasis on vegetable-based diets (e.g.: Costello et al., 2009; Friel et al., 2009; Jones et al., 2014; Watts et al., 2015; Wilkinson et al., 2009). The literature also mentions the critical role of the healthcare sector in mitigating climate change, from seeking to reduce its substantial contribution to carbon emissions (e.g. Chung & Meltzer, 2009; Pencheon et al., 2010; WHO & HCWH, 2009), to engaging in advocacy about the health impacts of climate change (e.g. Costello et al., 2011; HCWH, 2011; McMichael, Neira, Bertollini, Campbell-
Lendrum, & Hales, 2009). A more detailed summary of these health categories can be found in Table 6.1.

**Table 6.1 Public health impacts**

<table>
<thead>
<tr>
<th>Public health impacts</th>
<th>Definition</th>
</tr>
</thead>
</table>
| General public health impacts | - General impact of climate change on people’s ability to lead safe, healthy lives  
- Threats to human survival or existence as a species  
- Threats to general quality of life  
- Impact on overall life expectancy |
| Changing nature of the spread of disease | - Mosquito and other vector-borne diseases  
- Rodent-borne diseases  
- Water-borne diseases  
- Food-borne diseases |
| Food and water security | - Malnutrition due to a lack of access to nutritious food and safe drinking water |
| Population displacement | - Forced migration as particular regions become unable to support human populations |
| Extreme weather events | - Increased occurrence and severity of natural disasters such as hurricanes, flooding and severe storms, leading to deaths and injuries  
- Spread of communicable disease through contaminated floodwater and affected drinking water supplies  
- Increased occurrence and severity of heat waves and extreme temperatures |
| Respiratory | - Increased spread of allergens  
- Increased number of asthmatic reactions  
- Increased number of other respiratory diseases associated with greenhouse gas emissions |
| Mental health impacts | - Experience of trauma following natural disasters and extreme weather  
- Increased stress and anxiety associated with a lack of access to core infrastructure, economic pressures, and social disruption |
| Co-benefits of action | -Greater use of active transport, leading to increased physical activity and a reduction in vehicle-related injuries and deaths  
-Poverty alleviation through effective and low-cost public transport, power, and household heating  
-Reduced air pollution by switching to cleaner energy sources and reductions in vehicle emissions  
-Increased energy efficiency in housing, leading to a reduction in illness and deaths from cold, damp housing  
-Increased adoption of vegetable-based diets and reductions in the intake of red meat and dairy products, reducing the risk of cancer and heart disease |
| The role of the health sector | -Carbon emission contributions by the health sector itself  
-Attempts to increase energy-efficiency  
-Sustainable development and procurement  
-Health advocacy efforts |

A number of search terms were used to collect relevant articles. These drew on the public health impacts discussed in Table 6.1. A list of the search terms I used can be found in Table 6.2. The keywords were intentionally broad, to allow the greatest possible chance that relevant articles would be picked up in the search results. For example, a distinction was not made between rodent, vector, food or water-borne diseases, as these may be too narrowly defined. Instead the keyword ‘disease’ was chosen to accommodate all these search terms, while at the same time allowing for other unanticipated but relevant material to be found. Further, broad terms were adopted in order to keep the number of keywords manageable. Similarly, the terms ‘respiratory’ and ‘allergy’ were used to accommodate both the negative health effects of air pollution and the possible co-benefits of a reduction in pollution due to various mitigation strategies. The Google search function automatically accounted for slight variations in each search term, so there was no need to conduct multiple searches to accommodate different tenses or each word’s pluralised form. For example, a search using the keyword ‘injury’ automatically included results with the words ‘injuries’ and ‘injured’, even when ‘injury’ itself was not used in the article. Results were automatically listed by Google in order of relevance. The overall number of search results returned was noted, before each was individually read and checked for relevancy. The criteria for this will be discussed in the following section.
### Table 6.2 Data collection search terms

<table>
<thead>
<tr>
<th>Root search terms</th>
<th>Public health issues</th>
<th>Public health keywords</th>
</tr>
</thead>
</table>
| (“climate change” OR “global warming”) | Health impacts/issues | health
|                  |                      | “mental health”       |
|                  |                      | “quality of life”      |
|                  |                      | “life expectancy”      |
|                  |                      | “hospital admissions”  |
|                  |                      | “healthcare”           |
|                  |                      | death                  |
|                  |                      | injury                 |
|                  |                      | disease                |
|                  |                      | illness                |
|                  |                      | respiratory            |
|                  |                      | asthma                 |
|                  |                      | allergy                |
|                  |                      | disaster               |
|                  |                      | “extreme weather”      |
|                  |                      | “heat wave”            |
|                  |                      | nutrition              |
|                  |                      | obesity                |
|                  |                      | cancer                 |
|                  |                      | displacement           |
|                  |                      | “food security”        |
|                  |                      | “water security”       |
|                  |                      | “water contamination”  |
|                  |                      | “contaminated water”   |
|                  | Co-benefits of action | poverty               |
|                  |                      | “health inequity”      |
|                  |                      | “health equity”        |
|                  |                      | “health inequality”    |
|                  |                      | “social capital”       |
|                  |                      | “active transport”     |
|                  |                      | cycling                |
|                  |                      | “car use”              |
|                  |                      | “public transport”     |
|                  |                      | walking                |
|                  |                      | “physical activity”    |
|                  |                      | “physical inactivity”  |
|                  |                      | exercise               |
|                  |                      | “energy efficiency”    |
|                  |                      | “energy efficient housing” |
|                  |                      | “cold housing”         |
|                  |                      | “damp housing”         |
|                  |                      | “air quality”          |
|                  | Role of the health sector | “health system”       |
|                  |                      | “health sector”        |
|                  |                      | OraTaiao               |
|                  |                      | New Zealand Climate and Health Council |
6.4 Inclusion and exclusion criteria

Articles were discarded if the exact terms ‘climate change’ or ‘global warming’ were not present, even if the article content did in fact relate to climate change. For example, coverage of an extreme heat wave which may have been attributed to climate change was not included if this causal relationship was not explicitly discussed in the article. Two types of articles were initially considered relevant. The first, *explicit inclusions*, were those articles which explicitly referred to the relationship between climate change and human health. These articles were later used as part of my thematic analysis, and therefore provided the basis of my research. An example of an *explicit inclusion* would be an article that identified climate change as a cause of air pollution, and then went on to discuss how air pollution affected people’s health. Similarly, an article discussing an increase in the number of disease-carrying mosquitoes due to climate change would be considered relevant. Articles which stated that climate change will, for example, create ‘unsafe’ or ‘dangerous’ weather were not included if they did not then explain in what capacity this would impact human health.

The second type of article noted were *implicit inclusions*. These articles discussed the relationship between climate change and a social determinant of health, without then explicitly discussing how this would affect health. The total number of *implicit inclusions* returned was noted, however they were not included in my thematic analysis. This is because it cannot be assumed that the general public would make the link between a social determinant of health and their direct health impacts. For example, if an article discussed how climate change will exacerbate poverty without then stating how this may affect health, it was considered an *implicit inclusion*.

I decided not to limit my relevant results to those articles in which climate change was the primary focus, as Weathers and Kendall (2015) did. This would have resulted in the exclusion of a number of articles which refer to climate change and public health in a minor, but nonetheless relevant, way. I did, however, adopt Weathers and Kendall’s (2015) criteria for considering which article types were included for analysis. This meant that I included not only standard news articles, but also other article types such as opinion pieces, editorials and press releases.
<table>
<thead>
<tr>
<th>Criterion</th>
<th>Inclusion</th>
<th>Exclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time period</td>
<td>1st January 2001 to 14th April 2016</td>
<td>All dates outside of this time range.</td>
</tr>
<tr>
<td>Website of publication</td>
<td>Published on either <a href="http://www.nzherald.co.nz">www.nzherald.co.nz</a> or <a href="http://www.scoop.co.nz">www.scoop.co.nz</a>.</td>
<td>Published on external websites affiliated with <a href="http://www.nzherald.co.nz">www.nzherald.co.nz</a> or <a href="http://www.scoop.co.nz">www.scoop.co.nz</a>, e.g. Northern Advocate, Hawkes Bay Today.</td>
</tr>
<tr>
<td>Format type</td>
<td>News articles; opinion pieces or regular column pieces; editorials; news shorts; ‘LiveChat’ context articles; press releases; speeches reprinted in full; Ministerial statements to parliament; and cables/articles received via cable.</td>
<td>Video-only content; direct links to external pdfs and reports; international newspaper editorial round-ups; live updates of current events; social media content (blogs, twitter newsfeeds etc.); picture slides and their corresponding captions; website-generated lists of search results or news archives; summary pages of a contributor’s collected works; public opinion forums; ‘Sideswipe’ articles; letters to the editor; visual material (comics, cartoons etc.); event guide summaries; public comments made on opinion articles.</td>
</tr>
<tr>
<td>Reference to climate change</td>
<td>Makes explicit reference to climate change or global warming in the article text.</td>
<td>Does not make explicit reference to ‘climate change’ or ‘global warming’ in article text.</td>
</tr>
<tr>
<td>Reference to climate change and health- explicit inclusion</td>
<td>Explicitly refers to the relationship between climate change or global warming and human health.</td>
<td>Does not explicitly discuss the relationship between climate change or global warming and human health.</td>
</tr>
<tr>
<td></td>
<td>This includes reference to:</td>
<td>This includes:</td>
</tr>
<tr>
<td></td>
<td>-The relationship between human health and climate action strategies.</td>
<td>-Vague discussion of climate change as a threat to humans, without specifying the impact on health. For example, discussing climate change as a ‘human crisis’ or ‘threat to the most vulnerable’.</td>
</tr>
<tr>
<td></td>
<td>-The relationship between climate change, social determinants of health and human health.</td>
<td></td>
</tr>
<tr>
<td>Reference to climate change and health</td>
<td>Explicitly refers to the relationship between climate change or global warming and a social determinant of health; without also discussing the impact on human health.</td>
<td>Does not explicitly discuss the relationship between climate change or global warming and a social determinant of health.</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>

Results I considered to be non-articles included letters to the editor, public opinion forums and direct links to external reports. These types of ‘non-articles’ were excluded. Duplicate articles within and across the different searches were also excluded. A detailed list of inclusion and exclusion criteria can be found in Table 6.3. A record was kept of all search details and search results. Relevant articles were assigned a number to assist with easy identification, for example ‘N1’, ‘N2’, ‘N3’ and so on. An overview of the total number of articles found will be discussed in chapter seven.

### 6.5 Thematic analysis

As discussed previously in chapter five, I adopted Braun and Clarke's (2006) seminal thematic analysis framework as the method of analysis for this research. The thematic analysis method is an iterative, non-linear process, with ongoing reflection and refinement an important and encouraged aspect of the method (Vaismoradi et al., 2013). As detailed in Table 5.1, I began with a predefined set of frames adapted from previous literature, which initially guided my coding and theme development. I did, however, allow these frames to be amended, and for new themes to be developed as I engaged with the data. As I was interested in the thematic framing of climate change and public health in the New Zealand Herald Online, and in comparing this to the framing within press releases in Scoop, the relevant articles collected from each outlet were kept separate and analysed as separate data sets. In the following sections I will outline step-by-step the thematic analysis process I undertook in line with the six phases of Braun and Clarke's (2006) method. This will provide transparency regarding the development of my themes.

#### 6.5.1 Phase 1: Familiarisation with the data

According to the model adopted from Braun and Clarke’s (2006) work on qualitative thematic analysis, analysis begins with the researcher initially familiarising themselves with their data through close reading and re-reading. First readings of the data should be done “actively, analytically and critically” (Braun & Clarke, 2013, p. 205), and not simply as a passive act. As
the relevant media articles were being collected, I read through each in order to gain this initial familiarisation. I also made initial notes about aspects of the data that appeared immediately interesting. This included, for example, general impressions regarding the tone used in the article, as well as the emphasis given to key relevant actors. I also collected the following metadata for each article, to assist with my analysis later on:

- Date of publication
- Article type (e.g. press release, news article)
- Author type (e.g. journalist, public health advocacy group)

Once I had finished collecting my data and familiarising myself with it, I moved onto the second phase of analysis, in which initial codes were generated.

6.5.2 Phase 2: Initial coding

According to Braun and Clarke (2013), “coding is a process of identifying aspects of the data that relate to your research question” (p. 206). Codes are used to define and categorise data by labelling particular sections within concise categories, thereby developing the building blocks which will later help to form themes (Charmaz, 2000; Joffe & Yardley, 2004). For this research, I undertook complete coding of each data set. This meant I undertook a broad approach in which all data considered relevant to my research aim was coded for. This was later followed by a more selective process of refinement, where the relevancy of each code was re-examined. However, in the first instance it was best to be as inclusive as possible (Braun & Clarke, 2013; Merriam & Tisdell, 2015). Due to the large number of articles I collected, I used the computer software NVivo to store and manage my data. However, I did not use the software to ‘find’ coding patterns or themes. This is because there are concerns that data analysis software can ‘distance’ the researcher from their data, and that technology fails to capture the complexity, richness and implied meanings often present within qualitative data (St John & Johnson, 2000).

As discussed in chapter five, I was primarily interested in latent coding which looks “beyond the explicit content of the data” to identify “the assumptions and frameworks that underpin what is said” (Braun & Clarke, 2013, p. 207). Rather than simply taking the data at face-value and providing a purely descriptive account of it, latent coding allowed me to actively interpret the data by drawing on the theoretical and contextual understandings I brought from the existing literature and my predefined set of frames. This type of coding complemented the deductive approach I undertook in my thematic analysis, which acknowledges my previous engagement with relevant literature and theoretical concepts. However, it is important to note that coding
often includes a mix of both descriptive and interpretative codes, all of which should be noted with equal attention at this early stage of the analysis to ensure all possibly relevant aspects of the data are included (Braun & Clarke, 2006, 2012; Terry, 2016)

In determining the unit of coding, researchers focus on units as large as an entire article, right through to coding each individual line or speaker (Joffe & Yardley, 2004). My unit of data was the full news article, in part to ensure my research remained manageable, and also as the news article is formed as a singular unit or media ‘package’ by journalists, and read as such by audiences. However, to best maintain a record of the rich complexities and conflicting themes that occur within articles, I coded each article for more than one theme where applicable. Any content that was considered irrelevant to my research aim was not coded for. Each article was fully coded before moving on to the next, to help ensure that the coding process was “inclusive, thorough and systematic” (Braun & Clarke, 2013, p. 210).

