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Editorial for the Special Issue on Travel and Well-Being

Pauline van den Berg, Astrid Kemperman, E.O.D. Waygood

Improving quality of life in fast urbanising areas is an important objective for urban planners and policy makers. In the field of transportation, well-being and quality of life have recently attracted increased attention (e.g. Abu-Zeid, 2009; Ettema et al., 2011; De Vos et al., 2013; Olsson et al., 2013). According to De Vos et al. (2013) there are five ways in which travel affects well-being: through experiences during travel, through access to activities that impact well-being, through activities during travel, through trips where travel itself is the activity and through potential travel. Waygood et al. (2017) suggest that transport impacts well-being through three means of influence that are access to activities, the trip itself, and then external impacts of transport (road danger, emissions, noise, etc.). Long and stressful commutes have been found to be related to lower well-being (e.g. Handy and Thigpen, 2019; Ye and Titheridge, 2019). Some consider commute time as wasted time. On the other hand, commuting can have a positive effect on well-being because commuting time provides privacy, a buffer between home and work (Olsson et al., 2013), enjoyment and time for other activities while traveling (Mokhtarian and Salomon, 2001). Travel can affect life satisfaction through access to activities and social interactions (Waygood et al., 2019). Satisfaction with active travel is generally found to be higher than satisfaction with travel by car or public transport. Moreover, active travel is an important contributor to physical activity, which in turn contributes to stress relief and overall health (Stefansdottir et al., 2019).

Different measures have been used to capture subjective well-being of travelers. Subjective well-being refers to satisfaction with life in general. According to Diener et al. (1985) it consists of three components: positive affect, negative affect, and a cognitive component of overall evaluation of satisfaction with life. Ettema et al. (2011) have constructed the Satisfaction with Travel Scale (STS), consisting of nine statements on positive activation versus negative deactivation, positive deactivation versus negative activation and an overall judgement of travel, which has increasingly been used in recent research on travel and well-being. Several studies have indicated that travel satisfaction is associated with life satisfaction (Friman et al., 2017). This underlines the importance of studying determinants of travel well-being. Although the research attention for travel and well-being is growing, empirical studies on the factors influencing subjective well-being of travelers are still limited and often focus on commute trips. This special issue includes ten high-quality research articles that address relationships between personal travel and well-being. Table 1 summarizes the studies in this special issue which cover many new relationships and geographic areas of study.

Several studies in this special issue use the STS as a measure of well-being (de Kruijf et al., 2019; Singleton, 2019; Ye and Titheridge, 2019), though other operationalisations of satisfaction with travel, or travel happiness are used as well (Chen et al., 2019; Handy and Thigpen, 2019; Waygood et al., 2019). In addition, some researchers focus on satisfaction with life in general and how that may or may not relate to one’s travel (Chatman et al., 2019; Waygood et al., 2019). Moreover, other well-being measures were used as well, as well-being is generally considered to have three domains: physical, social, and psychological (Dodge et al., 2012). For instance, Stefansdottir et al. (2019) focus on overall physical activity as a measure of well-being. They used a combination of qualitative and quantitative methods to study how active travel and other physical activities are influenced by built environment.
characteristics. Their findings suggest that residents living closer to the city center tend to travel more by car or on foot. However, suburbanites are found to perform more moderate physical activity during leisure time. Moreover, physical activity appears to be strongly influenced by attitudes.

