Original Contribution

Living on Climate-Changed Country: Indigenous Health, Well-Being and Climate Change in Remote Australian Communities

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Abstract: Closing the gap between the health and well-being status of Indigenous people living in remote areas of northern Australia and non-Indigenous Australians has long been a major target of federal health policy. With climate projections suggesting large increases in hot spells in desert regions and more extremes in rainfall in other areas of the north, direct and indirect impacts resulting from these changes are likely to further entrench this health and well-being disparity. This paper argues that it is time to explicitly draw on Indigenous definitions of health, which directly address the need to connect individual and community health to the health of their country, in order to develop effective climate adaptation and health strategies. We detail how current health policies overlook this 'missing' dimension of Indigenous connection to country, and why that is likely to be detrimental to the health and well-being of people living in remote communities in a climate-changed future.

Keywords: Indigenous health, psychosocial, health and well-being, climate impacts, Aboriginal Australia

DEMOGRAPHICS AND HEALTH OF REMOTE INDIGENOUS AUSTRALIANS

Indigenous Demography

Australia's Aboriginal people have lived and prospered for at least 50,000 years, adapting to continual climate and ecosystem change, with around 250 nations spread across the continent before the arrival of Europeans. Consequently, Indigenous people played, and continue to play, a critical role in shaping the natural landscape. Following British colonisation in the late eighteenth century, the country's Indigenous population was devastated by disease and dispossession (NAHSWP 1989; Jackson and Ward 1999; Campbell 2002). Two centuries later,

more than half a million Australians identify as being of Aboriginal and or Torres Strait Islander origin (ABS 2012).

Despite earlier dispossession, Indigenous Australians have reclaimed ownership of around 20% of Australia, and now own or manage nearly a quarter of the country's 103 million ha of protected conservation areas. This is particularly significant given that traditional Indigenous environmental management practices are increasingly being proven to have multiple social, economic and health co-benefits (Burgess and Morrison 2007).

Today, three-quarter of Australia's Indigenous people live in cities or regional towns, while the remaining quarter live in remote areas. It is crucial to take these geographic differences into account when trying to plan effective Indigenous health policy, as there can be marked differences in health outcomes depending on where people live.

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Health Disparities as Documented by Mainstream Literature

While Australians generally enjoy some of the best health conditions in the world (AIHW 2012), Indigenous Australians in general are the least healthy of all Indigenous populations within comparable industrialised nations (NATSIHC 2003; AIHW 2012). Indigenous Australians experience nearly twice the rates of chronic disease and hospitalisation compared to non-Indigenous Australians (Jorm et al. 2012).

It is well established that psychological distress is associated with worse health outcomes (Brunner and Marmot 2006). Torres Strait Islander adults with high or very high levels of distress were three times more likely than those with low to moderate levels of distress to report 'fair' or 'poor' health, and nearly twice as likely to have a disability or long-term health condition. Compounding this, such disabilities are often poorly treated when compared with non-Indigenous Australians due to multiple layers of discrimination (Drew et al. 2010).

Despite successive governments enacting policies that attempt to 'close the gap' on Indigenous health disparities, there remains a major difference in life expectancy, with an average Indigenous Australian likely to die 12 years earlier than a non-Indigenous Australian (AIHW 2012). Mental health and the broader issues of Indigenous well-being are not among the six current national Closing the Gap targets. Despite the federal and state governments promising billions of dollars more for mental health programs over the past few years, funding for Indigenous programs has been disproportionately low (Hunter 2007; Holland et al. 2013). This is a critical failing, given mental health illness runs a close second to cardiovascular disease as the leading driver for the observed health gap between Indigenous and non-Indigenous Australians (NMHC 2013).

