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## Active school travel, attitudes and psychological well-being of children



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### ABSTRACT

The decline in physical activity levels among children emphasizes a need for research on experiences related to children's active travel. The present study investigates the relationship between mode use on school trips and psychological well-being (PWB) of children. Data were collected from 152 primary school children in Lower Austria. The paper-and-pencil survey investigated transport-related attitudes, travel behavior, and children's emotional well-being depending on the travel mode used on their trip to school. Parents' perceptions of their child's travel mode on well-being were also collected in 31 in-depth interviews. Findings suggest that active school travel is positively associated with children's PWB, and that travel-related attitudes towards modes are significantly related to well-being. However, it is difficult to determine the causal direction between the two variables as causal feedback loops can be assumed. Clear results can be obtained for the parental survey: Parents reported strong positive associations between active travel modes and the well-being of their children. More research with bigger sample sizes and higher quality measures should be conducted, including about non-school trips and with longitudinal datasets, to further evaluate the interrelations between children's mode use, attitudes, and well-being and to determine the most successful strategies for increasing active mobility among children.

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## 1. Introduction

Changes in children's travel patterns and associated negative impacts to health and well-being have been a recent subject of research. Current developments show that children's levels of physical activity have decreased to alarming rates. According to the actual report on the situation of young people between 15 and 30 years old in Austria, only 57% fulfil the World Health Organization (WHO) recommendations on health-preserving physical activity (HEPA) (BMFJ, 2016). If only children and teenagers (aged 11–17) are considered, just 17% fulfil the WHO recommendations of one hour of physical activity per day (Ramelow, Teutsch, Hofmann, & Felder-Puig, 2015). In parallel, independent mobility of children has been declining with significant consequences for the physical, social and mental development of children (e.g. Frauendienst & Redecker, 2011; Shaw et al., 2013, 2015). Studies on health-related impacts of children's mobility mainly focus on physical well-being and

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health determinants such as cardiovascular fitness, cholesterol levels, and blood pressure (e.g. Lubans, Boreham, Kelly, & Foster, 2011; Panter, Jones, & van Sluijs, 2008; Schoeppe, Duncan, Badland, Oliver, & Curtis, 2013). Benefits of active travel modes for psychological and social well-being are assumed, but empirical studies measuring these effects for children are still scarce.

Understanding the links between children's active travel behavior and psychological well-being may provide important suggestions for policy-makers on how quality of life in cities can be improved. If a positive interrelation of children's well-being and active travel can be demonstrated, this may also help to sharpen the focus of travel awareness campaigns promoting walking and cycling among young people. In particular, if parents are aware that active travel contributes to the child's (and their own) well-being, it could serve as an efficient incentive for behavior change. Moreover, multiplier effects are to be expected as it is assumed that positive feedback loops exist whereby positive emotions reinforce actions, making people more likely to repeat those healthy behaviors (Ramanathan, O'Brien, Faulkner, & Stone, 2014). In addition to their policy relevance, measurements of well-being can possibly enhance behavioral models (Singleton, 2017).

This paper describes the results of a study of 152 children and 31 parents in Lower Austria, including a descriptive and exploratory analysis of relationships between children's mode use, modal attitudes, and well-being. The analysis—based on in-class surveys of children and interviews with parents—also served as a methodological experiment, which attempted to assess travel-related well-being of children based on self-reports. In this study, children reported their emotions after traveling to school. Thus, this paper focuses on the affective domain of subjective/psychological well-being pertaining a short time frame.

The paper is structured as follows: Section 2 gives a brief overview of different concepts of understanding and measuring well-being, as well as previous research in the field of children's well-being and mode use. Section 3 describes the survey approach and questionnaires. Section 4 presents the results of the descriptive-explorative data analysis. The paper closes with a brief discussion and conclusions on the study methodology and results (Section 5).

## 2. Literature and research questions

### 2.1. Definitions and measurement of well-being

The broad concept of well-being is closely related to, encompasses, or is encompassed by the concepts of happiness, satisfaction, and (health-related) quality of life (QoL).<sup>1</sup> According to several definitions (Patrick & Erickson, 1988; Schumacher, Klaiberg, & Brähler, 2003), health-related QoL is a broad, multi-dimensional construct considering physical limitations, mental (and emotional, spiritual, etc.) states, functional abilities in everyday areas of life, and social interactions. Whereas this QoL concept has been mainly applied in the social sciences and medicine, the focus of this study is on the slightly narrower concept of psychological well-being.

Psychological well-being (PWB) is one of five domains of children's well-being identified in the literature (Pollard & Lee, 2003; Waygood, Friman, Olsson, & Taniguchi, 2017); the others are physical, economic, cognitive (learning-related), and social. Also known as subjective well-being, PWB deals with emotions, stress, affect, happiness, fulfillment, and life satisfaction. Although well-being can be classified in different ways (Nordbakke & Schwanen, 2014), this subjective version of well-being tends to be distinguished into *hedonic* and *eudaimonic* aspects. Following Becker (1994) and Diener (1984, 2000), hedonic well-being has two dimensions: (1) the *affective* component, characterized by a positive/negative emotional state or mood (more short-term), and (2) the *cognitive-evaluative* component, including a more self-aware assessment of general life satisfaction (more long-term). In contrast, eudaimonic well-being represents more high-level aspects such as personal growth, finding purpose or meaning, and self-actualization or achieving one's full potential (De Vos, Schwanen, Van Acker, & Witlox, 2013). Based on these classifications, this study looks at the affective component of hedonic subjective or psychological well-being.

Studies of the connections between transportation, travel, and well-being have become more common in recent years (e.g., De Vos et al., 2013; Delbosc, 2012; Nordbakke & Schwanen, 2014; Reardon & Abdallah, 2013). Many of these studies look at PWB associated with a particular mode or during or immediately after an individual trip; but, in line with multifold measures of well-being and quality of life,<sup>2</sup> different scales and questionnaires exist for measuring this travel-related PWB (Singleton & Mokhtarian, in preparation). One of the most common measures is the Satisfaction with Travel Scale (STS) (Ettema et al., 2011), a nine-item scale of hedonic well-being that reproduces the affective and cognitive-evaluative dimensions.<sup>3</sup> Other more ad-hoc approaches have investigated overall satisfaction with or an affinity for travel in general, specific modes, and recent trips. The latter "travel liking" questions likely measure travel affect, while the former "travel satisfaction"

<sup>1</sup> Many studies exist in the field of health-related QoL of children and adolescents (e.g. Bullinger, 2009; Bullinger & Ravens-Sieberer, 1995; Drotar, 1998; Ravens-Sieberer, 2000).

<sup>2</sup> Examples include: WHOQOL (WHOQOL-Group, 1994), ILK Rating questionnaire (Mattejat et al., 1998); EuroQOL (Kind, 1996); EORTC-questionnaire (Aaronson, Cull, Kaasa, & Sprangers, 1996), Rosenberg Self-Esteem Scale (Rosenberg, 1965), Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988), Scale of Positive and Negative Experience (SPANE) (Diener et al., 2010), Swedish Core Affect Scale (SCAS) (Västfjäll, Friman, Gärling, & Kleiner, 2002), and others.

<sup>3</sup> Westman, Olsson, Gärling, and Friman (2017) used an adapted version of the STS-scale for a survey with children.

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