



Dog walking is associated with more outdoor play and independent mobility for children



Hayley Christian^{a,b,*}, Georgina Trapp^{a,b}, Karen Villanueva^c, Stephen R. Zubrick^b,
Rachelle Koekemoer^a, Billie Giles-Corti^c

^a Centre for the Built Environment and Health, School of Population Health, The University of Western Australia, Crawley, Western Australia, Australia

^b Telethon Kids Institute, The University of Western Australia, Crawley, Western Australia, Australia

^c McCaughey VicHealth Centre for Community Wellbeing, Melbourne School of Population and Global Health, University of Melbourne, Melbourne, Australia

ARTICLE INFO

Available online 10 August 2014

Keywords:

Dog
Child
Independent mobility
Walking
Physical activity
Play

ABSTRACT

Objective. Dog ownership is positively associated with children's physical activity. It is plausible that dog-facilitated activity rather than dog ownership per se encourages children's physical activity behaviors. We examined relationships between dog walking and children's physical activity, and outdoor play and independent mobility.

Method. Cross-sectional survey data from the 2007 Perth (Western Australia) TRavel, Environment, and Kids (TREK) project were analyzed for 727 10–12 year olds with a family dog. Weekly minutes of overall physical activity and walking, local walking and outdoor play were collected from children and parents. Children's weekly pedometer steps were measured. Independent mobility was determined by active independent travel to 15 local destinations.

Results. Overall, 55% of children walked their dog. After adjustment, more dog walkers than non-dog walkers walked in the neighborhood (75% vs. 47%), played in the street (60% vs. 45%) and played in the yard (91% vs. 84%) (all $p \leq 0.05$). Dog walkers were more independently mobile than non-dog walkers ($p \leq 0.001$). Dog walking status was not associated with overall physical activity, walking, or pedometer steps ($p > 0.05$).

Conclusions. Dog-facilitated play and physical activity can be an effective strategy for increasing children's physical activity. Dog walking may provide a readily accessible and safe option for improving levels of independent mobility.

© 2014 Elsevier Inc. All rights reserved.

Introduction

Physical inactivity in children is a significant public health concern (World Health Organization, 2010, 2012) and is a modifiable risk factor for chronic diseases such as cardiovascular disease and type II diabetes as well as children's psychosocial outcomes and bone health (Biddle et al., 2004; Goldfield et al., 2002; Janssen and LeBlanc, 2010; Timmons et al., 2007). Evidence suggests that physical inactivity tracks from the early years to adulthood (Azevedo et al., 2007; Jones et al., 2013; Pate et al., 1996; Telama et al., 2005) highlighting the importance of maintaining good, and improving poor early physical activity

behaviors for later adult health benefits. Cost-effective strategies for increasing physical activity in children are required. One possible innovative and cost-effective strategy for increasing children's physical activity may be the physical activity facilitated through owning, playing and walking with a family dog (Christian et al., 2012; Owen et al., 2010).

Dog ownership and dog walking is a catalyst for physical activity and is associated with increased likelihood of achieving the recommended level of physical activity in adults (Christian et al., 2013; Cutt et al., 2008a; Moudon et al., 2007; Schofield et al., 2005; Thorpe et al., 2006). Only a handful of studies (Christian et al., 2012; Mathers et al., 2010; Owen et al., 2010; Salmon et al., 2010; Sirard et al., 2011) explore dog ownership in relation to youth physical activity. These studies have found that dog ownership positively influences children's physical activity (Christian et al., 2012; Owen et al., 2010; Salmon et al., 2010). For example, a recent study found that children who had a family dog, walked approximately 30 more minutes per week and were almost 50% more likely to achieve the recommended level of physical activity compared with non-dog owners (Christian et al., 2012). While it appears that there is potential for dog ownership to significantly impact children's physical activity levels, it is unknown whether dog-facilitated

* Corresponding author at: Centre for the Built Environment and Health, School of Population Health (M707), The University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia. Fax: +61 8 6488 1188.