Government spending on Indigenous health has increased over the past decade, with A$4.6 billion or 3.7% of Australia's total health expenditure in 2010–2011 spent on Indigenous people, who make up 2.5% of the population (AIHW 2013). That translates to A$1.47 for every A$1.00 spent on services used by a non-Indigenous Australian. However, there remain significant areas where far less is spent on Indigenous Australians, particularly in areas that could prevent or avoid chronic ill health, including doctors' visits and prescribed medication. Further, if socioeconomic status and the disproportionately worse average health outcomes for Indigenous people are taken into account, many have argued that Indigenous health remains seriously underfunded (Deeble 1998; Mayers 2002; Paul 2011; Holland et al. 2013).

Indigenous health statistics are not uniform around the country, with outcomes varying significantly depending on where people live, as well as their social and economic status. In the most recent National Aboriginal and Torres Strait Islander Social Survey, a detailed survey of more than 13,000 people, the majority of Indigenous adults reported feelings of positive well-being—and positive well-being rates were higher in remote areas, rather than in non-remote areas (ABS 2008). Among Torres Strait Islanders specifically, rates for all four indicators of positive well-being were higher among islander adults living in the Torres Strait region (84%) than for those living elsewhere (70%).

Climate change is expected to exacerbate current health disparities between Indigenous and non-Indigenous people (Fritze et al. 2008; Green et al. 2009). Climate change projections indicate significant increases in the frequency of hot spells (Alexander and Arblaster 2009), with the largest increases occurring in inland and northern areas (CSIRO and BoM 2007). For example, projections indicate a doubling of the number of days over 35°C in Alice Springs from the current 90 days per year, to up to 182 days per year by 2070 (CSIRO and BoM 2007). Garnaut (2008) identifies impacts on key regional ecosystems by 2100, including: 90% of the Kakadu wetland system being adversely affected by a sea level rise of 18–59 cm; the Great Barrier Reef no longer being dominated by corals and reduced biodiversity in its ecosystems; the Murray–Darling Basin's agricultural areas being greatly diminished; and more than half of the Eucalypt species habitat being lost.

Direct impacts of climate change include ill health, injury and mortality associated with extreme temperatures, as well as bushfires, floods and cyclones. Indirect impacts include increased rates of foodborne diseases, and increased rates of post-traumatic stress disorder in communities exposed to more frequent and severe natural disasters (AIHW 2012). Indigenous Australians in remote northern and central communities are also likely to be disproportionally affected for a range of reasons, including existing non-climate stresses, and a culture that integrates relationships between natural and human systems when it comes to the concept of health (Burgess and Morrison 2007; Kingsley et al. 2009).

THE MISSING DIMENSION IN INDIGENOUS HEALTH AND WELL-BEING POLICY

A major barrier to effective Indigenous health policy is that Western and Indigenous concepts of health are fundamentally different (Johnston and Jacups 2007). The first National Aboriginal Health Strategy (NAHSWP 1989) came up with one of the most respected definitions of Indigenous health. Released after 2 years of community and government consultation, the Strategy was a rare example of policy developed by an Indigenous-dominated working party. Its preface bluntly describes the clash of two perspectives:

> In Aboriginal society there was no word, term or expression for 'health' as it is understood in western society… In contemporary terms Aboriginal people are more concerned about the 'quality of life'. Traditional Aboriginal social systems include a three-dimensional model that provides a blueprint for living. Such a social system is based on inter-relationships between people and land, people and creator beings, and between people, which ideally stipulate inter-dependence within and between each set of relationships. Aboriginal spirituality was, and is essentially land-centred.

Land, spirituality and people: the three dimensions of healthy living for Indigenous Australians. That was the vital first page of context that preceded this condensed definition of Indigenous health:

> Not just the physical well-being of the individual but the social, emotional and cultural well-being of the whole community. This is a whole-of-life view and it also includes the cyclical concept of life-death-life.