Table 1: studies in this special issue

<table>
<thead>
<tr>
<th>Study</th>
<th>Methods</th>
<th>Well-being measures</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chen, Fan, Cao and Khattak</td>
<td>Sample: 6719 trip records from the 2013 American Time Use Survey Analysis methods: optimal scale regression, factor analysis and analytic hierarchy process</td>
<td>Travel happiness (ranging from -6 to 6)</td>
<td>The degree of rest and personal health, and social interaction during the trip contribute to travel happiness.</td>
</tr>
<tr>
<td>de Kruifj, Ettema and Dijst</td>
<td>Sample: longitudinal study of 547 participants in an e-cycling stimulation program in the Netherlands Analysis methods: multiple regression analyses</td>
<td>Satisfaction with Travel Scale</td>
<td>Switching from car to e-bike is related to an increase in travel satisfaction. Increase in travel satisfaction is further affected by self-reported health, car ownership, level of urbanisation, experiencing car use or cycling as strenuous and the attractiveness of the cycling route.</td>
</tr>
<tr>
<td>Stefansdottir, Næss, and Ihlebæk</td>
<td>Sample: 33 interviews in Oslo and Stavanger, Norway; survey among 3232 recent movers Analysis methods: qualitative analyses, multiple regression analyses</td>
<td>Time spent on non-motorized travel, time spent on moderate and vigorous physical activity</td>
<td>Active travel decreases with distance from the city center. This is related to a time saving rationale. Suburbanites perform more moderate physical activity during leisure time. Physical activity is strongly related to attitudes (preferences for exercise opportunities in the neighbourhood).</td>
</tr>
<tr>
<td>Waygood, Friman, Taniguchi and Olsson</td>
<td>Sample: survey among 425 children 9-12 years old in Canada, Japan and Sweden Analysis methods: Partial least square structural equation modeling</td>
<td>Travel satisfaction (5-point Likert scale) Life satisfaction (5-point Likert scale)</td>
<td>Satisfaction with travel is associated with life satisfaction. Independent travel is associated to travel satisfaction. Frequency of walking, bus, and car travel is negatively related to travel satisfaction.</td>
</tr>
<tr>
<td>Fioreze, Thomas, Huang and van Berkum</td>
<td>Sample: survey among 1800 employees in Enschede, the Netherlands Analysis methods: descriptive and bivariate analyses</td>
<td>Views and attitudes towards cycling</td>
<td>Most employees consider cycling to be pleasant, healthy and refreshing. Feeling healthy is the most important reason to cycle. Apps to stimulate cycling have potential.</td>
</tr>
<tr>
<td>Friman, Gärling and Ettema</td>
<td>Narrative review of literature</td>
<td>Satisfaction with public transport</td>
<td>A sustainable transportation system needs to complement walking and cycling with an accessible high quality public transport service. Future public transport should increase users' well-being. Several measures to improve public transport are proposed, related to use of public transport, access and egress travel, and the overall trip experience.</td>
</tr>
<tr>
<td>Handy and Thigpen</td>
<td>Sample: Annual Campus Travel Survey among 2703 off-campus students and employees of University of California, Davis Analysis methods: multiple regression analyses</td>
<td>Commute satisfaction (6 statements on 5-point Likert scale) Commute quality (stress, wasted time, mode liking on 5-point scales)</td>
<td>Bicycle and tram commuters report the highest and bus riders the lowest commute quality. All dimensions of perceived commute quality are strongly related to commute satisfaction.</td>
</tr>
<tr>
<td>Singleton</td>
<td>Sample: online survey among 682 working adults in Portland, Oregon Analysis methods: Structural Equation Modeling</td>
<td>Satisfaction with Travel Scale, Travel Affect, Travel Eudaimonia</td>
<td>Walking and bicycling is related to higher travel satisfaction. Next to trip attributes, traveler perceptions are also useful in explaining travel satisfaction. Socio-demographics are less important determinants of travel satisfaction.</td>
</tr>
<tr>
<td>Chatman, Broadbuss and Spevack</td>
<td>Sample: survey among 84 students at 2 points in time, before and after moving Analysis methods: multiple regression analyses</td>
<td>(Changes in) self-reported well-being (“life as a whole”, and “life ladder”)</td>
<td>Increases in number of friends in the neighbourhood, time spent cycling and number of visits on foot positively contribute to well-being. Movers prioritize housing characteristics when moving, while social factors (friends and family in the neighbourhood) and active transport were more correlated with well-being.</td>
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<tr>
<td>Ye and Titheridge</td>
<td>Sample: survey among 1364 employees in Xi’an, China Analysis methods: Tobit model</td>
<td>Satisfaction with Travel Scale</td>
<td>Lower income people report lower levels of commuting satisfaction. Bicycling commuters have the highest level of commuting satisfaction in the higher income group; while commute mode does not affect commuting satisfaction in the lower income group. Congestion and longer commute times are associated with lower levels of commuting satisfaction.</td>
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The paper by Fioreze et al. (2019) provides insight into views and attitudes towards cycling in the Netherlands, often viewed as a “cycling nation”. More specifically they studied the extent to which employees who cycle find cycling pleasant, boring, healthy, stressful, refreshing and exhausting, which can all be considered as measures of psychological and physical well-being. A sample of 1800 employees in the Netherlands participated in their online survey. Their study suggests that cycling to work is considered to be pleasant, healthy, not stressful, and refreshing. Thus, cycling is considered to have health and well-being benefits. Feeling healthy is found to be the most important reason for cycling to work. Moreover, their results suggest that smartphone apps have the potential to stimulate cycling to work, especially for employees who sometimes cycle to work.