The process of developing codes involved an ongoing decision about whether the data constituted a new code, whether it fitted into an existing code that I had already developed, or whether an existing coding category had to be modified to accommodate the new data. This approach was based on the understanding of coding as an “organic and evolving process” (Braun & Clarke, 2013, p. 211). I ensured that some of the surrounding content was kept with each code, to help provide context when later analysing the data and reporting back. Once I had initially coded the data, I went back and re-read through each data set in its entirety, in order to ensure that all aspects relevant to answering my research questions had been coded for. I also re-checked the codes to ensure that they did in fact constitute distinct coding categories. As a result, some codes were deemed to essentially be repetitions of another, and were therefore merged into a single, modified code. Once the process of coding and re-coding had been completed, the focus of analysis moved to the level of themes.

6.5.3 Phase 3: Searching for themes

Phase three of my thematic analysis involved identifying theme patterns within each of my data sets. According to Braun and Clarke (2006), a theme can be broadly understood as capturing “something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set” (p. 82). Each theme is therefore individually distinct, but together all themes form a coherent analysis or ‘story’ of the overall data (Braun & Clarke, 2013; Willig, 2013). Themes in this way are not considered significant solely on the question of how frequently they appear in each data set (Willig, 2013). Rather,
consideration is also given to which elements of the data set are the most meaningful in relation to the aims of the research.

As part of this phase, I adopted Braun and Clarke's (2013) hierarchical approach, which uses overarching themes, themes, and subthemes. I first sorted my codes into standard thematic groups within each separate data set. Where necessary, I modified the definition of these themes and created new themes in order to best capture my interpretation of the overall ‘story’ of the data. I also adopted a number of subthemes to capture important aspects of the theme they sat within. I then developed two initial overarching themes to help better organise and manage my themes. At this stage, all themes were still considered provisional, as they were subject to revision as part of the following stages of analysis.

A non-hierarchical thematic map was drawn up for each data set to help visually arrange the codes under thematic categories and gain a clearer understanding of their relationship with one another (Braun & Clarke, 2006; Ryan & Bernard, 2000; Vaismoradi et al., 2013). Codes which did not initially appear to fit into any theme were kept aside in a ‘miscellaneous’ category, and were later either re-categorised or discarded once all my themes had been refined and finalised.

### 6.5.4 Phase 4: Refinement of themes

Once I had adapted and developed my provisional themes, my analysis then turned to refining those themes. This process involved two levels of analysis. The initial phase involved reviewing the themes from the level of the coded data, and confirming their internal homogeneity and external heterogeneity (Patton, 1990). This ensured internal coherence within themes and a clear distinction between them. The second component of this phase operated at the level of the data sets themselves, and involved reviewing my thematic maps to ensure they were an ‘accurate’ representation of my interpretation of the data (Braun & Clarke, 2006). As a result of this, I reworked some of my themes and created a new overarching theme, *solutions as opportunities*, in order to ensure the themes in each data set together formed “a coherent pattern” (Braun & Clarke, 2006, p. 91). Once a refined thematic map was developed, I turned to the penultimate stage of analysis.

### 6.5.5 Phase 5: Defining and naming themes

According to Braun and Clarke (2006), the fifth phase in their thematic analysis process turns to defining and identifying the ‘essence’ of each theme, and of all the themes combined within each data set. It also involves naming the themes so that they are “concise, punchy, and
immediately give the reader a sense of what the theme is about” (Braun & Clarke, 2006, p. 93). As I began with a set of predefined themes from the existing literature on climate change, this phase instead involved redefining and renaming those themes, so that they were relevant to my results. It was important at this point to ensure I had a thorough understanding of how each theme fit into the overall ‘story’ of the data, and how this could then be described in relation to my research questions (Willig, 2013). By the end of this phase, my themes were fully clarified. From here I was ready to conduct my final analysis and write up my results to be reported back.

6.5.6 Phase 6: Analysis and reporting back

As a method, thematic analysis recognises that the process of writing and analysing data occurs throughout the entire process of coding and theme development, rather than being conducted solely at the end of it (Terry, 2016). The final stage in the thematic analysis process is to bring everything together and form a coherent ‘report’ of the overall story of the data. According to Braun and Clarke (2006), this involves “a concise, coherent, logical, non-repetitive and interesting account” (p. 93) of the story of the data which goes “beyond description” (p. 93) and relates back to my research aim. As such, writing up my results and discussion was both a continuation and subsequent finalisation of my ongoing analysis process. As a part of this, I analysed the framing found within the New Zealand Herald Online in relation to findings from the existing literature. I then compared this thematic framing with that of the press releases published in Scoop. This stage emphasised active interpretation of my data in light of the contextual and theoretical understandings I brought to the research, including reference to framing theory and New Zealand’s current media climate. It also involved recognising the possible implications for public health advocates and journalists.

6.6 Research validity

Having adopted a social constructivist epistemological position for this research, the notion of being able to objectively and independently determine the ‘accuracy’ or ‘validity’ of what is inherently a subjective exercise is problematic. Traditional notions of reliability, validity, and generalisability are widely accepted criteria for judging the quality of quantitative research (Seale, 1999), but are largely incompatible with the non-positivist approach of qualitative research. For example, a positivist view of reliability accepts the premise that researcher bias can be minimised, whereas qualitative approaches accept that researchers influence the research process (Riger & Sigurvinsdottir, 2016; Yardley, 2015). Further, the principle that a good study produces results that are generalisable is not compatible with qualitative research, which is often
interested in context-specific analysis (Creswell & Miller, 2000; Krefting, 1991; Yardley, 2015).

The rigour and validity of qualitative research methods has long been subject to debate, and it has been argued that not all qualitative studies can be judged by the same criteria (Braun & Clarke, 2013; Krefting, 1991; Yardley, 2015). For example, the widely used method of member-checking results by seeking feedback from research participants was not applicable to my research. Further, the method of triangulation conflicts with my epistemological position that a singular ‘truth’ cannot come to be known. That is, using different methods or data sources in order to find a ‘convergence’ of results will not bring me closer to ‘the truth’ (Braun & Clarke, 2013; Creswell & Miller, 2000). Finally, the value of inter-coding reliability measures for this particular piece of research is questionable considering my epistemological understanding that knowledge is subjective and socially constructed. In this way, peer checking of my coding would not ensure an objective ‘truth’ is found, only that further subjective interpretations would be produced.

Yardley (2015) argues that a broadly applicable principle of quality qualitative research is sensitivity to context. I have therefore situated my research within the relevant theoretical literature, so as to undertake a well-informed and appropriate analysis of my data. A sophisticated understanding of how existing literature and analysis methods relate to my research is also closely related to ensuring research rigour (Yardley, 2015). In addition, I have sought to demonstrate coherence between my research aims, the methodological positions I have adopted, and the methods I have used to analyse my data.

Another key principle of quality qualitative research is that of reflexivity on the part of the researcher. By engaging in reflexivity, I have undertaken a form of critical reflection which acknowledges that my particular interpretation of the data is informed by the personal values, biases, and theoretical understandings that I bring to my analysis. This includes, for example, my assumptions about what defines ‘health’, and my strong sense of social justice over and above market justice. Engaging in reflexivity is not done in order to ‘reduce’ researcher bias, but simply to acknowledge and be honest about how these biases are likely to affect my subjective interpretation of the data (Riger & Sigurvinssdottir, 2016).

I have also sought to provide a rich, detailed description of the methods taken to collect, analyse and interpret my data, so that readers have a clear understanding of the process undertaken (Creswell & Miller, 2000). Transparency in the research process also refers to the adequate provision of data which allows readers to understand the basis of the researcher’s analytic
interpretations (Yardley, 2015). As such, I have provided numerous text excerpts throughout my results chapter to support my subjective interpretation of the data. This transparency then allows readers to make their own judgements about whether they consider the resulting analysis to be adequate (Yardley, 2015). The detailed descriptions I have given of my data sources, data collection process, and analysis methods also provides the basis for others to ‘transfer’ my results to a similar context if this aligns with their epistemological position (Krefting, 1991).

6.7 Summary
In this chapter I have discussed the methods I used to collect articles from both the *New Zealand Herald Online* and *Scoop* for analysis. I have also given a detailed, step-by-step outline of the qualitative thematic analysis method I used to interpret and analyse the resulting data. This method was based on Braun and Clarke's (2006) 6-phase guide, and undertaken with the objective of achieving my overarching research aim: to examine how the relationship between climate change and public health is reported within New Zealand media. This detailed account of my methods, in addition to the methodological positions I explored in chapter five and the results I outline in chapter seven, gives a transparent account of my research process. This in turn helps to clarify how I came to interpret those themes that I outline in the following results chapter.
7 Results

7.1 Introduction

In this chapter I discuss the results of my qualitative thematic analysis. I will begin by noting the total number of relevant articles included for analysis. I will then outline the results of my thematic analysis of New Zealand Herald Online coverage. These will be presented alongside the results from press releases within Scoop for ease of comparison and to avoid repetition. However, these results will be separated in the following chapter for my discussion, so that I can first examine how the New Zealand Herald Online frames climate change and public health in relation to previous research (RQ1), and then separately analyse how these thematic framings compare to those within the press releases in Scoop (RQ2). It should be reiterated here that these results discuss how the New Zealand Herald Online frames the relationship between climate change and public health. As Scoop itself does not reframe the content it publishes, the results here refer to how the issue is framed by those who contribute the press releases that are published in Scoop.

7.2 Total relevant articles

After conducting my article searches according to the search strategy outlined in chapter six, an initial 786 articles were deemed relevant. Of this, 220 articles were categorised as implicit inclusions. As discussed previously in chapter six, to be considered an implicit inclusion, articles needed to mention either ‘climate change’ or ‘global warming’ in relation to a social determinant of health, without then explicitly linking this to human health. For example, if an article discussed how climate change will exacerbate poverty, without clearly referring to how this may affect health, it was considered an implicit inclusion. This is because it was unclear whether the general public would instinctively make the connection between poverty and health. I noted these articles, and will discuss them briefly in the following section of this chapter, however they were excluded from the thematic analysis process itself.

After excluding these implicit inclusions, I then re-read the remaining 566 articles to check for relevancy. An additional 43 articles were subsequently excluded. This left a final total of 523 relevant articles which explicitly discussed the relationship between climate change and health. Of these, 204 articles were from the New Zealand Herald Online, and 319 articles were from Scoop. It is not surprising that Scoop contained a greater total number of relevant articles, given that it publishes all non-offensive content it receives, whereas the New Zealand Herald Online is more selective in publishing content it considers ‘newsworthy’. The process of refining which
articles to include for analysis is summarised in Figure 7.1. As discussed earlier, each article was assigned a numerical code, e.g. ‘N1’, ‘N2’, ‘N3’ and so on. Data referenced throughout this chapter will be identified by its code name, and a full list of quoted articles with hyperlinks can be found in Appendix B.

![Flowchart of articles included for thematic analysis](image)

**Figure 7.1 Flowchart of articles included for thematic analysis**

### 7.3 Implicit inclusions

The *implicit inclusion* articles I noted overwhelmingly emphasised the threat that climate change poses to food security, hunger and food production. Other key determinants which were discussed in relation to climate change included poverty, adequate housing, water security and forced migration. For example, a press release from the University of Waikato called for New Zealand policymakers to do more to improve energy efficiency in homes. Benefits such as a reduction in greenhouse gas emissions and “cold, often damp, housing” (N328, 2013, *Scoop*) were discussed, however no mention of the health implications of living in such housing was
made. Of the total 220 implicit inclusions, 72 articles were from the New Zealand Herald Online, while the remaining 148 were from Scoop. There was clearly a greater tendency to discuss climate change and the social determinants of health within Scoop content. This is not surprising, given the particularly high number of public health advocacy press releases within Scoop, which will be discussed further in the following section.

7.4 Articles by type

Of the 523 explicit inclusion articles, there were 204 relevant New Zealand Herald Online articles included for analysis, and 319 relevant Scoop press releases. A breakdown of articles by type is shown in Table 7.1. Within the New Zealand Herald Online the vast majority of relevant articles were standard news articles written by journalists (137). Opinion pieces were the next most common type of article (54), followed by interviews (10). Other article types were negligible (3). Of the opinion pieces, 23 were authored by regular New Zealand Herald Online columnists or journalists, while 31 were from other guest contributors, including four from members of public health advocacy groups. Interestingly, only one editorial piece was found in over fifteen years of coverage, highlighting a lack of editorial attention.

<table>
<thead>
<tr>
<th>New Zealand Herald Online article type</th>
<th>Total</th>
<th>Scoop press release type</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>News articles</td>
<td>137</td>
<td>Independent news articles</td>
<td>25</td>
</tr>
<tr>
<td>Opinion pieces</td>
<td>54</td>
<td>Independent opinion pieces</td>
<td>38</td>
</tr>
<tr>
<td>Interviews</td>
<td>10</td>
<td>Independent interviews</td>
<td>2</td>
</tr>
<tr>
<td>Editorials</td>
<td>1</td>
<td>Media releases</td>
<td>229</td>
</tr>
<tr>
<td>Independent reports</td>
<td>2</td>
<td>WikiLeaks cables</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Speech transcripts</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Submissions</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Parliament Q&amp;A’s</td>
<td>1</td>
</tr>
<tr>
<td>Total articles</td>
<td>204</td>
<td>Total press releases</td>
<td>319</td>
</tr>
</tbody>
</table>

Media releases dominated Scoop content (229). There were over 27 different source types which issued relevant media releases in Scoop. Of these, the most prominent were: public health advocacy groups (79), the United Nations (20), environmental groups (20), and academic
institutions (18). The second and third most common press release types within Scoop were opinion pieces (38) and news articles (25) submitted by independent journalists or contributors. All content within Scoop came directly from sources, and therefore did not pass through third parties such as editorial boards.

7.5 Articles by year

Figure 7.2 shows the total number of relevant articles by news outlet over the period 1st January 2001 to 31st December 2015, the only years for which annual data was complete. Overall, there is a non-linear increase in relevant coverage in both news outlets over time. The number of relevant articles in both outlets increased markedly from 2006 onwards, although notable troughs appeared in later years such as 2008, 2012 and 2010. The 2015 peak in coverage in both news outlets was unsurprising due to the long lead-up to the COP21 Paris Climate Change talks which took place that year. Other notable increases in coverage include those in 2006; 2009; and, in Scoop, 2007. This is broadly similar to trends found by Schmidt et al. (2013) in their analysis of climate change coverage across twenty-seven countries. They attributed peaks in these years to the release of influential publications such as the Stern Review (Stern, 2006) and the IPCC’s (2007) Fourth Assessment Report, as well as the lead-up to the 2009 Copenhagen Climate Change Conference.

