



Comparing the features of parks that children usually visit with those that are closest to home: A brief report



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ABSTRACT

Parks typically offer opportunities for physical activity among children. Therefore, understanding features of parks that attract children is important for public health. Previous research suggests that children often visit parks other than the one closest to home, most likely because of appealing features. This study compared features present at the park children visit most often to those present at the park closest to their home.

Parents in Melbourne Australia (2014–15), reported the park their child (9–11 years) visits most often. Mapping tools were used to determine park locations, sizes, and walking distances from home. The most frequently visited park and the closest park to home were audited (using a purposely created audit tool) to capture levels of access, amount of play/sport and comfort facilities, and quality and safety.

Most children (59 %) usually visited parks that were not closest to home. Parks that children ($n = 86$) visited most often were significantly larger (3.9 ha vs 2.7 ha) and further away (1675 m vs 325 m) than the park closest to home. Additionally, they had significantly more sports facilities, playground equipment, toilets, drinking fountains, BBQ's and landscaping.

Our findings provide evidence that children are attracted to parks with particular facilities, and parents/guardians may be willing to travel further if necessary. A better understanding of the features that drive park usage will help inform park planning and design.

1. Background

Children are not sufficiently active. Global findings suggest that overall levels of physical activity among children are low (Active Healthy Kids: Global Alliance, 2018). As low physical activity levels are associated with a number of ill health consequences such as obesity (Myers et al., 2017) and type II diabetes (Colberg et al., 2016), increasing physical activity and reducing sedentary time for children is a priority for public health.

Utilising parks and open green spaces for physical activity may be one way to increase physical activity amongst children. Whilst parks are a free and accessible resource of most towns and cities, they are often underutilised (Joseph and Maddock., 2016). Therefore, there is scope to increase visits, particularly among children. Increasing park visitation may be an important way to increase physical activity because around half of children's outdoor physical activity takes place in green spaces (Lachowycz et al., 2012). Overall, the evidence suggests that children in Australia have good access to parks: parent-report data for children aged 10–11 years, suggests ~85 % have good parks near home, and

child-report data shows 76 % of 12–17 year old's self-report having a playground or play space near their home (Jongenelis et al., 2018). However, children do not necessarily visit the park closest to home and parents and children are often willing to travel significant distances to visit parks with suitable features (Flowers et al., 2019). Relevant features include those specifically for physical activity (such as paths, courts, and playground equipment), those for comfort (such as picnic shelters, toilets, and water fountains) and those related to perceptions of safety (such as dog restrictions, vandalism and litter). For example, studies that have utilised park audits had found there is a positive association between playground access and physical activity among children (Besenyi et al., 2013; Timperio et al., 2008), and adding or improving these features has been shown to increase visitation and park-based physical activity among children (Veitch et al., 2018). Additionally, some park features (such as playgrounds and activity areas) may not only attract people to visit but have also been associated with greater energy expenditure than other features (Adams et al., 2018; Besenyi et al., 2013; Joseph and Maddock., 2016). The role of features is highlighted within ecological model of health behaviour that

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recognise that influences on behaviour are multi-dimensional and include physical characteristics of places and spaces (Sallis et al., 2015).

There is also evidence that parents often prioritise park features over size or accessibility. Qualitative research has shown that some parents are prepared to travel further distances if it means their child (ren) would be happy and occupied once there (Veitch et al., 2006). In support of this, quantitative research has shown that children in Melbourne, Australia travelled on average 1.7 km to their usual park, even though their closest park is 0.6 km from home (Veitch et al., 2008). Another study, from Western Australia, found that only 27 % of adolescents who reported using a park for physical activity, reported using the closest park (Edwards et al., 2015). Additionally, for every one point increase in the adolescent park attractiveness score, which assessed features of parks that drive adolescent park use, the odds of using the park closest to home increased by 75 %. However, it is not clear which features are most appealing to those who don't visit the parks closest to home. Understanding which features attract and/or deter parents and children from visiting parks will help inform future park design to optimise visits and park-based physical activity at neighbourhood parks.

Additionally, parents often prioritise park features over size or accessibility. Qualitative research has shown that some parents are prepared to travel further distances if it means their child(ren) would be happy and occupied once there (Veitch et al., 2006). In support of this, quantitative research has shown that children in Melbourne, Australia travel on average 1.7 km to their usual park, even though their closest park is 0.6 km from home (Veitch et al., 2008). Another study, from Western Australia, found that only 27 % of adolescents who reported using a park for physical activity, reported using the closest park (Edwards et al., 2015). Additionally, for every one point increase in the adolescent park attractiveness score, which assessed features of parks that drive adolescent park use, the odds of using the park closest to home increased by 75 % (Edwards et al., 2015). However, it is not clear which features are most appealing to those who do not visit the parks closest to home.

