



# A multidimensional intergenerational model of young males' driving styles<sup>☆</sup>



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## ABSTRACT

This study examines the associations between fathers' driving styles, the family's general and driving-related atmosphere, and the young drivers' motivations, on one hand, and young males' driving styles, on the other. The 242 father and son pairs that participated in the study independently completed several self-report questionnaires at different points in time within the first year after licensure of the young drivers.

A structural equation model (SEM) was developed, in which the contribution of fathers' driving style and their sons' perceptions of the general family relations, the family climate for road safety (FCRS), and costs and benefits of driving, to the driving styles of the young male drivers was examined. The SEM estimation results show direct as well as indirect significant effects between the various dimensions. The FCRS factors of non-commitment and messages, and the cost of thrill, were found to be the strongest mediators between the fathers' driving style and the family cohesion, on one hand, and the driving style of the young driver, on the other. These results may be useful in pointing out directions for the development of interventions that could assist in reducing the involvement of youngsters in risky driving and car crashes, and encourage safe and considerate driving.

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## 1. Introduction

Young drivers all over the world are over-represented in road crashes, especially during their first year of unsupervised driving (e.g. Williams, 2003). This is partially due to their lack of skill and experience and their tendency for risky behavior (Simons-Morton et al., 2011). Over the years, various factors that affect the driving behavior of young drivers have been studied, looking at both internal factors, such as personality and motivations, and external factors such as the influence of parents and peers (OECD, 2006). Most studies have concentrated on one or two such predictors, and examined them at the same point in time. The current study takes a step further by examining the complex contributions of familial general and driving-specific variables, as well as the individual's motivations, to young drivers' driving styles. Moreover, it does so using two generations reporting independently, and a longitudinal

research design measuring the predictors before the measurement of the outcome variable.

The term driving style refers to the way drivers choose to drive or to their habitual driving mode (Elander et al., 1993). Taubman – Ben-Ari et al. (2004) provided a multidimensional conceptualization of driving style, and designed a measurement tool called the Multidimensional Driving Style Inventory (MDSI). The MDSI consists of four broad driving styles: reckless and careless driving style – deliberate violations of traffic laws as well as seeking for sensation and thrill while driving; anxious driving style – alert, but tense driving; angry and hostile driving style – irritation, rage, and hostile attitudes and acts while driving; patient and careful driving style – planning ahead, patience, politeness, and keeping traffic rules. These driving styles were found to be significantly associated with actual driving, as measured by In Vehicle Driving Recorder (Taubman – Ben-Ari et al., 2016).

Young drivers are influenced by the perceived norms and behaviors of parents, their attitudes, involvement, and monitoring (Shope, 2006). Moreover, parents' driving seem to be reflected in that of their offspring (Simons-Morton and Hartos, 2003; Bianchi and Summala, 2004; Lahatte and Le Pape, 2008; Prato et al., 2009; Taubman – Ben-Ari et al., 2005). More specifically, there seems to be an intergenerational gender link, in which fathers affect their sons'

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driving more than mothers (Lahatte and Le Pape, 2008; Miller and Taubman – Ben-Ari, 2010; Taubman – Ben-Ari et al., 2005). Parents influence the driving behavior of their children through modeling, training or supervision (Farmer et al., 2010).

Empirical findings also indicate that lower levels of involvement in risky driving, violations and crashes are associated with young drivers' experience of their families as having higher assets, such as cohesion and adaptability levels (Taubman – Ben-Ari and Katz – Ben-Ami, 2013). In this context, Taubman – Ben-Ari and Katz – Ben-Ami (2013) proposed the concept of family climate for road safety (FCRS), which refers to the views of young drivers regarding the values, perceptions, priorities, and practices of their parents or family related to safe driving. They found that young drivers who perceived their parents to deliver clearer messages, provide more feedback on safe driving, monitor and limit their behavior to a higher degree, and act more as role models themselves tended to report engaging less in reckless driving, and endorse patient and careful driving to a higher degree. As previous studies have shown a connection between general family relations and the specific FCRS on one hand, and associations between FCRS and driving styles (Taubman – Ben-Ari and Katz – Ben-Ami, 2012, 2013), one can argue that the FCRS dimensions may serve as mediators between parents' general characteristics and driving styles, and their offspring's driving style.

The familial general and driving-specific climate may also be reflected in the way young drivers perceive driving, and their various motivations. Motivations are internal factors that affect the driving style of a person, and commonly consist of benefits and costs (Caffray and Schneider, 2000). Benefits, also known as enhancement motivators, of risky behavior include the desires to show off, to achieve self-esteem, personal worth, control, and confidence, to gain a sense of competence and skill, to feel part of a group, and to experience thrill and sensation. Costs include the fear of harming oneself, the concern for significant others, regret for one's behavior, and helplessness, as well as the potential social costs of embarrassment and failure (Taubman – Ben-Ari, 2008).

