

# Beyond Blue to Green:

## The benefits of contact with nature for mental health and well-being



### Executive Summary

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Project conducted by



**DEAKIN**  
UNIVERSITY AUSTRALIA

April 2010

*A Literature Review from the School of Health and Social Development, Deakin University, prepared for beyondblue: the national depression initiative*



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# Executive summary

## Introduction

Growing evidence shows that access to the natural environment improves health and well-being, as well as preventing disease and helping people recover from illness. Experiencing nature in an outdoor environment can help tackle mental health problems, obesity, and coronary heart disease. In fact, it is recommended that people living in towns and cities should have an accessible natural green space of at least two hectares in size, located no more than 300 metres (or five minutes walking distance) from home.<sup>1</sup> The importance of these issues prompted the partnership between *beyondblue* and the Faculty of Health, Medicine, Nursing and Behavioural Sciences, at Deakin University, Victoria, to undertake an update of the publication *Healthy Parks, Healthy People: the health benefits of contact with nature in a park context* with a further review of current Australian and international literature on the links between mental health and well-being and the availability of green spaces.

The evidence included in this review has been drawn from a range of sources including relevant electronic databases, peer-reviewed journals, and grey literature. In contrast to the past reviews, which have been broader in scope, the major focus of this review is on the links between parks/green open spaces and mental health, in particular, depression and anxiety. While the focus of the review is on the most recent literature, where it is relevant, older literature from the original reviews has been included.

The conviction that contact with nature, for example through viewing landscapes that include vegetation, water and other natural features, ameliorates stress and benefits humans in general, including people in healthcare settings, is evident as far back as the earliest documented histories of China, Greece and Persia.<sup>2</sup> Since the early 1980s, environmental psychologists have studied the health effects of contact with nature.<sup>3</sup> During that time there has been a growing acknowledgement that humans depend on nature not simply for material requirements such as water, food and shelter, but also for their emotional, psychological and spiritual needs.

## Definitions

**Health** is defined as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”.<sup>4</sup>

**Mental health** is defined as “a state of complete physical, mental, spiritual and social well-being in which each person is able to realise one’s abilities, can cope with the normal stresses of life, and make a unique contribution to one’s community”.<sup>5</sup>

**Nature** refers to “any single element of the natural environment (such as plants, animals, soil, water or air), and includes domestic and companion animals as well as cultivated pot plants”.<sup>6</sup>

‘Nature’ has been subdivided into the following categories:<sup>7</sup>

- Urban nature: nature in an urban setting (e.g. gardens, parks, leisure parks)
- Agricultural nature: a primarily agricultural landscape with small, set-aside patches of nature
- Natural forests: nature in woodland where management is geared towards more authentic vegetation
- Wild nature: nature in an environment that develops spontaneously and can be maintained with minimal management (natural rivers, marshy woodlands etc.).

**Well-being** has been described as being not just the benefits gained from good psychological and physical health, but as being related to specific aspects such as favourable thoughts and feelings, satisfaction with life, ability to be self-sufficient and proactive, possess a sense of happiness and a positive evaluation of one’s life in a general sense.<sup>8</sup>

**Research evidence shows that close proximity to green spaces is clearly associated with reduced prevalence of depression, anxiety and other health problems. The relationship has been shown to be strongest for children and people with low incomes.**

## Children

The outdoors is believed to be one of the most suitable and favourite places for children to indulge in free play and gross motor activity, due to the presence of trees and flowers, among other features. This type of setting is described as an enriched environment and is believed to have multiple functions by providing both a platform for play, as well as objects to interact and play with.

An enriched environment opens avenues for developmental benefits in older children including learning and memory; opportunities to accrue and display decision-making skills; and problem solving and creative thinking. Younger children can engage in imaginative play, which is considered a foundation of social and cognitive development.