![Total articles by news outlet (2001-2015)](image)

*Figure 7.2. Total relevant articles in each outlet 1st January 2001 to 31st December 2015*
The years 2013 and 2014 are also worth noting. 2013 did not see any one particular event that caused a spike in media interest in climate change and health; rather, there were a number of climate summits and extreme weather events which together produce a marked increase in coverage. In 2014, notable events included the release of the IPCC’s (2014) Climate Change Synthesis Report, the joint Call for Action on Climate Change and Health by ten New Zealand health professional organisations (OraTaiao, 2014), and the New Zealand general election. The number of relevant press releases received by Scoop increased dramatically in this year, with a strong focus on these three key events. New Zealand Herald Online coverage, however, actually declined slightly. It is likely this plateau of attention can be attributed to a much stronger focus on the New Zealand general election as a major political event, given the Herald’s need to be selective about what news items to report on. Comparing the two news outlets, there was a pronounced difference in the total number of articles discussing climate change and public health after 2006. Otherwise, they displayed relatively similar trends in terms of peaks and troughs, particularly from 2008 onwards.

7.6 Articles by month (2015)

I undertook a closer analysis of the peak year 2015 in order to gain a sense of whether the similarity in coverage trends was reflected on a monthly basis (See: Figure 7.3). New Zealand Herald Online coverage was relatively consistent, except in the build-up to the Paris Climate Change talks near the end of the year. Coverage in Scoop, by contrast, had a far greater tendency to spike and lull by responding quite noticeably to key current events that the New Zealand Herald Online either ignored or gave less attention. For example, March saw the deadly Cyclone Pam strike Vanuatu, as well as feedback given on the proposed Wellington Regional Land Transport Plan. Each inspired four press releases in Scoop which discussed climate change and public health. In contrast, the New Zealand Herald Online had only one relevant article on Cyclone Pam that mentioned climate change, and no relevant coverage of the Regional Land Transport Plan. Similarly, the New Zealand Herald Online devoted only one article to the release of The Lancet Commission on Health and Climate Change in June, whereas the same
event inspired press releases in *Scoop* from New Zealand’s Green Party, OraTaiao, the Royal Australasian College of Surgeons, and *The Lancet* itself.

![Total articles by month (2015)](image)

*Figure 7.3. Total number of articles per month in the year 2015*

The difference in coverage indicates that while multiple press releases can be made regarding a single event or development in an independent news outlet such as *Scoop*, the *New Zealand Herald Online* will not necessarily report on each of them separately; or, in the case of more localised issues, they may not cover them at all. This may reflect a decision on the part of the *New Zealand Herald Online* to only report on those stories considered to be ‘newsworthy’ on a national or international scale. My snapshot of coverage in 2015 suggests that while the *New Zealand Herald Online* and *Scoop* mimicked each other’s peaks and lulls in coverage by year, this was not necessarily true on a monthly basis.

It is beyond the scope of this study to determine if coverage of climate change and public health is afforded more attention than other issues of a similar nature. However, Figure 7.3 shows that even in the year of peak coverage, there was still a total of seven months when the discussion of climate change and health appeared four times or less a month in *Scoop*. In the *New Zealand Herald Online*, avid readers were only likely to have encountered an average of two to three articles per month for most of the period of February-October. To assume readers would even read this much is itself a generous supposition, as it assumes that readers would encounter the articles regardless of whether they appeared in prominent sections of the website or not, which is unlikely.
In order to gain a further sense of the prominence afforded to climate change and public health coverage, I undertook a brief examination of where such articles were located within the print version of *The New Zealand Herald*. I looked through each paper for the months of November and December in 2015, which was a particularly important time in the lead up to the COP21 Paris Climate Change talks. No direct comparisons can be made, as it was clear that the content of the print and online versions of the paper was different. However, some observations can be made. About a third of relevant articles were located in the centrefold of the newspaper as the opening stories for the World section. The majority, however, were located on pages A24-A33. Further, there was no front-page discussion of climate change and health, even during the COP21 Paris Climate Change talks. The generally scattered and relatively low-profile placement of such articles in the print version of *The New Zealand Herald* suggests the issue was unlikely to have been given major prominence in its online counterpart.

7.7 Codes

7.7.1 *New Zealand Herald Online*

I initially developed a total of 1,117 codes across the *New Zealand Herald Online* data set. I then undertook further thematic analysis of my data and identified broader patterns across the data set. This involved assigning my initial codes to thematic groups. As part of this process, 221 codes were excluded on the basis that they were irrelevant to answering my research questions; or, they were merged into revised codes, as upon re-examination they were deemed to essentially be duplicates. A final tally of included codes came to 896.

7.7.2 *Scoop*

I initially developed a total of 1,699 codes in the relevant *Scoop* content. After reviewing the codes both for duplicates and relevancy to the themes of the data, I then excluded or merged another 278 codes. A final total of 1,421 relevant codes were included as part of the thematic analysis.

7.8 Themes

As discussed in chapter five, the coding process for this research began with a set of frames that were drawn from the previous literature examining media framing of climate change more broadly (See: Table 5.1). However, during the coding and theme development process it became
clear that adjustment to these frames needed to be made. I therefore made the following revisions:

- The frame human interest was not considered relevant, and was therefore excluded.
- New themes were interpreted from the data. These themes were:
  - clear evidence of threat
  - fragmented/inadequate political responses
  - action needed now
  - role of the medical community
  - solutions
  - co-benefits of action
- A number of frames were revised and subsumed into more accurate thematic groupings. These were:
  - conflict and international relations (into fragmented/inadequate political responses)
  - new evidence and scientific background (into clear evidence of threat)
  - consequences (into clear evidence of threat and co-benefits of action)
  - attribution of responsibility was renamed responsibility, and the focus on solutions was removed to become its own separate theme.
- The following frames maintained their original definitions:
  - sensationalism and morality

The final result, therefore, was that the majority of the thematic frames I developed throughout the analysis process were quite different to those I began with. A summary of these reworked frames can be found in Table 7.2. While my revised frames make direct comparisons with previous studies more difficult, revisions were necessary in order to best capture the overall thematic ‘story’ of the data. This follows the lead of Kenix (2008), who similarly revised and added to the frames she adopted from McComas and Shanahan (1999), in order to more accurately reflect her data. The frames identified in previous literature were also developed in relation to media coverage of climate change more broadly, without the specific focus on health that is distinctive to my research. Further, it is possible that an increasing acceptance of climate science and the need for action worldwide has changed the nature of climate change conversation from when those previous frames were developed in 2000 and 2008. For example, the passing of time alone may explain the growing emphasis on calls for urgent action. Additionally, role of the medical community was a health-specific theme that was only apparent
in press releases within *Scoop* from 2008 onwards, thereby providing another example of a theme which has only more recently become important.

### Table 7.2 Revised theme definitions

<table>
<thead>
<tr>
<th>Thematic frames</th>
<th>Definition</th>
<th>Adapted from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear evidence of threat</td>
<td>Unchecked climate change threatens health</td>
<td>Kenix’s (2008) <em>new evidence and scientific background</em></td>
</tr>
<tr>
<td>Sensationalism</td>
<td>Extreme or deliberately provocative language</td>
<td>Kenix (2008)</td>
</tr>
<tr>
<td>Fragmented/Inadequate political responses</td>
<td>Political responses to the health implications of climate change have been fragmented/inadequate</td>
<td>New frame</td>
</tr>
<tr>
<td>Action needed now</td>
<td>Action is required to mitigate and adapt to the health impacts of climate change</td>
<td>New frame</td>
</tr>
<tr>
<td>Morality</td>
<td>Moral messages, religious tenets or social prescriptions</td>
<td>Semetko &amp; Valkenburg (2000)</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Who is responsible for responding to the health implications of climate change</td>
<td>Semetko &amp; Valkenburg’s (2000) <em>attribution of responsibility frame</em></td>
</tr>
<tr>
<td>Role of the medical community</td>
<td>Discussion of the unique position health professionals are in to respond to the health impacts of climate change</td>
<td>New frame</td>
</tr>
<tr>
<td>Solutions</td>
<td>Discussion of possible solutions, and blueprints for climate action</td>
<td>New frame</td>
</tr>
<tr>
<td>Co-benefits of action</td>
<td>Well-planned climate action and policy offers positive opportunities to improve health</td>
<td>New frame</td>
</tr>
</tbody>
</table>

For the remainder of this chapter I will discuss my thematic results for both the *New Zealand Herald Online* and *Scoop*. Content in the two news outlets shared a number of common themes. These will be broken down in hierarchical order into the following thematic groups:

- Overarching themes: *threat to health; urgent action needed; solutions as opportunities*
- Themes: clear evidence of threat; sensationalism; fragmented/inadequate political responses; action needed now; role of the medical community; solutions; co-benefits of action
- Subthemes: morality; responsibility

As discussed in chapter six, I used a hierarchy of overarching themes, themes and subthemes to order the thematic content of my data. To reiterate, the three overarching themes merely help to organise the individual themes underneath a shared, broad idea. The themes themselves each capture a distinctive “central organizing concept” (Braun & Clarke, 2013, p. 231) within the data, while the subthemes focus more narrowly on capturing specific aspects of particular themes. Visual charts showing the hierarchical relationship between these overarching themes, themes, and subthemes within each news outlet can be found in Figure 7.4 and Figure 7.5.

**Figure 7.4. New Zealand Herald Online final thematic map.** Overarching themes in blue; themes in orange; subthemes in grey. Themes unique to New Zealand Herald Online in italics

### 7.8.1 Threat to health

*Threat to health* is the first of three overarching themes I interpreted within the relevant *New Zealand Herald Online* and *Scoop* content. It was noticeably more dominant than the other two overarching themes *urgent action needed* and *solutions as opportunities*. As an overarching theme, *threat to health* defines the relationship between climate change and human health in overwhelmingly negative terms. Unchecked climate change is portrayed as a major threat to health and health equity, a claim which is widely backed up by scientific consensus.
Clear evidence of threat

Clear evidence of threat sits underneath the threat to health overarching theme, and constitutes a critical aspect of climate change and public health coverage in both news outlets. It stresses the negative health consequences of unchecked climate change and supports these concerns with scientific evidence. Clear evidence of threat was the dominant theme in both news outlets, discussed in the vast majority of New Zealand Herald Online coverage and within just over three-quarters of the press releases in Scoop. As a proportion of total articles per year, this theme was discussed consistently over the time in both news outlets, as well as across all article types. It was therefore continually reinforced by sheer repetition.

A focus on the impacts of climate change on physical health dominated coverage in both news outlets. Discussion of the threats to mental health were extremely limited, although each outlet contained at least one article dedicated to this relationship (See: N171, 2010, New Zealand Herald Online; N372, 2014, Scoop). In comparison, the consequences of climate change on social determinants of health, such as poverty and water insecurity, were given greater attention in both news outlets, particularly within press releases in Scoop. However, they still represented a minor aspect of coverage overall. Where discussed, however, the link between the health effects of climate change and social determinants was made very clear. For example: “Due to the very large number of people that may be affected, food and water scarcity may be the most
important health consequences [sic] of climate change” (N506, 2010, Scoop) (See also: N145, 2011, Scoop).

Greater emphasis was placed on the threat of climate change to equitable health outcomes than on the social determinants of health. This was particularly true within press releases in Scoop, which gave double the amount of coverage to issues of health equity than the New Zealand Herald Online. Further differences were clear between the outlets regarding health equity. For example, the New Zealand Herald Online focused almost entirely on the implications for health equity overseas; content within Scoop, on the other hand, emphasised the local implications for New Zealand. Compare, for example:

University of Auckland Te Kupenga Hauora Māori researcher Dr Rhys Jones (Ngāti Kahungunu) has also studied the potential impact of climate change - focusing on the impact on hauora, health and wellbeing. “[Aotearoa] will be relatively insulated from the effects of climate change compared to other Pacific countries - but any impact will be borne disproportionately by Māori, Pacific Islanders and lower socio-economic groups,” he explained. (N141, 2013, Scoop)

The world's poor will be the hardest hit by global warming this century, says a United Nations report on climate change. Worldwide, heavier floods, worse droughts, more violent storms, failing agriculture and much increased disease can be expected, the report warns. The underprivileged and destitute in developing countries will feel the impact most, and the income gap with developed countries will widen. (N460, 2001, New Zealand Herald Online)

This distinction is most likely due to the fact that the vast majority of press releases within Scoop were issued by New Zealand-based health advocacy groups, with a higher concern for local impacts.

Within clear evidence of threat, coverage strongly emphasised that the science linking climate change and health has been proved beyond reasonable doubt. This sentiment is captured by the following direct quote from a report by the Australian federal science agency CSIRO in the New Zealand Herald Online: “None of these changes are in doubt, and all of them impact on human health” (N201, 2002, New Zealand Herald Online). See also health advocate Bobby Ramakant’s column piece in Scoop: “Overwhelming evidence shows that human activities are affecting the global climate, with serious implications for public health” (N358, 2008, Scoop).

Interestingly, the rejection of sceptics, while relatively infrequent, was nevertheless a distinct aspect of the clear evidence of threat theme within New Zealand Herald Online coverage that was not apparent in Scoop. It refers to the outright rejection of those who deny the reality of anthropogenic climate change and its link to public health, despite overwhelming evidence to the contrary. The rejection of sceptics was discussed equally in New Zealand Herald Online
news articles and opinion pieces, and with relative consistency from its first mention in 2007. Speaking from a health perspective, Dr George Laking’s opinion piece in the *New Zealand Herald Online* decried political party ACT’s climate scepticism, stating: “[their] attitude to climate change marks one of the most anti-scientific phases of our history” (N230, 2011, *New Zealand Herald Online*). University of California professor Naomi Oreskes lamented the lack of climate action due to lingering scepticism: "It is a very serious impasse. There are already signs that people's lives and livelihoods are at stake” (N224, 2011, *New Zealand Herald Online*).