Taubman – Ben-Ari (2008) found among young drivers, that the perception of driving as an opportunity for thrills encourages reckless driving habits and increases involvement in car crashes; whereas the perceived cost of distress increases involvement in car crashes, the perceived cost of damage to self-image reduces such occurrences. In addition, the benefit of thrill and the cost of annoyance contribute positively to involvement in traffic violations. Thus, counterintuitively, the findings indicated that certain perceived costs of driving, i.e., distress and annoyance, might contribute to higher involvement in reckless driving. She concluded that costs, as well as benefits, may encourage youngsters to take risks when driving, because driving is a convenient outlet for their feelings, conflicts, and ambivalence toward the issues of life and death.

Using a sample with a broader age range, motivations were found to be related also to driving styles (Taubman – Ben-Ari and Yehiel, 2012). The reckless and careless style was predicted by the perceived costs of distress and risk to life, among those with higher education. The angry and hostile style was predicted by perceptions of both control and annoyance among more educated drivers. The anxious style was associated to a view of driving as a cause of distress and annoyance, and, among higher educated individuals, also as entailing more risk to life and as a potential damage to their self-image, whereas among less educated persons as providing more opportunities for impression management. The careful driving style was associated with higher pleasure (especially among younger drivers), but lower thrill seeking and worries about damage to self-esteem. However, to the best of our knowledge, no prior study has traced predictors of these motivations, thus looking at them as potential mediators.

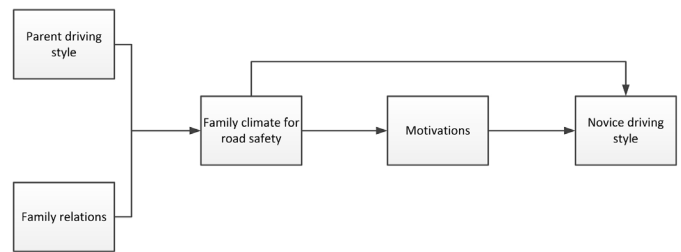


Fig. 1. Theoretical model frame for the factors that affect young drivers' style.

The current study proposes and tests a multi-dimensional model of intergenerational associations between variables, which have previously all been found to be related to the driving styles of young drivers. A structural equation model is developed in order to study the associations between father's driving style and the family's cohesion, on one hand, and the young males' respective driving style, on the other, examining the mediating effects of the family climate for road safety and perceived benefits and costs of driving of the young driver. The hypothesized structure of the connections among these variables is shown in Fig. 1. The model structure starts with the fathers' driving style and the family relations, which are assumed to be well established and stable long before the child begins to drive. Both these are assumed to affect the family climate for road safety that develops as the child turns into a driver. In turn, the family safety climate affects both the motivations for driving of the child and the driving style directly. The motivations, as reflected by the costs and benefits of driving are also directly related to the young driver's driving style. All the variables in this model are latent. They will be indicated by the responses to corresponding scales. We focused on male young drivers and their fathers due to the fact that young men are more involved in risky driving and in crashes compared to young women (e.g., Sagberg et al., 2015; Shinar and Compton, 2004) and that it has been shown, as noted above, that the association between the driving styles of these two is strongest within the family (Taubman – Ben-Ari et al., 2005; Miller and Taubman – Ben-Ari, 2010).

## 2. Method

### 2.1. Participants

The sample was drawn from participants in a larger longitudinal study (that included 12 months of data collection) of young male drivers and their families in Israel (for details, see Farah et al., 2013). Only participants that drove the family car (did not own or use another one) were included in the study. Two hundred and forty-two father-son pairs completed all questionnaires. The young drivers' ages ranged between 17 and 24 years (Mean age = 18.0, SD = 0.8), thus they were either high school pupils or serving in the Israeli Defense Forces. Fathers' ages ranged from 34 to 63 years (Mean age = 50.6, SD = 5.4). 61% of the fathers had an academic degree; 72% reported above average income, 23% average income, and 5% below average. It is worth noting that in Israel, an individual can receive a driving license at the age of 16 and 9 months.

### 2.2. Instruments and procedure

Data was collected over the course of twelve months for each participating family starting with licensure. This included the mandated initial three months of accompanied driving and nine months of teens' solo driving. The following questionnaires were used:

*Multidimensional Driving Style Inventory* (MDSI; Taubman – Ben-Ari et al., 2004) includes 44 items that describe feelings, thoughts, and behaviors while driving on a 6-point scale. It indicates on

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