In 1990, federal, state and territory governments and Indigenous community groups endorsed the strategy, marking what could have been a watershed moment in improving Indigenous Australians' health outcomes. However, the simplistic use of the condensed definition ever since then, stripped of its first contextual statement, has meant that a vital component of Indigenous health—people's connections to land, or 'country'—has been largely ignored in policy. A review later found that the Strategy was never effectively implemented, and even what had been acted upon was grossly underfunded. Yet it remains widely cited decades later (Mayers 2002; NATSIHC 2003; Zubrick et al. 2010a).

Building on that work, some researchers have continued to stress that connections to country cannot be ignored in Indigenous health policy. A consultancy report for the federal government recommending ways forward for a National Aboriginal and Torres Strait Islander mental health policy outlined nine principles to guide future policies (Swan and Raphael 1995). Their starting principle was that the Aboriginal concept of health is holistic, and that land is central to well-being. Yet they, and others (Morrison 2002; Burgess et al. 2005; Green 2006; Ganesharajah 2009; Zubrick et al. 2010b; Bardsley and Wiseman 2012; Kingsley et al. 2013) remain the exceptions to the rule.

The need for a more 'holistic' approach to Indigenous health and well-being usually gets mentioned in major government health papers. However, too often it is a token gesture that does not translate into any recommendations for action (see CGC 2012, 2013). It is particularly troubling that connection to country has been treated so dismissively in successive national Indigenous health policies. Both the 2003–2013 and 2013–2023 National Strategic Frameworks begin with a preamble citing the 'landmark' 1989 Strategy and its definition of holistic health. Yet there was not a single reference to land or country in the 2003–2013 plan— a stark contrast to the three-dimensional approach of the 1989 Strategy. The latest 10-year plan is discussed in more detail in "Can Western and Indigenous Perspectives on Health be Reconciled?" section.

CARING FOR COUNTRY AND CARING FOR PEOPLE

What Evidence Is There That Connections to Country Can be Beneficial to Indigenous Australians' Health and Well-Being?

The inaccurately narrow concept of Indigenous health and well-being used in government health policies ignores decades of work. Peer-reviewed and documented work began more than 30 years ago, when *The Medical Journal of Australia* published a study by psychiatrist Rodney Morice. In it he observed the improvements in the psychosocial well-being of a group of 116 Aboriginal people after they moved away from a centralised, government-created township, to re-establish their own traditions in a small autonomous community (Morice 1976). A few years later, Reid (1982) explored the complex interplay between body, land and spirit and Aboriginal health in greater depth.

O'Dea (1984) reported how the health of Aboriginal people in the Kimberley with diabetes improved dramatically when they returned to traditional subsistence activities. Yet little changed within government to reflect this evidence. Throughout the 1990s, Indigenous connections to country were similarly ignored in national environment strategies. For example, the Howard government's flagship environment program, the National Heritage Trust, allocated just 3% of its funds to regional bodies based on Aboriginal land between 1996 and 2005 (Hill et al. 2008).

But among health professionals, the issue slowly began to win greater recognition. In 1997, a group of specialists from the Royal Australasian College of Physicians met in Darwin, and agreed on a communiqué accepting that 'the health of Aboriginal and Torres Strait Islander Australians is disastrously poor compared to other Australians, and that the fundamental cause is disempowerment, due to various factors including continued dispossession from land, cultural dislocation, poverty, poor education and unemployment' (RACP 1997).

Two years later, a prominent commentary in *The Medical Journal of Australia* (Jackson and Ward 1999) argued that appreciable improvements in Aboriginal health would only be seen after a national process of reconciliation between different world-views. And in 2005, the Australian Medical Association adopted new principles on Indigenous health, advocating a major change in government policy: breaking away from a fragmented, disease-based approach, to a more holistic, culturally appropriate approach.