In terms of climate scepticism, both the *New Zealand Herald Online* and *Scoop* had extremely limited content authored by those displaying sceptical viewpoints. The *New Zealand Herald Online* did, however, have a very small yet distinct number of articles which demonstrated a reluctance to take actions necessary to mitigate climate change. For example:

> “It is naive to predict the effects of 'global warming' on malaria on the mere basis of temperature,” Paul Reiter, a professor at Paris' Pasteur Institute, said in a statement. "Why don't we devote our resources to tackling these diseases directly, instead of spending billions in vain attempts to change the weather?”. (N463, 2003, *New Zealand Herald Online*)

In both news outlets, general acceptance of the science linking climate change and health was continually supported by coverage of the negative health consequences that are predicted to occur if no action is taken. This included regular reporting of new evidence, as well coverage which outlined the specific types of health effects expected. For example:

> The Public Health Association warns of illness and death from malaria, dengue fever, injuries and heat stress, and more pollen and mould spores disrupting people's respiratory systems. (N80, 2006, *New Zealand Herald Online*)

There was also notable discussion in both outlets of how key causes of climate change and existing threats to health overlap. This thereby implied that fixing one may help the other, but such co-benefits were not actually clearly stated or explained. The everyday reader, therefore, may not have made this explicit connection. Carbon-emitting air pollution was the major focus of this line of discussion, as was the lack of safe infrastructure for active transport in *Scoop* and the overconsumption of meat and dairy products in the *New Zealand Herald Online*.

Content in both news outlets strongly emphasised the health threats faced by those living overseas, whereas about half as many discussed those which are predicted to affect health in New Zealand. In comparison to the *New Zealand Herald Online*, those who contributed press releases to *Scoop* took more care to highlight the fact that New Zealand will not be immune to the health threats posed by climate change. For example:
…New Zealand is not immune from the threats described in the report. Direct and indirect climate change impacts are already being seen here as a result of warming oceans and sea level rise. We can expect worsening illness and injury from heat and other extreme weather, changing patterns of infection including food poisoning, loss of seafood and farming livelihoods, food price rises and mass migration from the Pacific. (N251, 2015, Scoop)

Dr Jones concludes: ‘The bottom line is that the health and wellbeing of current and future New Zealanders is at risk’. (N96, 2012, Scoop)

Content in both news outlets focused almost exclusively on overseas countries when discussing the climate change health effects that are already happening. In stark contrast, virtually all coverage which discussed the health impacts for New Zealand described them as something that would happen in the future if no action was taken. Climate change, in this sense, is a threat to be dealt with ‘later’ in New Zealand. There was also some, albeit minor, mention in the New Zealand Herald Online that New Zealand will not be as vulnerable as other countries: “New Zealand is one of the luckier countries” (N80, 2006, New Zealand Herald Online). See also: “…The impacts on New Zealand, however, appeared relatively small when compared when some countries in the region” (N108, 2015, New Zealand Herald Online).

Sensationalism
Along with clear evidence of threat, the theme sensationalism also sits under the overarching theme threat to health. This is because the use of sensationalist language is based on the same understanding that, left unchecked, climate change is a threat to health. Sensationalism is unique, however, in its emphasis of extreme predictions and provocative language to capture audience attention. The use of sensationalist language was a moderately important theme within New Zealand Herald Online coverage, adopted in almost a quarter of all article types. It was a less important aspect of coverage in the press releases found within Scoop, discussed in less than a fifth of all such article types. Per year, the proportion of Scoop press releases that demonstrated the use of sensationalist language was generally low until 2007 onwards, while there were ongoing lulls and peaks in New Zealand Herald Online coverage across the entire time period. Within Scoop content, sensationalism was primarily discussed within media releases, and in particular, media releases from public health advocacy groups. Sensationalism was relatively consistent across all article types in the New Zealand Herald Online.

Within sensationalism, deliberately provocative language was common in both news outlets, as was an emphasis on apocalyptic predictions for the future. This included the description of climate change as one of “the 12 most likely causes of the Apocalypse” (N454, 2015, New
Biblical visions of hell were also invoked in more extreme instances, such as:

“…[Australia] is unlikely to be so fortunate in the next 100 years as…the warming Earth dehydrates its resources, hammers health and lashes the continent with a 21st-century equivalent of fire and brimstone”. (N201, 2002, *New Zealand Herald Online*)

Further examples of sensationalism included:

Without a solution to Peak Oil and Global Climate Change our society as we know could well collapse and lead to the deaths of billions due to starvation and disease. We need to act now to secure our future. (N522, 2004, *Scoop*)

There is nothing normal about being well adjusted and silent as ecosystems and climate collapse globally, threatening the imminent death of us all. (N344, 2014, *Scoop*)

A notable distinction between *New Zealand Herald Online* coverage and the press release’s in *Scoop* is the use of sensationalist language by sceptics themselves, which is present in the latter but completely absent in the former. The use of sensationalism by climate sceptics generally represented a response to calls for climate action, and emphasised the dire threats to health they perceived such action itself would have. For example:

As acclaimed journalist George Will wrote in Newsweek last year, if nations go ahead and impose anti-global warming policies, “the damage to global economic growth could cause in this century more preventable death and suffering than was caused in the last century by Hitler, Stalin, Mao and Pol Pot combined”. (N389, 2008, *Scoop*)

It should be reiterated that the use of sensationalism by sceptics was a very minor aspect of *Scoop* coverage, albeit an interesting one. Further, it began in 2008 and failed to reappear after 2012, perhaps reflecting a growing acceptance of climate science and the need to act.

### 7.8.2 Urgent action needed

*Urgent action needed* is the second overarching theme interpreted in both *New Zealand Herald Online* and *Scoop* coverage. It highlights the need for action in response to the threat that unchecked climate change poses to health. The themes which sit under this overarching theme were discussed in half of *New Zealand Herald Online* coverage and over half of all *Scoop* content. *Urgent action needed* particularly dominated media releases in *Scoop* and interview articles in the *New Zealand Herald Online*.

**Inadequate political responses**

Unique to press releases in *Scoop*, the theme *inadequate political responses* sits underneath the overarching *urgent action needed* theme. It is based upon the belief that existing political
responses to the health threats of climate change have been woefully inadequate, and to some extent, negligent. This theme received moderate attention across Scoop content, but was important in that it was an underlying theme which connected an otherwise diverse range of content relating to climate change and public health. This includes, for example, discussion of domestic politics and international relations. The inadequate political responses fame was discussed with increasing frequency from 2010 onwards, suggesting a growing impatience with the lack of political action taken in relation to climate change. In particular, this theme emphasised that policymakers’ responses have been insufficient, and that current policy is inadequate or actively undermines action efforts. This theme often acted as a precursor for more explicit calls for action. For example:

Yesterday's Government announcement of New Zealand’s post-2020 climate target is a shocking failure to act to reduce health damaging greenhouse gas emissions, says OraTaiao: The NZ Climate and Health Council. ‘This shameful response reneges on the government’s fundamental role to protect the wellbeing of New Zealanders, as well as our responsibilities in the Pacific’, says Dr Alex Macmillan. (N445, 2015, Scoop)

The health impacts of climate change will be difficult to reverse in a few years or decades. Yet, many of these possible impacts can be avoided or controlled….However, government of India's response in efficient land use and water management to mitigate the adverse impact of the global climate has been appalling. (N358, 2008, Scoop)

While different themes to some degree, it can be noted that discussion of inadequate political responses was almost twice as common, proportionally, in Scoop than discussion of fragmented political responses in New Zealand Herald Online coverage, which will be discussed below.

Fragmented political responses

The fragmented political responses theme is exclusive to New Zealand Herald Online coverage, and sits underneath the urgent action needed overarching theme. While relatively infrequent, the fragmented political responses theme was important in that it tied together a number of otherwise diverse coding categories interpreted in the data. It emphasised the fragmented nature of political reactions to the health threats of climate change, with a primary focus on New Zealand. Conflict amongst political parties or countries was labelled as the primary cause, and the resulting efforts were often seen as inconsistent and insufficient. Compared to the theme of inadequate political responses found in Scoop content, this theme was less accusatory in tone and less prone to bluntly stating that current responses have been unacceptable. Rather, coverage of this type was slightly more sympathetic to the political maze that key actors must
negotiate in order to take sufficient climate action, emphasising that the political landscape is laced with conflicting interests and limited state capabilities. For example:

Q. As it stands, how equipped is the world's health system today to meet this crisis, and is it already preparing? A. It is patchy. Some countries are taking the threats of climate change very seriously, and gearing up their health systems…but many other countries don't have the resources, and struggle to deal with day to day health emergencies, let alone what lies ahead. (N50, 2015, New Zealand Herald Online)

But the [IPCC] report identified barriers including ongoing scepticism, a lack of integrated assessments of climate change impacts and weak linkages between levels of government to deal with it. (N13, 2007, New Zealand Herald Online)

The fragmented political responses theme was particularly evident in 2015, which suggests an increasing impatience with the lack of action taken at various political levels.

**Action needed now**

*Action needed now* was the second most common theme interpreted from both news outlets, appearing in almost half of *New Zealand Herald Online* and *Scoop* content. In proportional terms, the theme was most prominent in *Scoop* content from 2009 onwards, while in the *New Zealand Herald Online*, coverage was more erratic bar a clear spike in 2015. *Action needed now* sits underneath the overarching theme *urgent action needed* and has two subthemes that sit within it, morality and responsibility. As a theme, *action needed now* was characterised by a sense of increasing urgency. There was a strong sentiment that failure to act in the face of the overwhelming scientific evidence is not an option. For example:

Dr Shigeru Omi, WHO Regional Director for the Western Pacific, warned recently: "We have now reached a critical stage in which global warming has already seriously impacted lives and health, and this problem will pose an even greater threat to mankind in coming decades if we fail to act now". (N599, 2007, New Zealand Herald Online)

…All the indicators are telling us there is no more time for dithering. We need to do something. Now. (N80, 2006, New Zealand Herald Online)

The latest report from the world’s leading climate science body sends an unequivocal message to governments - urgent action on climate change is required to avoid catastrophic outcomes for human health and wellbeing. (N401, 2014, Scoop)

“So I guess if I was trying to summarise it…we already stand an unacceptable risk of dangerous climate change and the need for action is ever more urgent”. (N65, 2007, Scoop)

Within *action needed now*, climate action was justified to some degree in economic terms. While an economic focus was relatively minor in coverage overall, it is nonetheless interesting
that the authors of such articles felt compelled to offer economic reasoning to support calls to protect health. For example:

Warmer and wetter weather increases opportunities for these dangerous mosquito species becoming established in New Zealand....Health officials have estimated that a dengue fever outbreak in New Zealand would conservatively cost the country in the order of $250 million....The costs to tourism and business from cancelled bookings would be in the order of five percent of foreign exchange earnings for the year. So not something to take lightly. (N517, 2015, Scoop)

It's not just our health at stake, it's our economy, says clean energy advocate and business leader Phillip Mills. He insists that the government is taking us on a path towards economic destruction. "They're compromising our good reputation that is at the heart of our economic success and our way of life". (N601, 2013, New Zealand Herald Online)

Morality

The subtheme of morality sits underneath the action needed now theme. Morality was discussed in a fifth of all Scoop content, and exclusively from 2007 onwards. In relative terms, morality was about as prominent in the New Zealand Herald Online, but appeared more consistently across the entire time period analysed. In drawing on Semetko and Valkenburg's (2000) definition of ‘morality’, this subtheme captures references to social values or moral messages which offer prescriptions about how to behave. The morality theme is therefore concerned with appeals to the moral values of audience members, in order to justify why action is needed. Climate action, in this view, is a moral requirement given the threat climate change poses to health and health equity. This theme often appears in very explicit terms, as in the following examples:

But when we are messing about with such things as how much rain falls where, where you can grow what crops, the geographical ranges of pests and diseases, and doing all that with the prospect of billions more mouths to feed, it [climate action] becomes a moral question, not an economic one. (N105, 2007, New Zealand Herald Online)

It is wrong to think our country's actions do not matter. The most basic moral rule is "do as you would be done by". (N230, 2011, New Zealand Herald Online)

There were also strong appeals to a sense of ‘fairness’ in both news outlets, with accusations that New Zealand and other developed countries are failing to do their ‘fair share’ to help those most vulnerable. For example:

Dr Jones says it is unfair that poor countries, who have contributed the least to this emergency, are being affected first and worst....“New Zealand’s pathetic climate target shows contempt for the innocent peoples of low-lying Pacific Island states. Global warming will drive people from their land and result in profound adverse health effects. It is a particularly nasty betrayal by New
Zealand - which of all countries should speak up and support the interests of Pacific Nations”. (N332, 2015, Scoop)

It is cynical and selfish for New Zealand to try and avoid playing our part in protecting the future of humanity and the planet. (N788, 2015, New Zealand Herald Online)

Responsibility

Responsibility is the second subtheme that sits within the action needed now theme, as it is based on the premise that action is required to mitigate climate change in order to protect health. While this theme does not receive substantial attention in either Scoop or the New Zealand Herald Online, it is distinctive in asserting that particular actors are obliged to take action, and subsequently liable to blame if they fail to do so. New Zealand Herald Online coverage identified both the New Zealand Government and international governments as being equally responsible for taking a lead on climate action. Coverage in Scoop, on the other hand, focused much more closely on the New Zealand Government’s failure to adequately recognise or accept its responsibility to act. For example:

“It is clear that both climate change and societal responses to climate change pose serious threats to the right to health for Maori in Aotearoa/New Zealand. The New Zealand Government has obligations arising from this right to address a broad range of issues at many different levels”. (N300, 2014, Scoop)

“The Government has to take strong climate action as part of its 'duty of care' to all New Zealanders”. (N364, 2015, Scoop)

Articles in both news outlets made very little explicit mention of the obligation individuals have to act. In the New Zealand Herald Online individual responsibility was almost entirely approached from the perspective that individuals must exercise their political voice to force policymakers to take sufficient action. For example: “We do need government action, and rather than hope the politicians will do it, we need to make them do it” (N170, 2015, New Zealand Herald Online). See also:

“[professor] Dame Anne has asserted that we all have a responsibility to hold Government to account. ‘Citizens who don’t stand up and speak out...are culpable, along with their leaders’ ”. (N601, 2013, New Zealand Herald Online).

One regular environmental columnist, Sam Judd, discussed the need for individual political advocacy and even provided links for where readers could make online submissions to the Government (See: N663, 2015, New Zealand Herald Online). In contrast, the two relevant examples within Scoop instead suggested that individuals have a responsibility to act to mitigate their own carbon footprint:
“It is up to us all to take action - and the good news is there are things we can do - like making more use of bikes, buses and walking in our day to day transport” adds Dr Laking. “These blazing heat conditions are a call to climate action for all of us”. (N333, 2013, Scoop)

Climate change is [an] incredibly big problem that will only be solved by lots of people doing small things such as using bikes for transport, says Mr Oram. (N274, 2010, Scoop)

Role of the medical community

The role of the medical community theme is distinctive to Scoop content. It sits underneath the overarching urgent action needed theme, and highlights the unique position that health professionals are in to respond to the challenges of climate change. This theme was only discussed in press releases in Scoop from 2008 onwards, indicating an increasing understanding of the relationship between climate change and health by the medical community. Within the role of the medical community theme, coverage focused on examples of health advocacy, the unique challenges that the health sector faces if climate change is left unchecked, the duty that health professionals have to advocate for action, and the contribution that the health sector itself makes to health-harming carbon emissions. This theme had a much broader focus than simply discussing health professionals’ calls for action, and was therefore not subsumed into the action needed now theme, whereas such content within the New Zealand Herald Online was. Further, examples of health advocacy action were only a small aspect of New Zealand Herald Online coverage, whereas in Scoop, the focus on health professionals was far more prominent and warranted its own theme.