E-mail addresses: hayley.christian@uwa.edu.au (H. Christian), Gina.Tapp@telethonkids.org.au (G. Trapp), k.villanueva@unimelb.edu.au (K. Villanueva), Stephen.Zubrick@telethonkids.org.au (S.R. Zubrick), rachelle.koekemoer@uwa.edu.au (R. Koekemoer), b.giles-corti@unimelb.edu.au (B. Giles-Corti).

physical activity (i.e., walking with a dog) rather than dog ownership per se is important for children's physical activity behaviors. Indeed, Salmon et al. (2010) found no association between children's objectively-measured physical activity and frequency of walking the dog in the last week (Salmon et al., 2010). Further studies are required to determine the relationship between dog walking and physical activity in children.

Furthermore, no studies to date appear to have investigated the relationship between dog walking and other physical activity behaviors such as outdoor play, and independent mobility. Outdoor play is recognized as being vital for children's health and wellbeing because it is a significant source of physical activity (Page et al., 2010) and encourages healthy child development (Ginsburg, 2007; Joshi et al., 1999; Pellegrini and Smith, 1998). Outdoor play encourages social interaction, supports creativity, and facilitates problem solving (McCurdy et al., 2010). Moreover, children's independent mobility, that is walking or cycling without adult supervision, is an important mechanism through which children accumulate physical activity as well as other psychosocial benefits such as the opportunity to learn about their environment, improve spatial and way-finding abilities and develop social relationships with other children and adults in their local community (Gale et al., 1990; Herman, 1980; Joshi et al., 1999; Rissotto and Tonucci, 2002; Schoeppe et al., 2013; Villanueva et al., 2012a). Among other factors, previous studies suggest that walking with an older sibling or friends is associated with increased independent mobility, particularly in girls (Jones et al., 2000; Zwerts et al., 2010). This may be because traveling with others may contribute to perceptions of safety and personal protection, resulting in more freedom granted by parents. Dogs are often considered important family members (Albert and Bulcroft, 1988; Cutt et al., 2008b). In adults for example, walking with a dog provides greater feelings of safety, particularly when walking at night (Cutt et al., 2007; Cutt et al., 2008b; Wood and Giles-Corti, 2005). Thus, walking with a dog may provide children with more opportunity to be independently mobile because a family dog plays a role similar to that of an older sibling or friend (i.e., a protector and guardian). Compared with a child walking alone, walking with a dog (unaccompanied by an adult) may improve parent and child feelings of safety.

Given that approximately 50–70% of US and Australian households with children own a dog (American Veterinary Medical Association, 1997; Christian et al., 2012; Mathers et al., 2010; Salmon et al., 2010) dog walking may potentially provide a readily accessible option for improving levels of independent mobility, outdoor play and physical activity. The aim of this study was to investigate the relationship between children's dog walking, physical activity, outdoor play and independent mobility. We postulated that 'dog walking' status is a proxy for other dog-facilitated physical activity behaviors such as playing outdoors with a dog and being independently mobile with a dog. We hypothesized that children who walked their dog had higher levels of outdoor play, independent mobility and physical activity compared with children who had a dog but did not walk it.

Methods

Cross-sectional data from the TRavel, Environment, and Kids project (TREK) was used. The research methodology for TREK is described fully elsewhere (Giles-Corti et al., 2011). In 2007, 36 government primary schools in Perth, Western Australia were invited to participate; 25 participated (69.4% response rate (RR)). In each school, one class from each grade (years 5, 6, 7) was randomly selected until at least 30 children per grade were recruited. In total, 1480 children (57% RR) and 1314 of their parents (89% RR) participated. We analyzed data for 727 (49%) children who had a family dog.