Arguably the most influential research in this field has been the 'Healthy Country, Healthy People' studies (Burgess et al. 2005; Garnett and Sithole 2007; Garnett et al. 2009). They found that Indigenous people involved with environmental and cultural activities that involved 'caring for country' in Arnhem Land were more physically active, had better diets and suffered lower rates of obesity, diabetes, renal disease, cardiovascular disease and psychological stress—reducing the principal risks of premature death and disability for Indigenous Australians. Similarly, biomedical research in central Australia has shown an association between connection with homelands and lower prevalence of diabetes, hypertension and obesity and lower mortality and hospitalisation rates (Rowley et al. 2008).

A number of studies have highlighted potentially significant savings in Indigenous health spending, especially the rising costs of managing chronic disease, through the preventative benefits of Caring for Country activities (Burgess et al. 2008). One study of an Arnhem Land community found that active participation in land management would deliver net savings of A$268,000 per year for that community alone, owing to lower rates of chronic disease and reduced strain on primary health services (Campbell et al. 2011). Those findings built on earlier work (Campbell et al. 2008a) examining the economic case for relocating remote communities into larger centralised communities. It found that doing so may save money on service delivery alone, but it was likely to result in disengagement from traditional country, intercommunity conflict and poorer environmental, health and well-being outcomes—all of which could combine to reduce or even outweigh the initial service delivery savings. Similar economic research that considers how policies aimed at Indigenous Australians can unintentionally affect health and well-being is urgently needed, as many government strategies to reduce costs by relocating Indigenous people from their traditional lands have not been supported by adequate evidence (Scrimgeour 2007) and risk perverse outcomes (Biddle 2012).

Within the past 5 years, the success of several Indigenous environmental management initiatives from the North Australian Indigenous Land and Sea Management Alliance (Fitzsimons et al. 2012), the Northern Land Council (Weir et al. 2011) and others, coupled with 'Healthy Country, Healthy People' research, has triggered a policy shift in one area—not in health, but in environment policy. Since 2008, the federal environment department has spent A$2.25 billion on Caring For Our Country projects, supporting communities, farmers and other land managers with environmental management programs. Indigenous communities in northern and remote Australia have been among the main beneficiaries of the funding, which the government at the time explicitly linked to its work on Closing the Gap on Indigenous disadvantage. A$244 million has been spent on a Working on Country program, expanding the number of Indigenous rangers from around 100 rangers in 2007 to nearly 700 in 2013 (Commonwealth of Australia 2013).

The 'Caring For Our Country' process has not been flawless. There has been a shift to a more prescriptive funding approach, prioritising natural resources management at the expense of traditional cultural management activities (Gorman and Vemuri 2012). Self-determination has been found to be an important determinant of health and well-being, not only in Australian research (Ganesharajah 2009; Holland et al. 2013) but in international research into healthy First Nations communities (Cornell

et al. 2004). Policies that are too narrowly focused risk undermining Indigenous autonomy (Wiseman and Bardsley 2013) and consequently undermining the positive contribution they might make toward closing the gap in Indigenous health.

Developing integrated policies to tackle several areas simultaneously—such as improving health, environmental, economic and social outcomes—is fraught with difficulty. However, the federal environment department's effort to combine environmental and Indigenous health strategies is at least an attempt to improve on the more simplistic approaches of the past, which other departments, including health, have failed to match. That failure cannot continue any longer—especially when existing health problems in remote Indigenous communities are now being exacerbated by climate change.

Health Impacts of Living on Climate Changed Country

Impacts of climate change on human health have been documented in many parts of the world (McMichael et al. 2006; IPCC 2012), with one study in *The Lancet* finding that even small increases in the risk for climate sensitive conditions, such as diarrhoea and malnutrition, could result in very large increases in the total disease burden (Costello et al. 2009). While most studies have focused on climate impacts at a national level (Hennessy et al. 2007; Salick and Byg 2007; Garnaut 2008), over the past decade there has been more research into climate impacts for Indigenous communities (Furgal and Séguin 2006; Guyot et al. 2006; Mercer et al. 2007; Turner and Clifton 2009; Galloway McLean 2010; Green et al. 2010; Weatherhead et al. 2010; Harper et al. 2012), including local observations of 'strange' environmental changes (Petheram et al. 2010).