In Scoop, health professionals were active in issuing media releases regarding climate change and health. Therefore, the role of the medical community theme had a strong emphasis on their efforts to advocate for climate action. Excerpts from health advocacy group press releases include, for example:

New Zealand Nurses Organisation members will be among thousands marching in 34 locations around the country this weekend, for a safer climate and better health outcomes. NZNO President Grant Brookes says that the people’s climate march is an opportunity for improving New Zealander’s health and quality of life. “The World Health Organisation has said that climate change is the greatest threat to human health this century, with increased risk from war, famine and infectious disease. But we can act now and actually improve everyone’s health”. (N155, 2015, Scoop)

Dr Alex Macmillan from the NZ Climate and Health Council says, “Leading health organisations all around the world are speaking out about the potentially devastating health impacts of climate change in this important year for global negotiations.” (N335, 2015, Scoop)
Included in the role of the medical community theme was discussion of the significant role that the health sector has in ensuring that harmful climate change is mitigated and adapted to as best as possible:

“Public health has a history of investigating and managing environmental (and other) health risks and brings particular skills to the complexities of climate change, including a focus on prevention, the determinants of health, and highlighting the role of the state in protecting population health....[The New Zealand College of Public Health Medicine] is to be congratulated for the depth and breadth of its analysis and its leadership in spelling out what we need to do to respond to one of the most serious and urgent threats to the nation’s health,” Dr Simpson said. (N365, 2014, Scoop)

The NZPsS [New Zealand Psychological Society] recognises that psychologists have a role in identifying behavioural contributions to climate change, and in the management of the psychosocial, mental health and community consequences of climate change. Psychologists are already contributing through research to an evidence-based understanding of human impact on the environment. The Society encourages the application of psychology to one of the most pressing problems for humankind in our time. (N372, 2014, Scoop)

Within the role of the medical community theme there was also notable reference to the belief that health professionals have an ethical duty to speak out on climate change, due to their professional obligation to protect human health. This narrative was self-declared by health professionals themselves. For example:

“[The Lancet Commission Report] highlights the urgency for action by health professionals around the country, it is our duty to care for the health of our community,” Professor Talley said. “As health professionals, we have a responsibility at a local, national, and global level to address climate change”. (N376, 2015, Scoop)

Dr Jones notes that climate change is already causing death, disease and injury around the world. ‘As doctors, we have a responsibility to protect the health and well-being of the community. Just as a doctor ignoring a serious health problem would be guilty of medical malpractice, our inaction on climate change is abuse and neglect - but in this case on a global scale’. (N444, 2011, Scoop)

“Despite the barriers to stopping coal’s health and climate damage, our duty as doctors and health professionals is protecting the health of our patients and communities,” says Dr Bennett. (N513, 2013, Scoop)

This emphasis on the duty of health professionals to take action was virtually exclusive to health group press releases. Further, it was not reflected within New Zealand Herald Online coverage.

Finally, discussion of the contribution that the health sector itself makes to harmful carbon emissions was a minor but important aspect of content within Scoop which was also absent in the New Zealand Herald Online. This indicates that the medical community understands the
health sector must lead by example and minimise its own negative impact on the climate. For example:

“The health sector consumes resources at a vast rate and has a sizeable carbon footprint. We are working with health workers to reduce their emissions - at work and also at home. ‘Forests for Health’ provides an opportunity to compensate for any unavoidable emissions” says local GP, Rebecca Randerson. (N749, 2013, Scoop)

“DHBs are major infrastructural organisations with large carbon footprints. If we are not able to prioritise environmental sustainability, we will incur massive health, environmental and financial costs downstream”. (N319, 2014, Scoop)

7.8.3 Solutions as opportunities

The final overarching theme, solutions as opportunities, emphasises not only the belief that actions to mitigate and adapt to climate change are possible, but that they may also provide an opportunity to improve health and wellbeing at the same time. This overarching theme is based on the belief that unchecked climate change is a threat to health, and that action is urgently required. Solutions as opportunities was an important overarching theme across both news outlets, albeit less common than threat to health and urgent action needed. The solutions as opportunities theme was discussed in more than half of all Scoop content, and close to half of New Zealand Herald Online coverage.

Solutions

Sitting underneath solutions as opportunities, the solutions theme reiterated the feasibility of action and offered blueprints for what such action might look like. These solutions were discussed both explicitly and implied as opportunities to ‘save’ ourselves from the worst predicted health effects of climate change. The solutions theme was an important aspect of climate change and health coverage which was discussed in over a third of all Scoop press releases and a quarter of New Zealand Herald Online reporting. In relative terms, the solutions theme was equally common in article and opinion pieces in the New Zealand Herald Online, while in Scoop, it was most common in press releases from health groups. As a proportion of total articles per year, the solutions theme was relatively prominent from 2009 onwards in the New Zealand Herald Online, and was discussed with relative consistency across most years in Scoop coverage. The increase in New Zealand Herald Online coverage suggests a progression away from concerns regarding the scientific basis of the relationship between climate change and health, to discussing what can be done in response.
Within press releases in *Scoop*, there was a strong emphasis on the need to work collaboratively on climate solutions between countries, across political parties, and in partnership with those populations most at risk. This aspect was also present in the *New Zealand Herald Online*, albeit on a smaller scale. The need to work together to develop and enact solutions to climate change was often expressed in very clear terms in both new outlets. For example:

Dr Jones highlighted a number of ways in which the New Zealand Government can work towards meeting its obligations arising from the right to health. “First and foremost, New Zealand needs to be an active participant in global efforts to urgently reduce greenhouse gas emissions. Climate change mitigation strategies that also improve health and reduce disparities between Maori and non-Maori should be adopted immediately. Other interventions need to be designed, implemented and evaluated carefully in partnership with Maori communities. (N300, 2014, *Scoop*)

“Successfully addressing climate change requires cross-party consensus and reliable signals to industry and society. With great opportunities for health gains and health sector savings for New Zealanders, a healthy response to our changing climate is the obvious choice for all political parties wanting to govern” ends Dr Macmillan. (N247, 2014, *Scoop*)

“What we need now is cross-party agreement on climate change because of the sheer scale of the risks and opportunities”. (N787, 2006, *New Zealand Herald Online*)

Interestingly, while individuals were not widely attributed responsibility for taking climate action, there was comparatively greater discussion of the types of actions individuals could take, and how ‘easy’ such actions are. For example, then Climate Change Minister David Parker was quoted as saying: “Even at the household level, simple steps can cut vehicle fuel and energy bills significantly and improve people's health while cutting emissions” (N11, 2007, *New Zealand Herald Online*). Further:

If you reduce the amount you drive each week by walking or biking, you'll not only minimise emissions but also improve your health....Living lighter means a better and brighter future for all. And that's a change of climate we can all agree on. (N712, 2009, *New Zealand Herald Online*)

Frocks On Bikes believe climate-friendly transport is for everyone. Bella says biking is an easy way for ordinary New Zealand women to be sustainable and healthy without sacrificing poise or style. (N273, 2009, *Scoop*)

Specific policy and technological solutions were not widely discussed in either news outlet; rather, potential solutions were discussed more broadly in terms of the need to transform current industry practice. For example:

“In the past five years, growth in coal use has caused over two-thirds of the increase in global CO2 emissions. To prevent climate chaos, devastating health effects and water scarcity, the vast majority of the proposed 1,200 coal-fired power plants around the world cannot go ahead. Clean and safe renewable
energy is already pushing coal out of the electricity market, and this is the clean energy revolution that governments must speed up”. (N535, 2012, Scoop)

“We question the use of public money to encourage an already wealthy industry to extract fossil fuels leading to more pollution. The government needs to transition away from polluting oil and gas and start investing in a clean energy future for New Zealand, for the benefit of the planet and the health and wellbeing of New Zealanders”. (N810, 2013, Scoop)

Contrary to what we have been told, cow's milk and its derivatives are not necessary for human health. In fact, there is a large body of research that implicates both meat and dairy consumption in the developed world to ill health and morbidity....The opportunity now exists to begin to transition New Zealand to a more sustainable, climate-friendly, people-friendly, animal-friendly, economy. It is a complex issue that will involve diversification off the land but also to substitute [sic] existing livestock farming with crops. (N218, 2016, New Zealand Herald Online)

Challenges were also made to the hyper-consumption of resources that is at the heart of neoliberal models of economic growth, and which prevents the action required to mitigate climate change. This was, however, a very minor feature of overall coverage in both outlets. An example is the following UN press release quoting UNFCCC Executive Secretary Christina Figueres:

“However, climate change is not the disease. Climate change is actually the symptom. The disease is something we rarely admit. The disease is humanity’s unhealthy dependence on fossil fuels, deforestation and land use that depletes natural resources,” Ms. Figueres said in her statement to the conference. She said that at the heart of an effective response is the challenge to take responsibility and make tough decisions to “change patterns that have been at the base of our development over the past 100 years, if we are to prevent severe worsening of health and quality of life conditions over the next 100 years”. (N153, 2014, Scoop)

We need radical political and economic change in order to break the bonds between those in political power and those who profit from the use of fossil fuels, the source of global warming....The fact is today’s world, dominated by voracious profit-hungry neoliberal capitalism, is utterly incapable of either minimising the extent of global warming or ameliorating its worst effects on the poor and vulnerable. (N65, 2007, Scoop)

Co-benefits of action

The co-benefits of action theme sits underneath the overarching solutions as opportunities theme. It highlights the potential health benefits of well-planned climate action and policy, thereby providing further justification for such action. The focus was therefore not simply on preventing the harm of climate change to health, but also on taking action that actively improves health. The co-benefits of action theme was relatively common in Scoop content, and was discussed in over a third of all articles. It was also relatively common across New Zealand
Herald Online coverage, appearing in just under a third of all articles. In proportional terms, the co-benefits of action theme appeared inconsistently across the entire time period in both outlets. In absolute terms, however coverage spiked in 2014 and 2015 in Scoop content, and in 2015 alone in the New Zealand Herald Online. Within Scoop, the co-benefits of action theme was primarily emphasised by health advocacy group press releases, followed at some great distance by business groups and in particular, New Zealand’s Sustainable Business Council. In the New Zealand Herald Online, the co-benefits of action theme was more common in interview and opinion pieces than any other article type.

In both news outlets, the co-benefits of action theme strongly emphasised the direct co-benefits that climate action can have for health. These co-benefits were portrayed in a highly positive light, and presented as major opportunities that are too good to let slip by. For example, authors of a study published in the New Zealand Medical Journal are quoted in the following article:

> The need to avoid global warming in its own right justifies drastic action, they say, but mitigating climate change also presents "unrivalled opportunities" to improve public health. "Policies to reduce greenhouse gas emissions could also bring about substantial reductions in heart disease, cancer, obesity, diabetes, road deaths and injuries, and air pollution". (N114, 2009, New Zealand Herald Online)

Further:

According to [The Lancet] Commission co-Chair Professor Anthony Costello, Director of the University College London (UCL) Institute for Global Health, UK…“our analysis clearly shows that by tackling climate change, we can also benefit health, and tackling climate change in fact represents one of the greatest opportunities to benefit human health for generations to come”. (N258, 2015, Scoop)

> “Fortunately, acting now to fix climate change gives New Zealand exciting opportunities for gains on illnesses relating to child poverty, physical inactivity, nutrition, housing, and air pollution from road transport - while future-proofing ourselves against the serious health risks of a dangerously warming world”, says Dr Jones. “We have unprecedented opportunities to make a real difference to New Zealanders’ health and wellbeing, right now, with well-planned policies that promote health and fairness - and protect our climate”. (N135, 2014, Scoop)

> “Addressing climate change brings huge opportunities to improve health and fairness in New Zealand” says Dr Macmillan. (N622, 2015, Scoop)

Content within Scoop was more likely to specifically highlight the co-benefits of climate action on equitable health outcomes in New Zealand, particularly for those groups who already experience disproportionate health burdens. The discussion of co-benefits for health equity was a very uncommon feature of New Zealand Herald Online reporting.
Within the *co-benefits of action* theme, coverage in both news outlets made very strong reference to the economic opportunities that climate action, undertaken with the intention of safeguarding health, may have. This framing was apparent in over half of all *New Zealand Herald Online* articles which featured the *co-benefits of action* theme, and just under half of those in *Scoop*. Most commonly, possible co-benefits for health were quantified in terms of their ability to save money. For example:

Paying $100 million a year in cash incentives to people buying fuel efficient, low emission cars, for example, will see 86,000 more of these vehicles…enter the fleet each year….The cleaner air will help to lower a $400 million annual bill to treat people suffering from illnesses caused by petrol particle pollution. (N787, 2006, *New Zealand Herald Online*)

Cleaning up the air quality will have an immediate effect on our largest city….The air quality in Auckland causes more than 400 people to die prematurely every year and the associated costs for treating these illnesses across the region equates to $1.3 billion a year. (N79, 2009, *New Zealand Herald Online*)

…[By] making it easier to avoid fossil fuel-driven vehicles we can all take a stand personally and be healthier, which makes long-term economic sense. (N169, 2015, *New Zealand Herald Online*)

"Responses to climate change can be designed to help with other goals, including healthier people, a more equal society and a healthier economy," says Dr Jones. (N143, 2010, *Scoop*)

7.8.4 Notable absences

There were a few themes which were not relevant to the overall story of the data, but I nevertheless felt were worth commenting on, particularly as a number of them related to the frames I identified in the existing literature. For instance, *human interest* stories were a very minor aspect of overall coverage in both the *New Zealand Herald Online* and *Scoop*. Further, personal stories of the health impacts people have experienced from climate change were virtually absent. Instead, what little *human interest* discussion there was tended to be vague and semi-personal referrals to the health risks that “you and your family” (N79, 2009, *New Zealand Herald Online*) will face. For example: “It's about the health of our family and our kids” (N87, 2016, *New Zealand Herald Online*), and: “If we fail to act our children will live to regret it” (N458, 2001, *New Zealand Herald Online*). Further:

The ravages of climate change are already impacting the Kiribati nation in frightful ways. Minister of the Environment of Kiribati, Michael Foon, addressed delegates at the UN Copenhagen talks: “Our children have no water!” How many more of our children will die because they have no access to fresh water?” (N483, 2010, *Scoop*).
There was an almost total lack of justification for inaction in both news outlets. Further, discussion of how climate action may have the unintended effect of harming health by moving society away too quickly from fossil fuel energy was negligible. The most explicit example of this was from the climate change deni
alist group Committee for a Constructive Tomorrow: “Anti-energy policies represent a clear and present danger to the health and welfare of billions” (N284, 2009, Scoop).