Many researchers believe that playing in outdoor settings at home, camps and schools has long-term benefits for physical, social, emotional and cognitive development in children.<sup>9,10,11</sup> It is understood that key elements of child development are fostered through contact with nature such as:

- developing a sense of identity
- autonomy
- psychological resilience
- learning healthy behaviours.<sup>12,13</sup>

**Children who experience high levels of contact with nature are reported to have higher levels of self-worth and higher cognitive function.<sup>14</sup>**

An Australian investigation conducted in Melbourne primary schools identified principals' and teachers' perceptions of the benefits of nature-based activities in primary schools.<sup>15</sup> Social and mental health benefits were identified and related to:

- caring for living things which assists the development of empathy
- seeing the changes taking place in the cycle of life, such as growth and change which builds resilience
- improvements in neuro-behavioural disorders in children (e.g. ADD and ADHD)
- improved attitudes towards school and relationships with peers and adults
- greater calmness and reduced disruptive behaviour
- giving children a sense of freedom to be creative and make discoveries which enhanced their self-esteem and self confidence
- increased perceptions of wellness and sense of achievement.

**One repercussion of the restricted access to nature is the potential for serious negative effects on physical, emotional and cognitive development.**

It has been shown that children from ethnic minorities, children with disabilities and females are represented in lower proportions among children who have access to nature.<sup>16</sup>

## Young people at risk

The broad picture of the health and well-being of young people, particularly in Western cultures such as Australia, is one of continuing improvement. However, this view under-recognises the economic and social inequalities many young people experience, and the impact of those inequalities. Multiple risk factors, coupled with limited protective factors, has been shown to increase the likelihood of adverse outcomes including substance abuse and mental health disorders.<sup>17</sup> The impact of each of these issues, both separately and concurrently, can be profound and relate to health, well-being, relationships, educational and vocational opportunities and experiences, with potential long-term personal and economic consequences.

For young people in juvenile justice facilities, serious substance abuse issues and mental health disorders are common. Horticulture therapy programs involving these young people have shown a range of benefits during, and after release from, imprisonment.<sup>18</sup> Major outcomes of horticulture therapy programs in prison settings include:

- lower anxiety and depression levels
- a decrease in illegal activity and drug use
- higher self-esteem.

The handling of plants and other activities involving nature in a detention setting has been shown to lead to elevated self pride and a sense of belonging, increases in cooperation and social skills, and is likely to provide a soothing and relaxing 'breather' to the stresses of institutional living. The restorative effects achieved through horticultural interventions should not be undervalued as a method of positively influencing risk factors which contribute to reoffending.

## People with low incomes

A feature of low socio-economic neighbourhoods may include higher crime rates, heavier traffic, poorer variety of facilities for physical activity outdoors, more unsafe play areas, and greater physical deterioration, as well as fewer natural elements compared to wealthier neighbourhoods.<sup>19,20</sup>

A recent Dutch study<sup>21</sup> investigated the relationship between green space in people's living environments and their physician-assessed morbidity levels for a number of selected diseases. Fifteen of the 24 investigated diseases had lower annual prevalence rates for participants living within a 1km radius of green spaces. From a disease perspective, the relationship was strongest for anxiety disorders and depression. Green spaces closer to home appeared to play a major role in morbidity prevention, relative to green spaces some distance away. This relationship, as hypothesised by the researchers, was strongest for people who were expected to spend more of their time closer to their homes, such as children and people with lower socio-economic status.

Similarly, based on the hypothesis that income-related inequality would have less of an impact on populations if they have greater exposure to green open spaces, a study was conducted in England, dividing people who were younger than retirement age into four income-deprivation groups and five groups according to the access they have to green space.<sup>22</sup> The study evaluated their predicted mortality levels which showed that deaths from all causes in income-deprived communities was lower for those living in the most green areas and higher for those living in less green areas.

Many studies confirm the poorer outcomes for those living in low socio-economic areas, particularly for children. A study conducted in Zurich showed that five-year-old children, who could not access the outdoor play areas unsupervised due to dangerous traffic conditions, displayed poorer social behaviours, less well-developed motor skills and had fewer playmates than their counterparts with better access to the outdoors.<sup>23</sup>

The serious health and well-being implications of reduced access to green, open spaces for people living in socio-economically disadvantaged areas is significant and warrants serious consideration in future urban renewal and development projects.