Like Fioreze et al. (2019), most other studies also found a positive relationship between active travel and well-being (Chatman et al., 2019; Handy and Thigpen, 2019; Ye and Titheridge, 2019, de Kruijf et al. 2019; Singleton, 2019). For instance, Handy and Thigpen (2019) found that bicycling commuters have the highest commuting satisfaction; Ye and Titheridge (2019) also found this for the high income group; Singleton (2019) found that walking and cycling was related to higher STS, physical and mental health, confidence, positive affect and overall hedonic well-being; Chatman et al. (2019) found that an increase in time spent on cycling and an increase in number of visits to friends and relatives on foot, are related to an increase of well-being after moving; and de Kruijf et al. (2019) showed that commuters experience an increase in travel satisfaction when switching from car to e-bike.

Handy and Thigpen (2019) analysed data from the annual Campus Travel Survey of 2703 students and employees of University of California, Davis living off-campus to study the factors influencing commute satisfaction. Their findings indicate that bicycle and train commuters report the highest and bus riders the lowest commute quality. All dimensions of perceived commute quality (stress, wasted time and mode liking) are found to be strongly related to commute satisfaction. The finding of Handy and Thigpen (2019) that bicycle commuters have the highest commute satisfaction and public transport (bus) commuters have lower levels of satisfaction is in line with other studies. Friman et al. (2019) therefore argue in their narrative literature review for improvement of public transport in terms of well-being, in order to support a sustainable transportation system. This is especially important for non-cyclists, as cycling is not an option for everyone.

One limitation of cycling is the physical effort required, but this can be reduced or eliminated through e-bikes. The paper of de Kruijf et al. (2019) studies the effect of an e-cycling stimulation program on travel satisfaction in the Netherlands. Their results show that switching from car to e-bike is related to an increase in travel satisfaction. An increase in travel satisfaction is further affected by self-reported health, car ownership, level of urbanisation, experiencing car use or cycling as strenuous, congestion and the attractiveness of the cycling route.

Singleton (2019) stressed the value of multi-dimensional measures of travel subjective well-being. The aim of his study is to reveal which traveler and trip characteristics are associated with multi-dimensional measures of subjective well-being. Results show that walking and bicycling scores higher on multiple travel satisfaction constructs, such as positive activation, enjoyment and physical and mental health. However, bicycling also scored higher on distress...
and fear and lower on security, highlighting where policy could be directed to improve uptake. Next to trip attributes, traveler perceptions are also useful in explaining travel satisfaction while socio-demographics are less important determinants of travel satisfaction.

Much research on travel and well-being has come from European and North American studies. Ye and Titheridge (2019) contribute to existing studies on travel and well-being by focusing specifically on low-income populations in China. Their results indicate that lower income people experience lower levels of commuting satisfaction. They find that commute mode does not affect commuting satisfaction in the lower income group, while in the higher income group bicycling commuters have the highest level of commuting satisfaction. Congestion and longer commute times are found to be associated with lower levels of commuting satisfaction.

Most studies on travel satisfaction and well-being have been focused on adults and their commute to work. The relationship between travel and life satisfaction of children remains understudied. Children’s travel is often more local than adults’ travel and hence the neighbourhood environment is likely to play a more important role for children. Waygood et al. (2019) contribute to the knowledge on children’s travel and well-being by analyzing data collected from children aged 9-12 in Canada, Japan and Sweden using structural equation modeling. Results suggest that satisfaction with travel is associated with life satisfaction and that being allowed to travel independently is associated to travel satisfaction of children, and indirectly to life satisfaction. The frequency of walking, bus, and car travel were found to be negatively related to travel satisfaction, while cycling had no measurable influence.

Finally, the paper by Chen et al. (2019) aims to examine the relative importance and hierarchical structure of factors influencing travel happiness. Their results indicate that health and degree of rest are the most important factors, followed by social interaction during the trip.

The papers in this special issue all add to the knowledge on the relationship between active travel and well-being. Findings of these studies can contribute to stimulating well-being during trips, which is related to overall health and quality of life.

Although most studies use a measure for well-being that is related to travel satisfaction, operationalisations turn out to be different. Future work in the field of travel and well-being should aim to derive more consensus on the measurement of well-being in order to compare results of different studies. However, in these early stages, it is also natural to cast the net wide to consider the diverse ways that transport impacts well-being, as highlighted by research in this special issue.

Another direction for further research is the link between perceived and objective characteristics of the built environment, travel and well-being. Although some of the papers in this special issue explicitly take the built environment into account (e.g. Stefansdottir et al, 2019; de Kruijf et al., 2019), the role of the built environment in travel-related well-being is still understudied. Future research could give insight in the way environments could be created that are safe and friendly for walking and cycling is important for stimulating active and ecologically sustainable transport, which in turn will contribute to travel satisfaction and overall health and well-being allowing individuals to thrive.
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