Finally, conflict was neither a distinctive, nor significant theme relevant to the overall story of the data. Conflict, as per the definition outlined previously in Table 5.1 refers to the focus on debate and disagreement between groups and political parties. By this definition, conflict received minimal attention in both New Zealand Herald Online and Scoop content. Critique of government policy was for the most part discussed in terms of who was responsible for action (responsibility), or whether action was a moral imperative or not (morality). Conflict regarding the science linking climate change and health, while extremely limited, was for the most part coded as ‘rejection of sceptics’ underneath the clear evidence of threat theme. Other openly critical discussion was generally determined to best fit under either the fragmented or inadequate political responses themes, rather than conflict.

7.9 Opinion pieces and editorials

The results I have outlined above include all article types, of which opinion pieces are one component. I did, however, make a separate examination of opinion pieces of within the New Zealand Herald Online and Scoop in order to identify whether their thematic framing differed to that of overall coverage. Previous research has suggested, for example, that opinion pieces tend to contain a greater number of climate sceptic views (Painter & Gavin, 2016; Swain, 2012).

The thematic framing in New Zealand Herald Online opinion pieces was largely complementary to that found throughout coverage more generally, rather than acting to contradict or undermine it. However, the action needed now and co-benefits of action themes were notably more common in New Zealand Herald Online opinion pieces than in overall coverage, thereby demonstrating a more prescriptive and positive tone than standard news articles. This likely reflects a tendency for authors of opinion pieces to take assertive positions on issues, as they are not constrained by the journalistic norm of ‘objectivity’. Opinion pieces also accounted for half of all New Zealand Herald Online articles which discussed the need to transform current industry practices or the neoliberal economy itself. This suggests that opinion pieces are more likely to challenge the dominant economic ideology than new articles. Within
Scoop opinion pieces, key areas of difference included a much stronger use of sensationalism, as well as less discussion of the co-benefits of action.

It is interesting to note a subset of codes within New Zealand Herald Online opinion pieces which offered justification for inaction on climate change. While this was a very minor aspect of New Zealand Herald Online coverage in absolute terms, opinion pieces did account for three-quarters of all articles which justified inaction. Justification for inaction was almost exclusively limited to the years 2006 and 2007, perhaps representing a once-off reactionary response to the increasing acceptance of climate change science at the time. Conversely, opinion pieces in the New Zealand Herald Online also constituted half of all articles which explicitly discussed the rejection of sceptics, a subset of codes which formed part of the clear evidence of threat theme. Rejection of sceptics, however, was all but exclusive to the period 2011-2015, indicating a gradual shift from outright denialism to the assertive condemnation of sceptics. Within Scoop, justification for inaction was negligible, and the outright rejection of sceptics was not present.

Editorials are considered important in that they represent an insight into the opinions and values of the news outlet in question, and of the mainstream media itself (Castilla, Quesada, & Rodríguez, 2013). Within the New Zealand Herald Online, there was only one editorial piece that fitted the inclusion criteria, published in 2009. It strongly suggested a link between climate change and a series of deadly wildfires in Australia, but the lack of reference to any scientific evidence that may have backed up the claim gave a sense of continued uncertainty about the true causes of the event. The absence of further relevant editorials, particularly in key years such as 2015, suggests a lack of editorial interest in the issue of climate change and health. This may reflect a belief that the issue is not newsworthy enough for such attention.

7.10 Summary
In this chapter I have outlined the results of my thematic analysis, undertaken with the intention of examining how the relationship between climate change and public health is framed within New Zealand Herald Online coverage, and, in turn, how this compares with framing in the public debate within Scoop. Key differences include: greater coverage of those themes discussing the urgent need for action and solutions as opportunities in Scoop content; the emphasis on the role of the medical community in Scoop; less impatience with a lack of political action in New Zealand Herald Online coverage; and less emphasis on the impacts of climate change for health equity in the New Zealand Herald Online than in Scoop. Despite these differences, the overall ‘thematic story’ in the two news outlets was relatively similar, particularly in their emphasis on the negative threat that climate change poses to public health.
I have also noted that coverage of climate change and public health appears to be relatively uncommon in both news outlets, meaning it is unlikely the issue receives sufficient coverage to remain salient in audiences’ minds. As discussed in chapter three, this is likely to compromise any agenda-setting effect. In the following chapter I will discuss the results I have outlined here in the wider context of the existing literature. I will also discuss possible implications for public health advocates and journalists.
8 Discussion

8.1 Introduction

In this chapter I draw on the findings from my literature review (chapter four) and background summaries (chapters two and three) in order to discuss my results. This constitutes the final stage of my qualitative thematic analysis, and is done with the intention of addressing my overall research aim: to examine how the relationship between climate change and public health is reported within New Zealand media. My research questions were:

RQ1: How is the relationship between climate change and public health framed in the New Zealand Herald Online, and has such framing changed over time? Further, does coverage include a holistic, ecological understanding of health and health equity?

RQ2: How does the New Zealand Herald Online’s framing of climate change and public health compare with how this relationship is framed in the press releases published within online news repository Scoop?

RQ3: What are the implications of these results for public health advocates and journalists?

I will discuss my results in relation to each of these three research questions separately, before outlining the limitations of this study and identifying areas for future research. However, I will begin this chapter with a brief summary of my research up to this point, and an overview of the total amount of coverage given to the issue of climate change and public health in both the New Zealand Herald Online and Scoop.

8.2 Results summary

In the first part of this thesis, I conducted a systematic review of the existing literature examining how the media frames the relationship between climate change and health. I found very little previous research on the subject, including no studies in New Zealand, or of online media. My research therefore contributes to these gaps by focussing on New Zealand media; by conducting an examination of online outlets; and by making comparisons between a mainstream and independent news repository, in order to identify whether the mainstream press is selective in choosing which aspects of climate change and health they report on. My research has also been unique in adopting a qualitative approach and a holistic, ecological definition of ‘public health’.
I collected my own data for this research by searching both the *New Zealand Herald Online* and *Scoop*. From this, a total of 523 relevant explicit inclusion articles were found across a period of over fifteen years. Of the 204 relevant *New Zealand Herald Online* results, 137 were news articles, while 229 of the 319 relevant *Scoop* articles were media releases. For my thematic analysis, I adopted Braun and Clarke's (2006) approach. I interpreted the following themes and sub-themes from my data, both deductively and inductively: clear evidence of threat; sensationalism; fragmented/inadequate political responses; action needed now; morality; responsibility; role of the medical community; solutions; co-benefits of action.

### 8.3 Total amount of climate change and public health coverage

My results indicate that there has been a non-linear increase in the total amount of climate change and public health coverage in the *New Zealand Herald Online* and *Scoop*. This reflects previous trends found in research on climate change coverage more generally (e.g. Ahchong & Dodds, 2012; Liu et al., 2008; Schmidt et al., 2013). Coverage tended to cluster around major international climate change meetings and the issuing of key climate reports. This too mirrored previous findings from climate change coverage research (Schmidt et al., 2013). It did, however, contrast with Nisbet et al.’s (2010) finding that climate change and health coverage instead peaked in response to climate events which directly affected health.

My analysis of climate change and public health coverage in the *New Zealand Herald Online* and *Scoop* during the peak year of 2015 suggests that the issue does not receive a significant amount of attention, despite its importance. This is in keeping with those few studies that have specifically examined coverage of climate change and health overseas, which have found health to be an extremely underreported aspect of climate change reporting overall (Nisbet et al., 2010; Weathers, 2013). It is therefore highly likely that while coverage of the relationship between climate change and public health has generally increased over time in both news outlets, the issue continues to constitute a very minor proportion of total news content. As discussed previously in chapter three, agenda-setting theory posits that journalists must select which news items to report on from a vast number of competing issues, and in doing so, they have considerable influence over how important audiences perceive issues to be (McCombs & Reynolds, 2009). Issue salience requires ongoing media attention, and can vary in relation to the amount of attention given to the issue (Ader, 1995; McCombs & Shaw, 1972; Sampei & Aoyagi-Usui, 2009; Wanta & Hu, 1994). It is therefore likely that the relationship between public health and climate change is largely invisible to the majority of audience members. This in turn would undermine attempts to engender meaningful public and political action. If greater
overall coverage is desired, than it is critical to understand how the issue may be framed in order to be considered more ‘newsworthy’.

8.4 RQ 1: Climate change and health framing in the *New Zealand Herald Online*

8.4.1 *A focus on the negative*

*New Zealand Herald Online* coverage strongly emphasised the negative health threats of climate change, and the urgent need for action. This created a frightening narrative which overshadowed the opportunities that climate action offers to improve health and health equity. This emphasis on threat is similar to previous findings on climate change coverage more generally (Ahchong & Dodds, 2012; Dirikx & Gelders, 2010; Doulton & Brown, 2009; Hart & Feldman, 2014; Kenix, 2008; Liu et al., 2008). Kenix (2008) warns that a heavy focus on threat creates a hopeless vision of the future which may paralyse audiences, whereas discussing the possible solutions and health co-benefits of action may engage them (Maibach et al., 2010).

The discussion of possible solutions generally increased as a proportion of *New Zealand Herald Online* coverage over time. This contrasts strongly with the almost entirely negative representations found by Kenix (2008), but aligns more closely with Chetty et al.’s (2015) finding that there was a strong focus on positive ‘social progress’ framing in New Zealand coverage. Despite this, there is still considerable capacity to increase discussion of the positive co-benefits of action from its current presence in approximately a third of coverage.

8.4.2 *A lack of individual responsibility to act*

The *New Zealand Herald Online*’s emphasis on the responsibility of governments and policymakers to undertake climate action was similar to previous findings from climate change coverage research (Ahchong & Dodds, 2012; Dirikx & Gelders, 2010; Liu et al., 2008; Weingart, Engels, & Pansegrau, 2000; Xie, 2015). It did, however, contrast with the emphasis on personal behaviour and responsibility in health coverage (e.g. Gollust & Lantz, 2009; A. E. Kim et al., 2010; Lawrence, 2004). Dorfman et al.’s (2005) argument that health-related coverage is dominated by a free-market inspired sense of individualism is therefore not particularly relevant here. This is not surprising given that climate change occurs at such a complex, global level. Individual responsibility was almost exclusively discussed in terms of an obligation to put political pressure on governments to enact meaningful policy. Discussing individual responsibility in this way may help counter the notion that government policy is divorced from the influence of public opinion and advocacy. This in turn may promote within
audiences a sense that they have the capacity to take action which will have a meaningful impact (Hart & Feldman, 2014).

8.4.3 A lack of self-efficacy framing

The relatively small number of New Zealand Herald Online articles which discussed the actions individuals can take to help mitigate climate change, and their importance, was similar to the findings of Hart and Feldman (2014). They found a lack of positive ‘efficacy’ messages in U.S. network television news stories, which were often reported alongside counteracting negative efficacy messages (Hart & Feldman, 2014). Lowe et al. (2006) argue that even when individuals are motivated to act, “people require specific guidance and support on what they can do to mitigate climate change” (p. 453). It is critical that individuals receive information about the specific action they can take to reduce their personal carbon footprints or demand policy change, as a sense of self-efficacy has been associated with greater levels of concern regarding climate change (Milfont, 2012). Otherwise, fear-driven narratives engender a sense of disempowerment which can undermine support for climate policy and individual action (Happer & Philo, 2016; Lowe, 2006; O'Neill & Nicholson-Cole, 2009).

8.4.4 The role of sensationalism

The moderate presence of sensationalism within the New Zealand Herald Online contrasted with Kenix's (2008) finding that there was very little sensationalism in The New Zealand Herald climate change coverage. Nevertheless, the New Zealand Herald Online emphasised substantive framing, which maintained a rich description of the causes and effects of climate change, and possible solutions. This was broadly similar to findings by Weathers (2013) and Weathers and Kendall (2015), who also focused specifically on climate change and health media coverage. As discussed previously in chapter four, Weathers and Kendall (2015) argue that while substantive reporting is necessary for informing audiences about climate change and health, more dramatic and emotive framing may be required in order to capture larger audiences. Nisbet and Mooney (2007) also argue that a less technical approach is needed to make climate change easier for the public to understand, and more interesting. They argue that “as unnatural as it might feel, in many cases, scientists should strategically avoid emphasizing the technical details of science when trying to defend it” (Nisbet & Mooney, 2007, p. 56).
8.4.5 Human interest stories

Human interest stories are often used to develop an emotional connection with audiences, and to draw their attention to what may otherwise be considered complex or ‘boring’ issues (Hinnant & Len-Ríos, 2009). Journalists prefer stories that ‘personalise’ issues, as it makes them more ‘newsworthy’ in what is an increasingly commercialised media industry (Anderson, 2009; Chapman et al., 1995). Health coverage tends to emphasise human interest stories (Chapman, 2015; Gasher et al., 2007), however, such framing was extremely uncommon in the New Zealand Herald Online. This is likely due to difficulties in finding individuals who have clearly had their health impacted by climate change, given that the worst impacts are not anticipated to occur within New Zealand until the mid to long-term future. In addition, the complex relationship that climate change has with existing weather systems and disease patterns makes it hard to definitively attribute to particular instances of poor health, particularly in a way that makes sense to lay audiences.

8.4.6 Acceptance of the science linking climate change and public health

Almost without exception, coverage in the New Zealand Herald Online accepted that unchecked anthropogenic climate change is real and will have devastating effects for public health. Previous literature on media coverage of climate change in New Zealand has similarly found that climate sceptics, where discussed, are often rejected or marginalised (Chetty et al., 2015; Kenix, 2008). The near total absence of sceptical voices and ‘debate’ over the scientific relationship between climate change and health is promising, and allows the focus to be on how we must respond. More broadly, it reflects an international shift in the mainstream narrative of climate change over the past few decades, from ‘conflict’ over the scientific evidence, to political debate about what can be done and how best to proceed (Gibson et al., 2016; Moser, 2010).