Data were collected between July–December 2007 using a child and parent questionnaire in addition to other measures (not reported here). Test–retest reliability (1 week) of survey items was assessed (4 schools; $n = 160$ 10–12 year-olds; $n = 101$ parents), and items with acceptable reliability (i.e., kappa or intraclass correlation coefficient [ICC] ≥ 0.6 or percent agreement $\geq 60\%$) were included in the final survey (not reported here) (Wood et al., 2010).

Socio-demographic measures

Children self-reported their sex and age. Parents reported their age, sex, highest level of education, number of people and dependents <18 years living at home.

Dog-related measures

Parents reported whether their family had a dog. Dog walking status was determined by children reporting whether they had taken their dog for a walk in the last week (yes/no) (Cutt et al., 2008b). Children also reported whether they did this activity with an adult (yes/no/sometimes).

Physical activity, play and independent mobility measures

Children's minutes/week of walking and non-school physical activity was measured using parent-reported frequency and duration of vigorous, moderate and sport-related physical activity. Existing items from national physical activity surveys (Milligan et al., 2007) were modified and pilot tested for children (ICC's ≥ 0.6). Sufficient physical activity in children was defined as ≥ 420 min/week of total physical activity (Commonwealth Department Health and Ageing, 2004). Children self-reported whether they went for a walk in their neighborhood, took their dog for a walk, played in the street or played outside in the yard in the last week (percent agreement $\geq 60\%$; yes/no). Accusplit AH120 pedometers (Accusplit, Inc., Livermore, CA, USA) recorded children's step counts. Counts were considered valid if they were between 1000 and 30,000 steps per day (Rowe et al., 2004). Average weekly steps were calculated for children recording steps for at least four days (McCormack et al., 2011; Strycker et al., 2007) as well as the proportion achieving the 12,000 (boys) and 15,000 (girls) steps/day recommended to reduce the likelihood of overweight and obesity (Tudor-Locke et al., 2011).

To determine children's independent mobility behavior, an Independent Mobility Index was computed using questions from both parent and child questionnaires. This index has been described elsewhere (Villanueva et al., 2012a, 2013). Briefly, children were asked if they actively traveled to 15 local activities/destinations (excluding trips to school) in the week prior to the survey (no, sometimes, yes). The activities ($n = 6$) included playing a team sport; swimming; going to a club or youth group; watching sport; music lessons; and catching a bus. The destinations ($n = 9$) included visiting a park, playground or playing field; own friend's house; family/family friend's house; local shop; other shops; post-box; local library (not school library); movie cinema; and Sunday school/church. Parents were also asked if they allowed their child to attend these 15 activities/destinations without an adult (no, yes). An independent mobility score was computed by summing the activities/destinations children actively traveled to and if they were allowed to do so without an adult (range 0–15).

Statistical analysis

Associations between dog walking status and categorical variables were assessed using chi-square tests. Independent sample t-tests were used for continuous variables. Logistic regression was used for multivariate analyses involving categorical outcome variables (sufficient physical activity, walked in neighborhood, played outside in the yard and played in the street) and linear regression for continuous variables (minutes of physical activity and walking outside of school, step counts and Independent Mobility Index score). All models adjusted for child age and sex, parent age, sex and maternal education, number of people and dependents in the household.

Results

Overall, 60% of children had a family dog. The mean age of children who had a family dog was 11 (± 0.8) years, 48% were male and 55% were classified as dog walkers. Forty five percent of children who walked their dog did so without an adult. The mean age of parents was 40.8 (± 5.9) years, the majority were female (88%) and 14% of mothers had a bachelor degree or higher. Parents of children who walked their dog were on average slightly older (41 vs. 40 years) and less likely to be female (86% vs. 92%), compared with parents of non-dog walkers (both $p \leq 0.05$) (Table 1).

Download English Version:

<https://daneshyari.com/en/article/6047194>

Download Persian Version:

<https://daneshyari.com/article/6047194>

[Daneshyari.com](https://daneshyari.com)