

How Far Will People Walk to Facilities in Their Local Neighbourhoods

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Abstract

In recent years, there has been a move toward designing “liveable” communities from a social, economic and environmental point of view. One aim of this design is to create communities in which walking is a feasible mode of transport. In walkable neighbourhoods, residents are within easy walking distance of shops, schools and local services. It has been suggested that these community services would need to be within a 400 meter radius of residents homes – approximately 5 minutes walking time – if they are to be regularly accessed using non-motorised forms of transport. Data on distance walked are limited and are largely based on pedestrian studies conducted in large North American and European cities.

A recent community survey was conducted at The University of Western Australia among 1803 sedentary workers and home-makers aged 18-59 years living in advantaged and disadvantaged SES areas in the Perth metropolitan area. Among other factors investigated, the respondents were asked to specify which destinations they had walked to during the two weeks prior to the survey. Using Geographic Information System (GIS) technology, a road network analysis was undertaken to determine the distance between each respondent’s home and the destination. In this way, the actual distance travelled was determined for a range of community facilities including shops, parks or bushland, river, beach, and public transport.

Some of the other factors that may influence whether an individual will walk to a destination in their neighbourhood that are examined in this study include demographic characteristics – such as age, gender, socioeconomic status, employment status – and the presence of young children in the household.

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In recent years, there has been a move toward designing communities that are more “liveable” from a social, economic and environmental perspective.¹ The underlying objective of these designs is to create liveable neighbourhoods that reduce the dependency on private motor vehicles and that are more energy efficient. In contrast to the urban development designs of the 1970’s and 1980’s that were characterised by low-density housing and motor vehicle oriented sprawl, liveable communities favour high-density housing and dependency on non-motorised forms of transport. It is suggested that earlier developments caused a range of environmental, economic and social problems including pollution; job and housing imbalances; rising land and housing costs; reduced amount of open space; severe traffic congestion; increasing crime rates; and an absence of community life.² Of particular concern has been the over-reliance on cars and the lack of alternative forms of transport, including walking, cycling and public transport.

Public health initiatives in the area of physical activity have recently moved away from an emphasis on the promotion of vigorous activity to that of moderate-intensity activity^{3, 4} including incidental activities such as walking and cycling for transport. One important development accompanying this shift in emphasis has been a focus on changing physical and social environments, such as the neighbourhood where people live, to make them more conducive for walking and cycling.⁵⁻⁷

“Liveable” Communities

To overcome problems related to community design, recent planning principles and practice have focused on the design of communities that are seen to be “liveable”. While these community designs have been labelled with various terms – e.g., “Transit Oriented Design”, “Traditional Neighbourhood Design” and “Urban Villages” – one aim is to develop neighbourhoods that are designed to encourage walking, cycling and the use of alternative forms of transport to the motor vehicle.^{1, 2}

The “liveable” community design has several characteristics that may reduce the reliance on private motor vehicles. These include a compact, mixed land use; a focus on alternative forms of transport; and the creation of diverse communities where walking, cycling and transit are encouraged and, thus, the dependence on the car is reduced.^{1, 2}

Walking Distances

In “liveable” neighbourhoods, the community is designed in a manner that ensures that residents are within easy walking distance from shops, schools and local services.^{2, 8-10} Therefore, the estimation of the distances that people will walk to facilities within their neighbourhoods, including transport stops, is important.

It has been suggested that if community services are to be used regularly using non-motorised forms of transport, they need to be within a 400-meter radius of residents' homes, approximately five minutes walking time.^{1, 2, 11} Major transport stops are said to need to be within 800 meters, approximately ten minute walking time.^{1, 2, 11} Existing data on walking distances are limited and are largely based on pedestrian studies conducted in large North American and European cities. In addition, the data available related to walking distances for Australian cities or for local neighbourhoods is extremely limited. Therefore, the "walkable distance" for residents in Australian local neighbourhoods remains to be determined.

While there are numerous factors thought to influence the distance walked, few studies have investigated these factors in any detail. The data on walking distances in general are limited and that related to walking for different purposes are even more limited. The results of a study conducted at The University of Western Australia in 1995 provide information related to walking in the local neighbourhood and some of these factors.

Method

The study involved the recreational physical activity habits of healthy sedentary workers and homemakers aged 18-59 years. The criteria for exclusion from the study included unemployment; aged over 59 years; those who were physically active in their work; and those with a medical condition that would affect their participation in recreational physical activity. Trained interviewers employed by the Australian Bureau of Statistics (ABS) conducted a random door-to-door survey in a sample area of the Perth metropolitan area during 1995. A cluster method of sampling was used to select 277 collectors' districts – 137 from the 80th percentile and above of the ABS social advantage (called advantaged SES suburbs) and 140 from the 20th percentile and below (called the disadvantaged SES suburbs). This sampling method is described more fully elsewhere.⁷ A total of 929 respondents from the advantaged SES suburbs and 874 from the disadvantaged suburbs participated in the survey.

The survey instrument included 255 items that measured a wide range of factors that affect recreational physical activity as well as physical activity behaviour. The items relevant to this study are those related to the type of destination walked to that the respondent reported walking to in the previous two weeks, the location of the facilities that were used by the respondent, and demographic characteristics. Geographic Information System (GIS) was used to estimate the distance between the respondent's home (the origin) and the destinations walked to by respondents (the destination). Described fully elsewhere⁷, road network analysis was undertaken using Arch Info to estimate the distance between origins and destinations. These distances were measured in meters and were based on the shortest possible route between the origin and the destination.

The data were analysed using SPSS. Logistic regression analyses were used to evaluate the effect of the demographic characteristics on walking distances for the types of destinations walked to: to or from shops, to or from transport, to or from work or study; and somewhere else.

Results

The characteristics of the respondents: almost 70% were female, more than one-half were married or in a de-facto relationship (58%) and did not have children aged under 18 years residing in the household (53%), and the majority always or sometimes had a motor vehicle available (89%). The type of destinations walked to, such as to or from shops and to or from public transport, was examined based on the demographic variables.

Walking Distance

The distances that the respondents walked varied according to the type destination walked to. In addition, the overall distances that the respondents reported walking were assessed based on the demographic characteristics of gender, socioeconomic status, marital status, the presence of children in the household and the availability of a motor vehicle for their use.

Multivariate Analysis

To examine the difference between the types of destination walked to, logistic regression analyses were conducted separately for each destination type.

Discussion

The associations found between the types of destinations walked to and the characteristics of the respondents that were investigated in this study will be discussed.

Type of destination walked to

The types of destinations walked to that were investigated in the study were shops, transport, somewhere else, and work or study. The influence of the factors on the type of walking was examined and will be discussed.

Walking distance

It is suggested in the literature that the distance people would walk to facilities was approximately 400 meters and approximately 800 meters for transport stops. [1, 2, 11] This study examined this hypothesis for the different types of destinations walked to. Other factors that were not investigated in this study may have an influence on the distance walked including the nature of the walking environment, such as the gradient, and the weather conditions. Compared with many other cities, Perth has a moderate climate that does not have extremes and is relatively flat which may influence the longer walking distances. The influence of factors that were examined for associations to the distance walked separately for the types of walking will be discussed.

Conclusion

The factors that influence the distance that residents will walk in their community may be influenced by many factors. While the demographic characteristics of the respondents were examined in this study, other factors related to aspects of the physical environment that may influence walking distances, such as gradient, perceptions of

safety, destination type and climate, were not assessed. These factors need to be considered in future studies.

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