



Climate change threats to family farmers' sense of place and mental wellbeing: A case study from the Western Australian Wheatbelt



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ABSTRACT

'Sense of place' has become a central concept in the analysis of the cultural, personal and mental health risks posed by a changing climate. However, such place-related understandings of mental health and wellbeing remain largely limited to Indigenous health contexts. In this article we argue the relevance of sense of place in understanding the mental health impacts of climate change on family farmers who retain close living and working relationships to the land. We conducted a community-based qualitative case study located in the Western Australian Wheatbelt - a region that has experienced some of the most significant climate change in Australia. A three-part interview series was conducted with 22 family farmers between February 2013 and April 2014, and 15 interviews with various agricultural and mental health key informants. The research findings reveal that recently observed patterns of climate change have exacerbated farmers' worries about the weather, undermined notions of self-identity, and contributed to cumulative and chronic forms of place-based distress, culminating in heightened perceived risk of depression and suicide. The research findings highlight the tightly coupled ecosystem health-human health relationships that exist for family farmers living in regions affected by climate change, as well as the significance of farmers' place-based attachments and identities for their mental health and wellbeing.

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1. Introduction

'Sense of place' has become a central concept in the analysis of the cultural, personal and mental health risks posed by a changing climate (e.g. Adger, 2016; Albrecht, 2011; Albrecht et al., 2007; Durkalec et al., 2015; Fresque-Baxter and Armitage, 2012; Hess et al., 2008). Broadly defined, places are local environments imbued with meaning and significance by those associated with them (Relph, 1976). Research across a wide array of disciplines has shown that people have the potential to form strong personal relationships with their local environments that, in turn, serve emotional and psychological needs related to identity, belonging, security, self-esteem, self-efficacy and solace (Albrecht, 2005; Antonsich, 2010; Eyles and Williams, 2008; Frumkin, 2003; Proshansky et al., 1983). The emotional and psychological significance of place is

further demonstrated in research documenting personal and collective experiences of losing vital human relationships to biophysical places, or 'sense of place'. Feelings of grief, trauma, homesickness, nostalgia, alienation, depression, anxiety and loss are often present amongst those who have been forcibly separated from, or have lost through environmental, technical or economic disasters, a loved home environment (Albrecht, 2005; Brown and Perkins, 1992; Fried, 1963; Fullilove, 1996; Ruiz and Hernandez, 2014).

Understanding how people relate to place and how climate change disrupts people-place relationships are growing areas of psychological and geographical inquiry. Research has shown, for instance, that increasingly powerful and extreme weather-related events (i.e. hurricanes, bushfire, flooding) can violently alter physical landscapes and significantly disrupt relationships between people and place, eliciting feelings of grief, anxiety and longer-term post-traumatic stress and depression (Carroll et al., 2009; Chamlee-Wright and Storr, 2009; Morrice, 2013; Tapsell and Tunstall, 2008). The mental health impacts of such events may also be complicated by the need for affected residents to temporarily or permanently

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relocate, as well as the difficulties associated with resettlement (Adams et al., 2015). Climate change can also disrupt people-place relationships through longer-term processes of environmental change. Research conducted amongst the Inuit of Northern Canada (Cunsolo Willox et al., 2012; Durkalec et al., 2015), Ghanaian farmers (Tschakert et al., 2013), and Australian Aboriginal peoples (McNamara and Westoby, 2011; Petheram et al., 2010), for example, have shown that even relatively small and slow moving changes in the environment can significantly undermine the mental health and wellbeing of people who retain close cultural, personal and working relationships to the land, producing feelings of depression, anxiety, fear, anger and sadness, as well as, various physical health impacts related to disruptions to traditional cultural activities and food sources.

Common to these highly differentiated socio-cultural contexts is the sense of loss and distress experienced by residents who perceive their traditional lands to be negatively transforming as a result of changing climatic conditions. 'Solastalgia' – understood colloquially as the homesickness one feels whilst still being at home (Albrecht, 2005; Albrecht et al., 2007) – has been applied in these and other contexts (e.g. open-pit coal mining) to describe the distress and melancholia felt in relation to the lived experience of environmental degradation and its attendant negative impacts on highly valued places. Solastalgia forms part of a broader 'psycho-terrestrial typology' of positive and negative earth-related emotions (Albrecht, 2012), and is typically considered the opposite of 'topophilia' – a positive emotional experience related to the health and vitality of place as expressed in feelings of joy, familiarity, and being 'at home' (Tuan, 1974). For the Inuit, as is the case for Australian Aboriginal peoples and Ghanaian farmers, solastalgia and other environmentally-produced forms of distress often come on top of other economic and social stressors that serve to further entrench health disadvantage.

