

Science for Environment Policy

Parks and beaches may improve children's behavioural development

City children who spend lots of time in green spaces, such as parks, and at the beach are less likely to have emotional and social difficulties, indicates new research from Barcelona. The study of over 2000 children supports theories that green and blue infrastructure have benefits for our health and wellbeing.

Many studies have reported improved physical and mental [health](#) among people who live near [green spaces](#) or in greener neighbourhoods. It is not known exactly why this should be, but it may be because parks and other areas of urban greenery provide opportunities to exercise, de-stress and socialise. They also tend to have lower levels of noise and air pollution, as well as cooler temperatures.

This study explored possible links between children's behavioural development and time spent in green and blue spaces. Blue spaces are areas with water, such as lakes and ponds, but this study focused on beaches specifically. They also looked at the possible effects of the amount of greenness surrounding each child's home. The research was conducted under the EU [BREATHE](#) and [PHENOTYPE](#) projects¹.

Neuropsychiatric problems, including behavioural issues, are estimated to affect 10–20% of children worldwide. Attention deficit/hyperactivity disorder (ADHD) is the most commonly diagnosed condition of this kind and is reported to occur in 5.3% of children globally. In Spain, 6.8% of children are diagnosed with ADHD; both genetic and environmental factors are thought to play a role in this condition's development.

The parents of children (aged 7–10) in Barcelona, Spain, completed questionnaires on their child's behaviour. In total, 2111 children's parents were questioned. These surveys asked the parents to assess their child's emotional symptoms (e.g. are they often worried or unhappy?), their peer relationships (whether they are generally liked by other children, and whether they tend to play alone, for example), their hyperactivity levels and their general conduct (e.g. are they obedient? Do they often throw tantrums?).

The parents also provided details of how much time the children spent in green spaces and at the beach, as well as their socio-economic background. In addition, the children's schoolteachers completed questionnaires which assessed the children for signs of ADHD.

The results show that the children who spent more time playing in green and blue spaces were less likely to display signs of emotional problems or difficulties with peer relations, as reported by their parents and compared with children who spent less time in these spaces.

The researchers could not see any strong patterns in the data which would associate time spent in green and blue spaces with the other types of behaviour considered. However, they did note that simply living in a neighbourhood with a higher level of greenness (within 100 m of the child's home, and as measured by satellite data), correlated with lower average scores for overall behavioural problems, ADHD and inattention.

As behaviour may also be influenced by socioeconomic factors, the researchers adjusted their analyses for the effects of socioeconomic status indicators, such as parental educational achievement and household income. They also noted that the amount of greenness in each neighbourhood did not differ between different social groups, i.e. between groups of children whose parents had different educational achievements, employment status, marital status or ethnicity. The researchers therefore believe that the observed associations in this study are less likely to have been biased by socioeconomic factors.

The researchers stress that the results do not prove cause and effect of green/blue spaces on behaviour, they only show strong associations. The parents' and teachers' assessments were not checked by health professionals either. However, they believe that their research provides important new insights into the potential health benefits of these spaces.



12 March 2015
Issue 407

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Source: Amoly E., Davdand P., Forns J., *et al.* (2014). Green and blue spaces and behavioral development in Barcelona schoolchildren: the BREATHE Project.

Environmental Health Perspectives 122:1351–1358. This study is free to view at:
<http://dx.doi.org/10.1289/ehp.1408215>

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To cite this article/service: "[Science for Environment Policy](#)": European Commission DG Environment News Alert Service, edited by SCU, The University of the West of England, Bristol.

1. BREATHE (BRain dEvelopment and Air polluTion ultrafine particles in sChool children) and PHENOTYPE (Positive Health Effects of the Natural Outdoor Environment in Typical Populations in Different Regions in Europe) are supported by the European Commission under the Seventh Framework Programme. See: www.creal.cat/programes-reerca/en_projectes-creal/111/breathe-brain-creal-development-and-air-pollution-ultrafine-particles-in-school-children?prog=2 and www.phenotype.eu