A key gap in our knowledge about the health and well-being impacts of climate change has been about how climate extremes, such as heatwaves, could affect vulnerable sub-groups of the population. However, this is beginning to be redressed. Campbell et al. (2008b) concluded that climate change impacts in the 70% of Australia that is desert would profoundly affect the costs and demands for health care, particularly for those Aboriginal people and communities already dealing with pre-existing disadvantage. Such climate impacts include hotter mean temperatures, which can cause increased heat stroke, cramps, heat exhaustion and deaths (McMichael et al. 2003). Meanwhile, a forthcoming study (Green and Webb 2014) has found

clear links between ambient temperature and humidity on hospital admissions for heart disease among Indigenous and non-Indigenous populations in northern Australia in recent decades. This is significant, as ischaemic heart disease is currently the leading cause of premature death among Australians (ABS 2013). Further epidemiological investigations into other health and climate trends are vital for effective future health planning—especially given the observed trend of higher temperatures across Australia (CSIRO and BoM 2012). Until recently, researchers had given little attention to Indigenous vulnerability to climate change in northern Australia, despite evidence that this subpopulation was likely to be disproportionately impacted (Green et al. 2009; Hunter 2009; Berry et al. 2010a).

However, the need to respond to climate change does offer some new opportunities for Indigenous communities, particularly those actively managing their country. The Western Arnhem Land Fire Abatement (WALFA) project has dramatically reduced greenhouse-gas emissions from bushfires, while providing social and economic opportunities for local people (Green and Minchin 2012). Developed collaboratively between Indigenous elders, rangers and non-Indigenous scientists, WALFA applies traditional land-management practices that have been used since 38,000 years bp (Singh et al. 1981). WALFA and other projects in northern Australia such as the Fish River Fire Project use a 'two-toolkit' approach, seeking to combine the best of Indigenous and Western knowledge. The chief executive of *Aak Puul Ngantam*, Bruce Martin, is taking that a step further, applying a quadruple-bottom-line approach to his Queensland community's projects, considering cultural, economic, social and environmental risks and benefits. Such projects are practical applications of what Indigenous people have said for generations, and which is backed up by the Healthy Country, Healthy People literature: in caring for country, Indigenous people are also caring for the health of their community and themselves (Berry et al. 2010b).

Social and Emotional Well-Being and Resilience to Climate Change

Without adaptive planning and action, climate change poses a particular threat to Indigenous Australians' sense of well-being (alternatively referred to as social and emotional well-being, or psychosocial health). If country becomes 'sick' through climate impacts, environmental degradation, or the traditional owners' inability to fulfil cultural activities

to care for country, people have reported how they feel this 'sickness' themselves (Rigby et al. 2011). As ecosystems change in response to biophysical impacts and extreme weather events, many traditional owners living in remote areas are likely to face increased physiological, psychological, economic and spiritual stress. Campbell et al. (2008b) discuss the indirect environmental and health effects of climate change in the desert, and how people would face added stress from increased incidence of climatic extremes and environmental uncertainty. While suicide rates are known to be higher among men living in rural areas, there is inadequate data on the likely impacts of climate change on people rural and remote areas, including Indigenous Australians (McMichael 2007).

The Australian Indigenous Psychologists Association has identified a number of protective factors for Indigenous well-being, including the strength of people's connections to land and culture, as well as remote living (Zubrick et al. 2010b). These protective factors help people cope better with stressful circumstances at an individual, family and community level (Kelly et al. 2009). Living on country has proved to be a source of great strength and resilience, not only for Indigenous Australians (Dockery 2010), but also for other Indigenous peoples. As Canadian researcher Nancy Turner and Gitga'at Nation elder Helen Clifton point out (Turner and Clifton 2009), Indigenous Canadians remain vulnerable to poor socioeconomic conditions and relatively poor health. Yet their connection to homelands and their traditional environmental knowledge make them more resilient than those used to constancy and predictability in their lives.