Despite the increased centrality of 'sense of place' in climate-health research, its application remains limited in scope. Beyond indigenous and developing country contexts, little research has examined place-related understandings of mental health amongst similarly emplaced, yet relatively affluent, populations subject to worsening climate change impacts. In response, we argue that there is considerable scope to extend place-related understandings of mental health and wellbeing to family farmers living in climate-changed environments.

Previous research has shown that climatic adversity (i.e. drought, severe weather, extreme climatic variability) detrimentally affects the mental health and wellbeing of family farmers. Much of the research documenting the impacts of weather and climate on farmers' mental health has been produced in Australia, where family farmers have had to contend with one of the most naturally variable climates on Earth (Hennessy et al., 2008). Research has shown drought-affected family farmers often experience feelings of helplessness and powerlessness (Berry et al., 2011; Drought Policy Review Expert Social Panel, 2008), elevated rates of psychological distress and depression (Edwards et al., 2008; Stain et al., 2011) and, potentially, heightened rates of suicide (Hanigan et al., 2012; Nicholls et al., 2006). Climate change has already exacerbated the natural variability of the Australian climate (CSIRO & BoM, 2015); and because of their close living and working relationships with the land, family farmers have been identified as a group whose mental health and wellbeing may be particularly impacted by climate change (Berry et al., 2011; Morrissey and Reser, 2007).

Although previous research suggests climate change will negatively impact farmers' mental health through various economic and social-cultural pathways of risk (e.g. Alston and Kent, 2008; Berry et al., 2011; Brumby et al., 2011; Bryant and Garnham, 2014),

missing from the literature, we argue, is systematic analysis of 'sense of place' as a pathway through which climate change may undermine the mental health and wellbeing of family farmers. The aim of the research, therefore, was to examine climate change as a mental health stressor amongst Australian family farmers, and to extend the application of place-related understandings of mental health and wellbeing to a non-indigenous and relatively affluent population.

This article reports findings from an in-depth community study that investigated climate change impacts on the place-related mental health and wellbeing of family farmers living in the Western Australian Wheatbelt – a region that has experienced some of the most abrupt and significant climate change in Australia (Indian Ocean Climate Initiative, 2012). As a region that has experienced the impacts of a changing climate sooner and to a greater extent than comparable broadacre regions in Australia (CSIRO & BoM, 2015), we argue that this article has domestic and international significance in being the first to demonstrate the applicability of place-related understandings of mental health for semi-arid farmers living in a climate-changed region. The findings illustrate the significance of farmers' sense of place for their mental health and wellbeing, and open up new possibilities for health interventions targeting family farmers living in ecological contexts subject to worsening climate change.

2. Research design

2.1. Study location

The research was conducted in Newdegate, a small rural community located 400 km southeast of the state capital, Perth in the Western Australian Wheatbelt (Fig. 1). The region is comprised of approximately 4900 broadacre farming enterprises, the vast majority of which are family owned and operated. Major agricultural products include wheat, barley, canola and sheep. Wheatbelt agricultural systems comprise rain-fed mixed grain/livestock enterprises and specialised grain-only producers (Trestail et al., 2013). Due to the rain-fed nature of the broadacre systems employed throughout the region, agricultural production and farm-business profitability are highly sensitive to climatic and seasonal variation (Kingwell et al., 2013).

Historically, the Wheatbelt was regarded as having the most 'stable' winter climate of any agricultural region in Australia (Indian Ocean Climate Initiative, 2004). Today, however, the Wheatbelt, as part of the larger southwest region of Western Australia, has experienced some of the most abrupt and severe climate change documented in Australia. Since the late 1960s, winter rainfall has reduced by as much as one-third and seasonal variability (temperature and rainfall) has increased (Bates et al., 2008; Indian Ocean Climate Initiative, 2012). These trends have intensified dramatically since 2000 (Indian Ocean Climate Initiative, 2012). Climatological research clearly demonstrates observed regional climatic changes are the product of anthropogenic global warming (CSIRO & BoM, 2015).

Climate change in the Western Australian Wheatbelt presents significant agronomic and financial challenges to family farmers dependent upon seasonal weather patterns for the growth of their crops and pastures (Kingwell et al., 2013), as well as to rural communities dependent upon family-based agriculture for their continued economic and social sustainability (Gaynor, 2015). Climate projections indicate that the Wheatbelt region will most likely continue to experience significant climate change into the future, particularly under high greenhouse gas emission scenarios (Hope et al., 2015).

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