## Older people

Older people, defined commonly as those over the age of 65 years, represent an increasing proportion of the Australian population. Increasing age is related to long-term health conditions, higher rates of disability and poorer reported health status. In 2005, nearly 100 per cent of people aged 65 years or over, reported at least one, long-term health condition; almost half of all older people (48 per cent) were classified as either overweight (33 per cent) or obese (15 per cent).<sup>24</sup>

In 2004-2005, 11 per cent of older people reported a high or very high level of psychological distress compared to 9 per cent in 2001 (ABS 2006). Population ageing, and the health of older people, is therefore likely to impact on the overall mental health status of the Australian population.

It has been found that areas with natural landscaping, green neighbourhood meeting places, group-based nature activities such as walking, and shared gardens for the elderly can facilitate social contact, which has been shown to reduce the risk of developing chronic diseases such as depression and cardiovascular disease.<sup>25,26</sup>

A study investigating the effects of community gardening on levels of functional health, depression and physical fitness on a group of elderly people from New York who attended a local seniors' centre showed multiple benefits for participants.<sup>27</sup> The gardening activities resulted in:

- improved scores on the *Total Emotional Score* and the *Geriatric Depression Scale*
- broad-ranging improvements on the *Dartmouth COOP Functional Health Assessment Charts* including social activities
- improved length of walks (indicated by the *Six-Minute Walk Test*).

The plethora of findings on the benefits of green spaces and activities on psychological well-being in the elderly should provide the momentum for a shift in conceptualising health as more than a matter of providing aged care services.



## The importance of accessibility to parks and open spaces – for everybody

The effects of living in a “green” environment cannot be underestimated. People who perceived their neighbourhoods as *very green* have been shown to have up to 1.6 times greater odds of better physical and mental health, when compared with those who perceive their neighbourhoods as *lower in greenness*.<sup>28</sup>

A Danish survey found that people who lived a greater distance from publicly accessible green spaces, and who had less access to private or shared gardens, experienced higher levels of stress and were more likely to be overweight.<sup>29</sup>

Participating in health-promoting group activities such as hiking, physical activities, and gardening have been shown to have a range of benefits to health and well-being.<sup>30</sup> Participants with psychosocial problems such as anxiety and depression, sleep disturbances and home or work-related stress reported that involvement in outdoor activities contributed towards understanding ways to cope and master the burdens, crises and challenges of everyday life.

The range of psychological benefits for people who visit green, open spaces is vast. They include:

- a place to escape to away from school/university or workplace
- changes of scenery
- improvements in mood
- lower levels of anxiety
- lower stress levels
- lower levels of depression
- increased physical activity.

## Conclusions

**The take home message is that there is a significant relationship between mental health and greenness.**

**Moreover, neighbourhood greenness has been more strongly associated with mental health than with physical health.**<sup>31</sup>

Well-designed, planned and managed urban green spaces provide significant aesthetic, social, psychological and environmental benefits for their users. Efforts must be made to improve quality of life in *all* neighbourhoods and cities through increasing access to natural environments.

While the major focus of this report is on green spaces and mental health, other nature-based approaches such as wilderness therapy, eco-therapy, adventure therapy, animal-assisted therapy, and garden therapy are also relevant to promoting mental health and well-being. A growing body of research evidence has supported these approaches for their ability to enhance people’s health and well-being, skills and behaviours as well as reduce the risks of illness and these are discussed in the Full Report of this literature review (available mid-2010 from *beyondblue*).

The evidence provided within this literature review verifies the need for governments, policy makers, the corporate sector, community and business leaders, and researchers across a range of disciplines, including environmental health, public health, psychiatry and psychology, urban planning, horticulture, leisure, recreation and wilderness, to work together to ensure that elements of nature essential to human health and well-being are provided to *all* citizens.



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