8.4.7 Temporal and geographical distancing

New Zealand Herald Online coverage somewhat downplayed the threat of climate change to New Zealand by emphasising those threats which are happening overseas, or are predicted to happen in the future. Geographically ‘distancing’ the issue of climate change is not unusual, although previous overseas research has tended to find that regional coverage is excluded at the expense of an international or national-level focus (Ahchong & Dodds, 2012; Liu et al., 2008). New Zealand Herald Online coverage gave the impression that climate change will primarily affect the health of people in ‘other’ countries, and that New Zealand will be largely immune.
While New Zealand is likely to avoid the worst impacts, failing to emphasise the risks that national and local communities do face creates both a false sense of security and a lack of urgency to act. As a mainstream outlet the New Zealand Herald Online is likely constrained by its need to appeal to the broadest possible audience, at the expense of a focus on local issues. The New Zealand Herald Online’s foreign ownership also makes it more likely to publish international content and less likely to use local journalism (Rosenberg, 2008).

The temporal distancing of climate change and its associated health risks was also common in the New Zealand Herald Online. This was particularly true in relation to New Zealand. The result is that the issue appears to be of low priority, as it is a concern to be dealt with in the future. Failure to stress the need for preventive action inevitably increases the likelihood that action will only be taken once climate change is harming New Zealanders’ health in a significant way. Previous research has found that individuals tend to believe that climate change will affect other people more than themselves (Leiserowitz, 2005). The geographical and temporal distancing of the effects of climate change has been shown to lower people’s perception of risk, and in turn, their support for climate action (Hart & Nisbet, 2012; Lowe, 2006). In contrast, a more localised portrayal of climate change, which stresses that it is already affecting public health in New Zealand populations, may be critical for effectively engaging audiences.

8.4.8 Framing over time

In proportional terms, the theme clear evidence of threat was discussed consistently over the 15-year period in question, while the rejection of sceptics appeared from 2007 onwards. A focus on the negative health impacts of climate change has therefore been a core aspect of coverage throughout the observed time period, while there has been an increased confidence in the science underpinning such claims.

Previous research has pointed to three forms of knowledge about environmental issues: system knowledge; action-related knowledge; and effectiveness knowledge (Frick, Kaiser, & Wilson, 2004; Kaiser & Fuhrer, 2003; Milfont, 2012). Milfont (2012) argues that climate change communication has primarily focused on system knowledge. There has been a clear emphasis on system knowledge in New Zealand Herald Online coverage, as evidenced by the focus on how unchecked climate change threatens public health. The result is that audiences receive a message which does not give adequate attention to the ways in which well-planned climate action can mitigate the health threats of climate change (action-related knowledge), as well as offer possible health co-benefits (effectiveness knowledge).
A more balanced focus on both action-related and effectiveness knowledge is critical for encouraging public support for climate action (Frick et al., 2004; Milfont, 2012). Encouragingly, the New Zealand Herald Online’s coverage has become more balanced in this respect over time. For example, the relationship between climate change and public health was increasingly framed in terms of fragmented political responses, indicating a growing awareness of the need for urgent action and an impatience with the current lack of action. The lamenting and at times frustrated sentiment in this framing was similar to Weingart et al.’s (2000) finding that German media blamed politicians for hindering effective action.

While the action needed now theme was relatively inconsistent over time, a clear spike in 2015 suggests an increased sense of urgency regarding the need for action. Previous research has tended to subsume the need for action into other categories which are not comparable with my action needed now theme, such as ‘social progress’ (Chetty et al., 2015) and ‘attribution of responsibility’ (Dirikx & Gelders, 2010; Semetko & Valkenburg, 2000). Therefore, while the need for action has been accounted for in the previous literature, my results signal a more explicit and distinct focus on demands for action.

Finally, while the discussion of solutions has been relatively common since 2009, the co-benefits of action theme only recently spiked in absolute terms in 2015. This suggests that the positive consequences of climate action are only just starting to gain mainstream media attention. This does offer some hope that the New Zealand Herald Online will increasingly frame climate change and health in these terms. Dolšak and Houston (2014) welcome such a shift in focus, arguing that support for climate solutions in U.S. newspaper coverage has been associated with increased legislative activity. Overall, the New Zealand Herald Online has increasingly shifted its framing to the discussion of why action must be taken and what that might look like. This is somewhat surprising from a critical perspective, considering the previously discussed assumption that privately-owned media is unlikely to frame issues in a way that challenges the neoliberal emphasis on hyper-consumption and fossil fuel-based economic development. Strong climate policy, by its very nature, seeks to undermine both. However, rather than taking a moral or ideological stand, the New Zealand Herald Online may simply be trying to appeal to the majority of New Zealanders who appear to be concerned about climate change (Horizon Research, 2015; Leining & Scott, 2015). Further, New Zealand Herald Online coverage continues to lean towards policy action which works within a free-market logic, as opposed to action which seeks to challenge the societal dominance of neoliberal free-marketism altogether.
8.4.9 Portrayals of ‘public health’

In discussing climate change and health, the *New Zealand Herald Online* did not adequately reflect the social-ecological understanding of ‘public health’ I adopted in this research. For example, the *New Zealand Herald Online* largely failed to discuss mental health impacts, despite clear evidence that unchecked climate change will increase experiences of mental trauma, stress and anxiety (Fritze et al., 2008). This likely reflects an ongoing stigmatisation of mental health in society more generally (Barney, Griffiths, Jorm, & Christensen, 2006; Read & Harré, 2001). It is not clear if this result is comparable to existing research on coverage of climate change as a health issue, as there is no clear indication that mental wellbeing was included in the ‘health’ definitions previously adopted. However, mental health has previously been shown to be a severely underreported aspect of health coverage (Wang & Gantz, 2010).

The *New Zealand Herald Online* also failed to clearly highlight the links between climate change, health and the various social determinants of health. This is, again, despite an extensive understanding of the indirect threats to health in the existing literature. As discussed in my literature review in chapter four, previous research which specifically analysed climate change and health reporting did not address the question of whether broader social determinants of health were a prominent aspect of coverage, so comparisons with existing findings cannot be made.

The *New Zealand Herald Online* gave a modest amount of coverage to the relationship between climate change and inequitable health outcomes. However, its near total focus on overseas equity impacts is likely to give readers the sense that such concerns are not relevant in New Zealand. This is contrary to the evidence discussed in chapter two which indicates that climate change will exacerbate existing inequitable health outcomes in New Zealand, disproportionally impacting Māori, Pacific and low income populations (Jones et al., 2014; NZCPHM, 2013). Hodgetts et al.’s (2008) finding that New Zealand journalists tend to shy away from reporting on health issues which affect minority groups may be relevant here. The perceived need to appeal to the widest possible audience can lead to the exclusion of stories which emphasise minority group concerns, as they are not considered ‘newsworthy’ enough (Hodgetts et al., 2008).

Overall, the *New Zealand Herald Online*’s tendency to frame ‘health’ in terms of physical wellbeing offers a very limited account of how climate change will affect health. A more complex, holistic understanding of public health is lost in the process. It is unclear whether the authors of *New Zealand Herald Online* content consciously decided to ignore such issues, or
whether their focus on physical health reflects a genuine lack of understanding about the impacts of climate change on broader aspects of wellbeing. Regardless, the result is the reinforcement of an individual-centric understanding of health, which has long been common in health reporting (Dorfman et al., 2005; Gasher et al., 2007). This in turn downplays the scale of the threat that climate change poses to health, and ignores the potential co-benefits that climate action may have for health and for wellbeing more broadly.

8.5 RQ 2: The New Zealand Herald Online and Scoop comparisons

Above I have discussed how journalists, editors and contributors to the New Zealand Herald Online frame the relationship between climate change and public health. As outlined in chapter three, journalists seek out stories which are ‘newsworthy’ and appeal to the widest possible audience. To reiterate, Scoop is different in that it merely acts as an information repository where a wide array of New Zealand groups, commentators, independent reporters and government departments can publish content. Scoop does not actively ‘select’ or ‘reframe’ the content it publishes, so issue framing is instead done by those submitting content for publication. Therefore, Scoop potentially offers a highly diverse range of views and frames on climate change and public health. Comparing how contributors within both outlets portray the issue therefore offers an insight into whether the New Zealand Herald Online reflects the ‘reality’ of the viewpoints within the public debate in Scoop, or whether it disproportionately emphasises or downplays particular frames.

8.5.1 Definitions of ‘health’

The narrow definition of ‘health’ evident in New Zealand Herald Online coverage was very similar to Scoop, with contributors in both outlets emphasising the physical impacts of climate change. The 220 implicit inclusion articles across both outlets also represented a major missed opportunity to broaden audience understanding about the sheer scale of the relationship between climate change and public health. These articles, which together totalled the equivalent of over a third of all explicit inclusions, discussed climate change in relation to social determinants of health without then explicitly linking them to a health impact. Considering that a large amount of press releases in Scoop (148) were implicit inclusions, it is unsurprising that New Zealand Herald Online coverage too failed to make the connection. The two outlets did differ in terms of discussing the relationship between climate change and health equity. In particular, press releases within Scoop placed a much stronger emphasis on local health equity impacts of climate change than the New Zealand Herald Online.
8.5.2 **Scientific evidence linking climate change and public health**

The *New Zealand Herald Online* did not reframe the scientific consensus within press releases in *Scoop* to emphasise conflict or doubt. Rather, it was clear that the health impacts of climate change are inevitable if no mitigation action is taken. Compared to press releases within *Scoop*, the *New Zealand Herald Online* did, however, de-emphasise the local health impacts of climate change and co-benefits of action. As a commercial outlet, the *New Zealand Herald Online* has to be more selective about what it publishes, and therefore appears more prone to reporting on issues that affect audiences at the national and international level.

8.5.3 **Thematic framing**

While the overall thematic ‘story’ of both the *New Zealand Herald Online* and *Scoop* was primarily defined by a focus on the negative health threats of climate change and need for action, the emphasis on negative consequences was proportionally greater in the *New Zealand Herald Online*. The failure to balance this frightening narrative of global catastrophe with a focus on positive solutions and co-benefits of action means the overall story is less hopeful than that of the content in *Scoop*. These negative portrayals may inspire debilitating fear which undermines support for climate action (Happer & Philo, 2016; Lowe, 2006; O'Neill & Nicholson-Cole, 2009). *New Zealand Herald Online* framing does, however, appear to be evolving to encompass more of the positive messages found in *Scoop*. As there is still considerable capacity to increase such messages within the press releases in *Scoop*, doing so may encourage more positive framing in the *New Zealand Herald Online*.

*Sensationalism* was noticeably less common in press releases within *Scoop* than in the *New Zealand Herald Online*. This is unsurprising, given that many journalists consider sensationalism to be an important aspect of what makes a story ‘newsworthy’ (Weingart et al., 2000). *Sensationalism* in *Scoop* was primarily discussed in press releases issued by public health advocates, which may signal an understanding that dramatic framing is important for capturing mainstream media attention. It may also simply reflect the increasingly urgent need to bring about comprehensive climate action. Human interest stories are another important journalistic tool for capturing audience attention, however they were extremely uncommon within both news outlets. Earlier I discussed concerns researchers have about the lack of sensationalism and human interest stories in climate change and health reporting, in that it creates an impersonal, ‘boring’ narrative. The complex, global scale of climate change makes it a uniquely difficult subject to report on. However, it is possible that a lack of *sensationalism*
and personal stories in *New Zealand Herald Online* reporting is simply a reflection of the type of thematic, substantive and impersonal coverage found in press releases within *Scoop*.

In terms of individual responsibility, *New Zealand Herald Online* framing was relatively similar to that of press releases within *Scoop*. Coverage in both outlets generally avoided assigning individuals the responsibility to undertake climate action, or discussing the types of actions they could take. An increase in self-efficacy framing may therefore help to create a more inspiring narrative which encourages public action and support for climate policy. If this framing were increasingly discussed within the press releases in *Scoop*, it is possible it would also be picked up by the *New Zealand Herald Online*. This is particularly important given that New Zealanders do not appear to have a strong sense that their actions to mitigate climate change can make a difference (Leining & Scott, 2015).

Over time, it appears that major shifts in framing have been led by content within *Scoop*, whereas the *New Zealand Herald Online* has tended to lag behind. For example, press releases within *Scoop* discussed *inadequate political responses* at a much earlier point in time than the *New Zealand Herald Online* did. Press releases within *Scoop* also discussed climate change and public health in terms of the *action needed now* and *solutions* themes much earlier and more consistently than in the *New Zealand Herald Online*. *New Zealand Herald Online* coverage therefore demonstrated greater patience with a lack of climate action than contributors to *Scoop* did. Both outlets, however, only saw *co-benefits of action* framing spike in very recent years. This suggests that the theme may become increasingly common as time progresses, so long as media attention does not shift away from the issue of climate change and public health altogether. In summary, despite some key differences in framing between the *New Zealand Herald Online* and press releases in *Scoop*, the overall thematic ‘story’ within each outlet was broadly similar.

### 8.5.4 Dominant ideology and coverage of climate change and health

As a whole, content published in *Scoop* was not necessarily any more ‘radical’ than the *New Zealand Herald Online* in terms of challenging the dominance of neoliberalism, which contributes to climate change through its promotion of unlimited economic growth and hyper-consumerism (Labonté, 2011).

In the *New Zealand Herald Online*, the strong use of economic reasoning to justify health *co-benefits of action* was unsurprising in light of the outlet’s corporate ownership. So too was the lack of challenges made to New Zealand’s neoliberal-based economy when discussing
solutions. As I discussed previously in chapter three, the need to maintain regular audiences and advertising income has led to an increasingly populist and conservative media landscape (Debrett, 2005; Hollings et al., 2007; Rosenberg, 2008). However, the need for radical economic and social transformation is at the heart of climate action (Craig, 2008; Klein, 2014), and I was surprised that this theme was not more evident in Scoop, particularly given that contributors to Scoop are not constrained by the perceived need to ensure their content is in adherence with prevailing popular ideology.

The somewhat ‘conservative’ coverage within Scoop content challenges Myllylahti’s (2015) suggestion that the existence of independent news sites such as Scoop is a healthy sign of alternatives to the commercialism of mainstream New Zealand media organisations. In her quantitative content analysis, Kenix (2008) similarly found no significant difference between the framing of climate change in Scoop and The New Zealand Herald print newspaper. She suggests that journalistic norms which favour certain frames are so pervasive that they have been instinctively adopted by those who contribute content to alternative news sources such as Scoop. Whether this creates a sort of ‘self-fulfilling prophecy’, in that mainstream coverage is less radical in part because it picks up on those themes present in Scoop, is unclear. It is most likely that the New Zealand Herald Online simply picks up those stories which are politically and socially palatable. Therefore, in seeking to attract mainstream media attention, it is also likely that contributors to Scoop downplay more ‘radical’ calls for systemic change. This form of self-censorship, whether intentional or not, would result in messages that tend to fit within the parameters of mainstream social, economic and political values. This would also suggest that Scoop is not in fact a true ‘proxy’ for public debate regarding climate change and public health, as more radical views are almost certain to appear in other domains, such as blogs.

