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Comparison of adult physical activity levels in three Swiss alpine communities with varying access to motorized transportation

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Abstract

Study objective: To compare physical activity levels of residents of three Swiss alpine communities with varying access to motorized transport and to investigate whether socio-demographic factors, the settlement structure or means of transport affect these levels.
Methods: Between January and February 2004 a computer assisted telephone interview was conducted with 901 randomly selected adults aged 18 years or older living in three Swiss alpine communities. In particular, information on moderate and vigorous intensity physical activities and on transport behaviour was collected. Respondents were categorized as 'sufficiently active' or 'insufficiently active' according to self-reported physical activity.
Main results: People living in community 1 without access to motorized traffic were significantly more likely to be sufficiently active (Sex- and age-adjusted prevalences of sufficient total physical activity, 43.9% 95% CI: 38.3%–49.8%) compared to individuals living in the other two communities (community 2: 35.9%, 95% CI: 30.6%–41.6%, community 3: 32.7%, 95% CI: 27.5%–38.3%). The differences were due to higher levels of moderate physical activities. Vigorous physical activity levels did not differ between the communities. Community differences were explained by passive means of transport to work and for leisure time activities.
Conclusions: Although the environment encountered in the three alpine communities is generally conducive to physical activity the majority of the participants did not achieve recommended activity levels. Passive mode of transport to work and during leisure time was strongly associated with insufficient total physical activity. Walking and cycling for transportation is thus a promising approach to promote health enhancing physical activity.

Keywords: Physical activity; Mode of transport; Settlement structure

Introduction

Physical inactivity is becoming increasingly prevalent in industrialized countries and is recognized to be a significant risk factor for many common non-communicable diseases (United States Department of Health and Human Services, 1996; WHO, 2004).

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According to the results of the Swiss Health Survey of 2002, 64% of the Swiss adult population do not achieve recommended levels of physical activity (Lamprecht and Stamm, 2005).

Increasing motorization and broad access to cars have contributed to sedentary lifestyle and inactivity, and play a role in the obesity epidemic (Wen et al., 2006). A recent US study reported that each additional hour spent in a car per day was associated with a 6% increase in the likelihood of obesity (Frank et al., 2004). And a cohort of Chinese adults followed prospectively over 8 years showed that men who acquired a motorized vehicle during the time of follow-up had a significantly increased risk of becoming obese (Bell et al., 2002).

A growing body of evidence shows that the physical design of places where people live and work affects their overall travel choices and how much they walk or bike for utilitarian travel (Humpel et al., 2002).

However, research on the role of the physical environment as a potential influence on physical activity behaviours is still very limited (Owen et al., 2004). For many years, behavioural research has focussed on the personal and social factors that can influence physical activity. But recent research increasingly recognized that physical activity behaviours are likely to be strongly constrained and cued by the particular environments in which they take place (Owen et al., 2004).

Alpine resorts are generally considered to be conducive to physical activity and leisure time sports. However, it is not known whether inhabitants of these activity-conducive environments are indeed more active. In addition some alpine resorts in Switzerland are car-free communities and thus provide a good opportunity to investigate whether access to car influences physical activity levels in these resorts. As part of the evaluation of the Swiss National Health Action Plan (NEHAP) (Kahlmeier et al., 2002) self-reported physical activity levels of a representative sample of adults living in three alpine resorts—one being a car-free community—have been investigated.

The study examined (1) whether the number of adults achieving recommended levels of physical activity differed between the three communities and (2) whether socio-demographic factors, the settlement structure of the community or the means of transport for different purposes influence physical activity levels. This is the first study in Switzerland to examine the relationship between physical activity behaviour, mode of transportation and the environment.

Methods

Study population

Three communities located in the canton Valais have been selected for the present study. Community 1 is a tourist resort free of motorized traffic accessed by public transport (train). It has a compact settlement structure of about 2 km of length situated 1620 m above sea level, and belongs to the German speaking part of the canton. Communities 2 and 3 belong to the French speaking part of the canton and are both situated on a plateau about 1500 m above see level. Both communities consist of a central tourist resort and numerous villages that are spread over a spacious area of about 12–15 km of horizontal extension. Access to cars is not limited and both communities are easily accessed by public transport. Communities 1 and 2 are comparable in population size. Community 3 has twice the population size of the other two communities.

The survey participants were randomly selected from the telephone directory of the respective communities from January to February 2004. Eligibility criteria included (1) having permanent residence in one of the communities, (2) being able to communicate in German or French and (3) being 18 years and older. Recruitment continued until 300 individuals per community had completed the survey.

In total, 901 adults aged 18 years and more were telephone-interviewed. The interviews were conducted in the local language (either Swiss German or French).

Interview

Interviewees were asked about physical activity levels, choice of transport mode for different purposes, time spent walking and cycling per day, and number of hikes per month. In addition information about participants' age, sex, nationality, highest education level, and income was collected.

Respondents' amount of physical activity was assessed based on questions from the Swiss Health Survey 2002 and the HEPA Survey 2004 (Stamm and Lamprecht, 2005; Martin, 2002). To measure