



# Ethnic groups differences in regard to social networks, daily activity patterns, and driving behavior

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## ARTICLE INFO

### Article history:

Received 29 December 2015

Received in revised form 10 June 2016

Accepted 12 June 2016

Available online 17 August 2016

### Keywords:

Interpersonal ties

Activity patterns

Driving behavior

Speeding violations

## ABSTRACT

Research on the impact of the social environment on travel behavior and driving behavior has proliferated. Yet, the individual-level mechanisms involved remain under-theorized and understudied. Studies usually focus on how drivers are influenced directly through the presence of passengers or indirectly through the norms of relevant social groups. The current study introduces a novel dimension by examining the impact of interpersonal ties on daily activity patterns and driving behavior. We analyze the results of a large telephone survey carried out in Northern Israel ( $n = 517$ ). Respondents include Arabs (58%) and Jews (42%), roughly corresponding to the demographic composition of Northern Israel. The results show that individuals with interpersonal ties characterized with a higher frequency of contacts were less likely to engage in leisure trips outside their community, thus reducing their exposure to high-risk driving environments. We found an inverse association between social interactions and speeding violations, although it was only significant for the Arab group, and inverse association between speeding violations and internal leisure trips for the whole sample. Married persons reported significantly higher social interactions than unmarried persons. Arab women have significantly more social interactions than Arab men, and older Arabs reported higher social interactions than younger Arabs, but no gender or age differences were found within the Jewish group. Finally, men drove for longer periods while women tended to have more complex trips. These results stress the need to make explicit the links between driving behavior models and travel behavior models using social variables.

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## 1. Introduction

The last 15 years have seen a growing interest in the role of the environment in shaping travel choices and driving behavior, usually focused on the built environment (Cervero, 2002; Ewing & Cervero, 2010). The potential influence of the social environment is often recognized but rarely measured, with few notable exceptions (Carrasco & Miller, 2009; Taubman-Ben-Ari & Katz-Ben-Ami, 2012). In particular, the human factor is surprisingly under-theorized, typically limited to economic and/or psychological terminologies focused on perceived trip utility. The current study seeks to shed light on this lacuna by examining the influence of social factors on travel behavior and driving behavior in a single theoretical framework.

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In the traffic safety literature, ‘social environment’ usually refers to the individual’s immediate environment, conceptualized as either the micro social system created in the car while driving, or the perceived norms associated with group membership, most notably the peer group and the family (Allen & Brown, 2008; Fleiter, Watson, Lennon, & Lewis, 2006; Guggenheim & Taubman-Ben-Ari, 2015; Taubman-Ben-Ari & Katz-Ben-Ami, 2012). Both cases are focused on driving quality, particularly safety: they both ask whether the driver drives safely and what factors reduce or improve this performance.

This study examines a neglected element of the social environment, the individual’s social networks. It has been previously shown that daily activity patterns influence the risk for traffic accidents (Elias, Toledo, & Shiftan, 2010). Here we ask whether social networks shape daily activity patterns – main daily destinations, timing, and various trip attributes – and these, in turn, influence overall driving and safety performance. As the term “social networks” is increasingly used to describe relationships formed over social media, we use the more precise term “interpersonal ties” to designate relationships carried out in non-virtual surroundings.

## 2. The social environment, driving behavior and travel behavior

### 2.1. Group memberships and safe driving behaviors

The impact of the social environment on driving behavior is usually examined by studying the association between group memberships and the quality of driving, focusing on safety behaviors. Mead (1934) distinguishes between concrete groups, where the individual is recognized for his/her uniqueness by other members, and abstract groups, where the meaning of membership is mediated via social norms. For example, the family and the peer group are concrete groups, while ‘male culture’ or ‘national characters’ are abstract groups. In addition, it is possible to distinguish between direct and indirect influence on driving behavior. Table 1 provides a rough typology of the interactions between different kinds of groups and routes of influence.

Concrete groups can influence driving behavior, including safety behaviors, directly as a result of the miniature ‘social system’ created in the car. For example, Carter and his colleagues found that teenage passengers often distract teenage drivers (Carter, Bingham, Zakrajsek, Shope, & Sayer, 2014). Teenage drivers are often under pressure from their passengers to engage in risky driving practices, such as speeding or drinking and driving, in order to improve or maintain their social status (Allen & Brown, 2008; Arnett, 2002; Fynbo & Järvinen, 2011). Similarly, having safety-oriented friends can lead to safe and patient driving (Guggenheim & Taubman-Ben-Ari, 2015).

Concrete groups can also influence safe driving behavior indirectly, via how the individual perceives the norms of a particular group. Gustin and Simons (2008) found that having risk-seeking friends can reduce perceived level of risk associated with speeding. Similarly, it has been shown that family norms can influence driving styles: children from families committed to traffic safety, where the parents serve as positive role models, are less likely to develop a reckless or angry driving style compared to children from families without such commitment (Taubman-Ben-Ari & Katz-Ben-Ami, 2012). While the underlying mechanisms are rarely specified explicitly, there is also evidence that membership in abstract groups can influence safe driving behaviors, most notably gender, age, education, income (Shinar, Schechtman, & Compton, 2001) and, to a more limited degree, occupational status (Ross, 1960).

There is often an interaction between membership in concrete and abstract groups. For example, Williams stresses the role of gender, age, and the peer group: young male passengers increase the risk of speeding, while female passengers or older male passengers reduce this risk (Guggenheim & Taubman-Ben-Ari, 2015; Williams, 2003). Similarly, Taubman-Ben-Ari and Katz-Ben-Ami (2012) found that gender matching between a child and a parent influences the likelihood of adopting a particular driving style.

These studies provide ample reason to incorporate the influence of the social environment into driving behavior models. In particular, the indirect influences of friends (Allen & Brown, 2008; Møller & Haustein, 2014; Simons-Morton et al., 2012) and to lesser degree the family (Fleiter et al., 2006) have been consistently found to be significant predictors of whether individuals will drive safely or not. However, in the final analysis, this approach towards the social environment returns to how the individual driver performs as the central variable of interest. The current study seeks to complement these approaches by examining a second-order effect of social interactions, conceptualized as the individual’s interpersonal ties. Our approach follows “institutional individualism”, a weak form of methodological individualism suggesting that while action is only carried out through individuals it is possible to identify social regularities exerting influence independently from the intention of the individuals enacting them (Udehn, 2002).

**Table 1**  
A typology of social environments and their modes of operation.

	Concrete	Abstract
Direct	Driver-passenger(s) ‘social systems’ (e.g., Carter et al., 2014)	–
Indirect	Norms of family/friends (e.g., Taubman-Ben-Ari & Katz-Ben-Ami, 2012)	Cultural influences (e.g., Melinder, 2007; Rundmo, Granskaya, & Klempe, 2012)

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