Of course, it is still unclear whether similarities between the two outlets reflects a tendency by the New Zealand Herald Online to base their news items on press releases published in Scoop. This is likely, given the increasing reliance of journalists on press releases and public relations sources (Anderson, 2009; Phillips, 2009). If the New Zealand Herald Online does rely on content available in Scoop, then my results indicate that the mainstream outlet does not drastically reframe the relationship between climate change and public health. This raises questions about where public health advocates can go from here in terms of media advocacy to push for meaningful climate action.
8.6 RQ 3: Implications

The *New Zealand Herald Online’s* emphasis on the negative health impacts of climate change may be effective in capturing audience attention, however it is also likely to demotivate people from taking action (O’Neill & Nicholson-Cole, 2009). Hodgetts et al. (2008) found that health reporters in New Zealand express a sense of civic responsibility in reporting on health issues, and are open to ways of more effectively reaching audiences. Journalists who are concerned about climate change and health could therefore focus more strongly on the positive co-benefits of climate action. Public health advocates should also continue to stress positive framings in their press releases, to make it easier for journalists to access such material. In addition, promoting self-efficacy messages will be critical for translating audience awareness into action and support for climate policy.

The relatively uncommon use of *sensationalism* within press releases in *Scoop* is also important to consider. While Anderson (2009) argues that sensationalist reporting compromises well-informed discussion about complex issues, a calculated increase in the use of *sensationalism* may help to capture mainstream media and audience attention in the first place. Maintaining scientifically accurate reporting would be critical, and any increase in *sensationalism* would need to be balanced with positive information about possible solutions and messages of self-efficacy, in order to avoid a sense of fatalism that nothing can be done (Lowe, 2006).

Similarly, the extremely limited use of human interest framing in both the *New Zealand Herald Online* and *Scoop* may be undermining efforts to make the health threats of climate change appear personally relevant to New Zealand audiences. Media experts tend to be critical of ‘soft news’ coverage, arguing that it diminishes the quality of reporting and can distort the facts surrounding an issue (Luther & Xiang, 2005; Patterson, 2000). However, readers may engage more with the issue of climate change and health if they can attribute a ‘human face’ to it. Further, human interest stories can increase audience attention by shifting the discussion away from overtly scientific and technological narratives (Brodie, Hamel, Altman, Blendon, & Benson, 2003; Hong, 2013; Viswanath et al., 2008). This is not to say that public health advocates and journalists should abandon contextually-rich reporting; rather, a carefully balanced approach could involve the use of personal stories which are then situated within the wider context of climate change and public health. Discussing stories of individuals or specific groups who experience health co-benefits as a result of climate action may also encourage support for climate policy.
Content in both the *New Zealand Herald Online* and *Scoop* demonstrated a near total focus on the responsibility of policymakers to undertake climate action to protect health. This rightly identifies that climate change requires major policy responses at the international and national level. The *New Zealand Herald Online*’s tendency to discuss individual responsibility in terms of an obligation to hold policymakers accountable is also positive. However, both perspectives risk going too far; individuals may feel absolved from personal responsibility altogether, as their actions are seen to be too small to matter. Lorenzoni, Nicholson-Cole, and Whitmarsh (2007) argue that denial of personal responsibility is a major perceived barrier to action. Although somewhat counterintuitive from a public health perspective, a greater emphasis on individual responsibility and the importance of collective efforts to reduce ones’ carbon footprint may be required.

Finally, advocacy efforts may benefit from increasingly framing the health co-benefits of climate action in relation to wider social impacts. For example, greater discussion of the opportunities to improve equitable health outcomes, made in clear moralistic terms, may increase the appeal of climate action to those who are concerned about social development (Bain et al., 2016). Further, linking the health co-benefits of climate action to economic development may have particular resonance within New Zealand, where the dominance of neoliberalism and free-market ideology is likely to make such framing particularly attractive to audiences and policymakers. Previous research has in fact demonstrated that New Zealand coverage of the environment is often framed through an economic or business framework (Craig, 2008).

Such framing offers a chance to broaden the narrative about where climate action and health fit into the nation’s social and economic priorities, thereby allowing the issue to be discussed more widely across various news sections. As discussed in chapter three, journalists have indicated that the ability to ‘interweave’ climate change into stories on other social, economic and environmental issues makes climate-related content easier to successfully pitch to editors (Gibson et al., 2016). This broad framing also offers a way of appealing to climate sceptics, as support for the economic and social co-benefits of climate action is not dependent on believing anthropogenic climate change is real (Bain et al., 2016).

Finding ways to broaden the appeal of climate change and public health coverage is particularly critical given that supporters of the current National-led Government demonstrate lower support for climate action than those aligning with Labour or the Green Party (Milfont, Harré, Sibley, & Duckitt, 2012; New Zealand Institute of Economic Research, 2008, June). Horizon Research (2012) found that 47% of National voters did not consider climate change a problem, whereas
78.3% of Green Party voters and 60.3% of Labour supporters did. Further, the same study found that only 40.6% of National voters did consider climate change to be a problem. As a centre-right party, National have run on a platform of securing economic growth as the basis for social stability and development. Therefore, those narratives which frame the health co-benefits of climate action in terms of their potential economic gains may be the most appealing to their support base.

Of course, increased media coverage and public engagement does not guarantee policy change, and even with a groundswell of public support the current Government may continue to ignore calls for comprehensive climate action. Industry pressure and an ideological commitment to economic development over environmental and social issues will likely play an important role in political decision-making for the foreseeable future. In this research I have adopted a critical perspective which is mindful of the need for transformation away from neoliberalism and its promotion of hyper-consumption and infinite economic growth. However, given the current political climate within New Zealand, it may be more effective to adopt narratives which frame climate action, public health and green economic development as priorities which can work in tandem to co-benefit one another, rather than in conflict with one another.

For public health advocates wishing to advance and dictate the terms of the public debate regarding climate change and health, the suggestions I have made here offer some areas they may wish to focus on. It is clear that advocates must not only continue to accurately frame the relationship between climate change and public health, but also construct intelligible, inspiring and attention-grabbing stories which are ready-made and appealing to mainstream media journalists. Of course, health professionals face challenges in advocating for health, including a lack of time and resources. However, given that there are an unlimited number of issues competing for journalists’ attention, the onus naturally falls on public health advocates to continue to push for more effective and widespread media attention.

8.7 Limitations and future research

There are a number of limitations to this research that should be acknowledged. Firstly, as with any qualitative research, my interpretation of meaning within the data was inherently subjective. Qualitative research is by nature context-based, and therefore cannot be used to make generalisations in the traditional, quantitative sense (Whittemore, Chase, & Mandle, 2001). In acknowledging this, I outlined my strategy for ensuring research validity in chapter six. I have been explicit about my assumptions regarding the nature of research, the scientific validity of anthropogenic climate change, and my definition of public health. I have also been
clear in discussing the personal values and worldviews which informed my subjective interpretation of the data, and the way I defined my themes.

There were also a number of limitations in my data collection methods. While the Google internal search function was the best possible means for producing complete, consistent and feasible results, there remain some concerns about the extent to which the returned results were wholly inclusive of all possibly relevant articles. Unfortunately, I was unable to identify a superior method for searching New Zealand online news websites. As a result, it must be allowed that some relevant articles may not have been included in the search results, although this is likely to have occurred evenly in both websites and therefore not been limited to one outlet in particular. Further, while my list of search terms was kept as broad as possible, it was nevertheless limited to those key aspects I identified from the literature, and by a need to keep the scope of my thesis manageable. Despite this, the large number of overlapping results that appeared across my searches indicated that the bulk of relevant articles were captured by these search terms. My decision to exclude all articles that did not contain the terms ‘climate change’ or ‘global warming’ is also likely to have excluded some articles which audiences may still have associated with climate change. For example, articles which discussed health and ‘greenhouse gases’ may have been sufficiently clear for many readers to make the link to climate change. However, my decision to exclude such articles was justified on the basis that I did not want to make assumptions about how accurately readers might make these connections.

The choice to limit my search to the New Zealand Herald Online and Scoop meant that I excluded a wide range of media outlets which would have been of similar interest. In particular, future analysis of major regional news outlets, such as The Dominion Post, The Press, or the independently owned Otago Daily Times, would give an important insight into whether climate change and public health is framed in localised terms at the regional level. The Dominion Post may be of particular interest as it is based in the political centre of the country, Wellington, and its readership is more likely to include politicians and policymakers themselves. Future research could also look to other New Zealand media forms, such as television and radio coverage, which are under-researched mediums. Similarly, shifting trends in media platforms may warrant an analysis of social media and other independent news websites.

It would also be interesting to conduct a qualitative thematic analysis of how other high-profile issues such as poverty or free-trade agreements are framed in the New Zealand Herald Online, and compare this to framing in press releases within Scoop. This would indicate whether the relatively similar framing I interpreted in both outlets was limited to the issue of climate change.
and public health, or whether *New Zealand Herald Online* coverage tends to reflect the framing found within *Scoop* content across a broad range of issues.

Future research would also gain from direct engagement with journalists and other contributors to news outlets, such as public health advocates themselves, in order to better understand the processes and pressures which influence how they frame the relationship between climate change and health. It would also be useful to understand the extent to which journalists from mainstream media outlets like the *New Zealand Herald Online* rely on content submitted to independent news sites such as *Scoop* to inform their own reporting. Further, it would be useful to ascertain the extent to which journalists use press releases verbatim, as one study found that nearly half of UK newspaper stories were entirely or largely copied from press agency service content (Lewis, Williams, & Franklin, 2008). This might involve in-depth interviews and surveys of those journalists who cover the issue of climate change and public health, including environmental, science and health reporters. Conducting experiments to gauge the impact of various frames on audiences would provide another rich area for analysis which would clarify if international findings are relevant to the New Zealand context. This would help advocates to better understand which framings are more likely to encourage public support for climate action.

Finally, an important question left unexplored by the qualitative nature of this research would be what proportion of total news coverage focuses on the relationship between climate change and public health. As I discussed previously in chapter three, while the framing of climate change and public health influences affects how audiences think about the issue, the frequency with which they receive those messages plays a critical role in ensuring the issue remains salient in their minds. A quantitative content analysis of New Zealand’s online news material would give an insight into how much media attention the issue of climate change and public health receives. This would, however, be difficult given the data collection issues I identified earlier regarding online news material, for which no sophisticated database currently exists.

### 8.8 Conclusions

My research has sought to make a contribution to the considerably under-researched area of media coverage of climate change and public health, by conducting a thematic analysis of how the issue is framed in the *New Zealand Herald Online*, and comparing this with how it is framed within press releases published in *Scoop*. This research was undertaken with the intention of understanding how health professionals can more effectively frame their media releases to advocate for climate action in the name of public health. Press releases in *Scoop*, for the most
part, told a scientifically sound story about the negative health impacts of unchecked climate change, the subsequent need for urgent action, possible solutions, and the potential health co-benefits of climate action. *New Zealand Herald Online* coverage was not substantially different in comparison, although it tended to emphasise the negative health consequences of climate change while giving relatively less attention to the possible health co-benefits of action. Further, it appeared to favour stories which could be sensationalised and were international in scope.

Nonetheless, the overall thematic ‘story’ within each outlet was relatively similar, suggesting that the *New Zealand Herald Online* does not drastically reframe how climate change and public health is portrayed within the public debate in *Scoop*. This was somewhat surprising, especially considering the commercial and institutional constraints within which the *New Zealand Herald Online* operates, and the dominant presence of public health advocates in *Scoop*.

While it is promising that *New Zealand Herald Online* coverage generally aligns with the thematic story being promoted by public health advocates, it leads to broader questions about how the issue can be more effectively framed in order to encourage support for climate action and policy. Further, enhancing the ‘newsworthy’ quality of the relationship between climate change and public health in order to generate greater media attention may require somewhat counterintuitive framing. Possible approaches include:

- a well-managed increase in sensationalism, in order to capture audience attention
- greater use of human interest stories, particularly regarding the co-benefits of climate action, and using local examples
- an increased emphasis on solutions (*action-related knowledge*) and the interconnected co-benefits of climate action for health, social development and the economy (*effectiveness knowledge*)
- the promotion of self-efficacy amongst audiences about the actions they can take in order to make a tangible difference
- a greater emphasis on individual responsibility, not only to encourage personal carbon emission reductions, but also to apply political pressure on policymakers to enact meaningful climate policy
- continuing to define ‘health’ in accordance with a holistic, ecological understanding of public health

It is clear that the status quo has thus far failed to encourage the climate action and policy change desired by public health advocates. Further research, including interviews with journalists from the *New Zealand Herald Online*, would provide advocates with a clearer
understanding of how to frame climate change and public health in a way that more effectively captures media attention and inspires audience support for climate action. Given that the timeframe for meaningful climate action is rapidly diminishing, future research may also provide further insight into whether advocacy efforts would do better to engage in more overt attempts at political activism.
9 References


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Appendix A: Database searches

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Appendix B: Referenced articles

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<td>New Zealand Herald Online. ‘Can New Zealand weather the changes?’.</td>
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Health professional groups call for healthy climate action. 
http://www.scoop.co.nz/stories/PO1510/S00189/health-professional-groups-call-for-healthy-climate-action.htm

On Overpopulation and Ecosystem Collapse

Climate change has implications on public health.

Dutch court ruling on climate change.

Climate Change Policy Statement vital.

Climate Change

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Act now on climate or face serious health consequences.
http://www.scoop.co.nz/stories/GE1411/S00014/act-now-on-climate-or-face-serious-health-consequences.htm

Doctors say New Zealand fiddles while the world burns.

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UN Leaders Urged to Act on Climate Change.

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Weak law leaves door open for coal-powered climate change.
New Zealand Government. ‘Opening Address of Public Health Response to Climate Change’. [Link]

Climate Change. ‘The Methane Economy’. [Link]


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New Zealand Herald Online. ‘Peter Neilson: Work together as climate changes’. [Link]

New Zealand Herald Online. ‘Could Paris be the turning point for the global climate?’. [Link]

WWF. ‘Report exposes Government hypocrisy on fossil fuel subsidies’. [Link]