Canada's federal health department is well ahead of its Australian counterpart in trying to integrate climate change and health policy. Its national assessment of Canadians' health in a changing climate (Séguin 2008) concluded that in the case of some extreme events, less tangible psychosocial effects can do the most damage to people's health. It pointed to studies in Europe and America that established a correlation between flooding and subsequent increases in common mental disorders, including anxiety, depression and post-traumatic stress disorder (WHO 2002; Hutton 2005).

Can Western and Indigenous Perspectives on Health be Reconciled?

Australia's federal government recently released its new 10-year National Aboriginal and Torres Strait Islander Health Plan 2013–2023 (Australian Government 2013). The plan aims to be the blueprint for governments, Indigenous communities and health care organisations to close the gaps in Indigenous life expectancy and child mortality. It is therefore concerning that, like the previous plan, the connection between country and well-being is treated so perfunctorily. There are just ten references to 'land' or 'country' in the entire 66-page plan—three of which are in the artist's description of the report's front-page artwork. As we approach the 35th anniversary of the 1989 Strategy, it seems that its strong message about the need for a three-dimensional approach to Indigenous health is yet to sink in.

From a non-Indigenous perspective, the overwhelming focus on areas of poor Indigenous health in federal health strategies may seem logical. However, this approach inadvertently limits the funding and development of a less medical-focused, more holistic approach, such as schemes to support people to reconnect with kin and country (Mayers 2002; Zubrick et al. 2010a). That medicalised approach is ultimately bound to fail, as expressed by respected Aboriginal health leader Dr. Hunter: 'The "body parts" approach has been a complete failure in Aboriginal health. There is no use treating the heart or the ears alone, when the whole person is in danger of breaking down' (AMA 2005).

It is telling that the idea of 'healthy country, healthy people' is hardly considered in key policies that aim to improve Indigenous health, including the six nationally agreed Closing the Gap targets. It is equally telling that mental health and the broader concept of well-being are not among these targets (COAG 2008). The National Mental Health Commission has also criticised the 'conspicuous' absence of Indigenous mental health in these targets. It has recommended setting measurable goals for improvements in Indigenous mental health and well-being as an additional target, alongside the development of a new Aboriginal and Torres Strait Islander Mental and Social Emotional Well-being Plan. Both of those steps offer the potential to improve on current health outcomes. However, any new targets or new health and well-being plans should not be imposed from a solely Western perspective, but must better reflect what Indigenous people say matters most in keeping them well.

Conclusion

This is a critical time in Australian Indigenous health policy. The growing body of Australian and international

literature about Indigenous health and well-being supports what many Indigenous people have consistently said about needing to apply a more holistic view of health. Programs that look after the health of land and culture, such as Caring for Country projects, should be considered a crucial part of long-term Indigenous health plans, rather than seen as an optional extra.

Climate change is an added impetus for action, as there is evidence of higher temperatures and other impacts exacerbating existing health problems for Indigenous Australians. However, there are also opportunities to adapt to climate change in ways that can benefit Indigenous health and well-being, through Indigenous-led initiatives on country. Such projects show how it is possible to see beyond one problem, such as health, and instead apply a quadruple-bottom-line approach that balances cultural, environmental, economic and social needs. This would also be far more in line with the 1989 National Strategy's three-dimensional blueprint for good health than current approaches.

Huge challenges and disparities remain in Indigenous health, and redressing the failure to consider 'country' in Indigenous policy would not be a simple panacea. But it is well past time to reconsider the 'body parts' approach to health, and devote more attention and funding to evidence-based activities that are known to make Aboriginal and Torres Strait Islander people stronger and more resilient.

ACKNOWLEDGMENTS

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