The aim of this study was (1) to identify children who do not usually visit their closest park, and instead usually visit a different park, and (2) to examine, for these children, similarities and differences between the features of parks located closest to home, and the parks they usually visit. It was hypothesised that for this subset of children, the parks they usually visit contain more facilities for physical activity, amenities for comfort, and indicators of safety and maintenance. Exploring the differences between features present in the most frequently visited park and the closest park to home will help to better understand the features that drive park visitation for children.

2. Method

The sample for this study were a subset of those who participated in time-point three (T3) of the Healthy Active Preschool and Prietary Years (HAPPY) study who did not usually visit the park closest to their home and for whom audit data were available both for the park they usually visit and the park closest to home. Recruitment procedures have previously been described (Hinkley et al., 2012). In short, children were recruited from randomly selected preschools ($n = 64$) and long day care centres ($n = 77$) across six local government areas (including low-, mid-, and high socioeconomic status) in metropolitan Melbourne between August 2008 and November 2009. Parents completed proxy-report surveys on behalf of their child at three timepoints; T1 (2008-9, child 3–5 years, $n = 943$; 10 % response rate), T2 (2011-12, 6–8 years, $n = 567$), and T3 (2014-15, 9–11 years, $n = 571$). Parents also reported their highest level of maternal education, marital status, and the number and age of other siblings in the household.

Parents reported which park their child visited most often. Using park descriptors provided by parents (i.e. names/locations/street names), parks were identified remotely using the search function on

Google maps (<https://maps.google.com>), a publicly available web mapping service that has previously been used to assess parks in Australia (Taylor et al., 2011). These parks were then cross-referenced with the Victorian Planning Authority's (VPA) Metropolitan Open Space Network Portal (<https://vpa.vic.gov.au/strategy-guidelines/metropolitan-open-space-network/>) for verification as parks. The portal is based upon the Victorian Environmental Assessment Council's (VEAC) Metropolitan Melbourne Investigation (2011), and information from metropolitan councils. To identify the parks closest to home, green spaces (excluding cemeteries, golf courses, private gardens etc) were visually identified using Google satellite imagery and VPA maps. If it was difficult to visually identify which park was closest to home, the park with the shortest walking distance was included in the analysis. Walking distances to parks were calculated using Google Maps walking navigation tool; home coordinates were entered as route origins and the name of the park was entered as a route destination. The destination marker was dragged to the nearest park entry point from the child's home.

The size of the park most frequently visited, and the closest park were captured remotely using the VPA Metropolitan Open Space Network Portal. Park size can be identified to the nearest 10 m². Where parks were formed of multiple polygons, such as those intersected by a road or river, the sum total of all polygons was used.

As part of the HAPPY Study, the parks that children visited at T3 were audited by three trained staff between September 2014 and May 2017 using a custom paper and pen audit. The audit tool included six items related to *access and surrounding neighbourhood* (e.g. public transport stop within sight of the park), 10 related to *activity areas within the park* (e.g. presence of basketball courts), and 17 relating to *park quality and safety* (e.g. toilets, shelter, maintenance) (see Table 1). The intra- and inter-reliability of the tool has been reported previously and was established as acceptable (Flowers et al., 2019).

3. Data analysis

The analytical sample included a subset of 86 children. Of the 571 parents who returned a questionnaire, 310 reported the name of the park their child usually visited, of which 183 (59 %) were not the closest park to home. The analytical sample comprised 86 of these children (47 %) for whom we also had audit data available for the park closest to home (i.e. if other children in the sample usually visited those parks). This allowed for comparisons to be made between the features of parks reported as being visited most often at T3 and the features of parks which were closest to home. Statistical tests were conducted individually for all park features, walking distances and park sizes. For scale and count data, such as the park size and the number of courts in the park, Wilcoxon signed-rank tests were run. For binary data, such as the presence of benches or water fountains, McNemar's tests were run. Within all tests, participants were entered as fixed effects. Significance was accepted at $p < .05$. All tests were carried out using IBM SPSS Statistics for Windows, version 24 (IBM Corp., Armonk, N.Y., USA).

4. Results

The analytical sample comprised 47 boys and 39 girls (range 9–11 years). The majority (67 %) of the children's mothers were educated to undergraduate degree level, and the remaining were educated to Year 12 or equivalent (28 %) or to Year 10 (5 %). Around half (51 %) of the children had one sibling, 36 % had two or more siblings, and 13 % had no siblings. The average age of siblings was 10 years. Parks visited most often were significantly larger and further away than those closest to home: the closest parks were on average 325 m away and 2.7 ha large; the parks usually visited were on average 1675 m away and 3.9 ha large).

For *activity areas within the park*, parks visited most often had significantly more "other facilities" (such as athletics tracks, fitness

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