



## Attitudes toward accompanied driving: The views of teens and their parents

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### ABSTRACT

In Israel, a new driver must be accompanied by an experienced driver for the first 3 months after licensure. In the case of teens, the accompanying driver is usually one of the parents. However, no previous study set to examine the relationship between parents' and offsprings' attitudes toward accompanied driving (ATAD), and the associations between the way parents habitually drive and their offsprings' ATAD. The current study examined the associations between young drivers' ATAD on the one hand, and parents' ATADs, driving styles, and driving history, on the other. One hundred and twenty-nine young drivers completed a questionnaire assessing their ATAD, and their principal accompanying driver completed the same ATAD scale along with the Multi-dimensional Driving Style Inventory. The findings indicate a correspondence between parents' and children's ATAD scores, as well as significant associations between teens' ATADs and their parents' driving styles and involvement in car crashes. Specifically, higher Tension, Relatedness, Avoidance, Disapproval, and Anxiety reported by the young driver were positively correlated with higher reports on the same attitudes by parents. In addition, parents' maladaptive driving styles were positively associated with their offspring's Tension, Avoidance, Disapproval and Anxiety ATADs, whereas parents' careful driving style was related to offspring's higher relatedness and lower negative ATADs. Higher involvement of parents in car crashes contributed significantly to teens' higher Tension, Disapproval, and Anxiety, and lower relatedness. The results are discussed in respect to the relationship between the parental model and the young driver's attitude toward accompanied driving, pointing to the importance of parents' role in promoting young drivers' safety attitudes and behaviors.

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### 1. Introduction

Throughout the world, attempts are being made to deal with the problem of young drivers' higher involvement in motor vehicle crashes (e.g., Williams, 2003; Williams & Ferguson, 2002) by means of formal driver education and graduated licensing (GDL) programs. These efforts, which often include a supervised driving phase, are basically aimed at ensuring that the novice driver has the skills, knowledge, and attitudes that contribute to safe driving (Mayhew, 2007). However, it is important to inquire whether the supervisor's, who is usually one of the parents, own driving habits and their specific attitudes towards supervised driving may limit the potential benefits of these processes.

In Israel, adolescents can begin taking driving lessons at the age of 16.5 years. Driving lessons are given only by professional instructors on dual control vehicles, and learners are only allowed to drive during their lessons. A driving license is issued upon passing theory and on-road driving tests, with the latter requiring a minimum of 28 on-road driving lessons

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and a minimum age of 17. Since the year 2000, all new drivers must be accompanied by an experienced driver for the first 3 months (2 months until November 2004) after licensure. An “experienced driver” is defined as a person over the age of 24 who has held a valid driving license for at least 5 years. There is no minimum requirement regarding the amount of driving time during the accompanied driving phase (ADP), which is determined solely in terms of the length of time that has elapsed since the license was issued. Thus, young drivers may not drive at all during the ADP and still be fully licensed at the end of the 3 month period (Lotan & Toledo, 2007).

Without a doubt, the perception of the accompanied driving period is likely to influence its effectiveness. Taubman – Ben-Ari (2010) recently conceptualized five domains of attitudes toward accompanied driving (ATAD): Tension, which reflects the youngster’s sense of being stressed, angry, irritated, and in constant conflict and disagreement with the accompanying driver; Relatedness, that is, a feeling of companionship and interpersonal closeness and relatedness with the accompanying driver; Avoidance, representing a tendency to prefer not to comply and cooperate with the process of accompanied driving, devoting as little time as possible to it, and finding excuses to avoid it; Disapproval, which relates to a sense of being criticized and expressing criticism and disapproval toward the accompanying driver; and Anxiety, which reflects the tendency to be afraid that something bad might happen as a result of driving with the accompanying driver because of the distraction, distress, or anxiety aroused by his or her presence. A series of four studies showed these factors to have internal reliability and validity and to be useful in explaining variations in maladaptive driving cognitions and behaviors. The correlations found between the five ATAD factors and several motivational aspects and risk assessment further attest to the importance of distinguishing among different ATADs, as the four negative attitudes of Tension, Disapproval, Avoidance and Anxiety were most closely associated with a cluster of reckless driving behaviors demonstrated after the ADP (Taubman – Ben-Ari, 2010).

Despite the advances in driving policy, parents remain the primary enforcers of adolescent driving privileges since they generally control their children’s access to a car (Simons-Morton & Hartos, 2003). However, monitoring a teenager’s behavior and imposing rules and restrictions are not easy tasks, as parents and adolescents spend less time together than they did when the children were younger and might experience higher levels of conflict than in the past (Steinberg, 1990). Nonetheless, it has been found that the more involved the parents are in their child’s driving training, the greater their influence (Lahatte & Le Pape, 2008).

Most research thus far has focused on the period when adolescents are allowed to drive on their own. It has been shown, for example, that during the first year of driving, parental restrictions are negatively associated with young drivers’ rates of risky driving, traffic violations, and crashes (e.g., McCartt, Shabanova, & Leaf, 2003). On the other hand, parents are not as restrictive about risk conditions as they should be (Hartos, Shattuck, Simons-Morton, & Beck, 2004). Williams, Leaf, Simons-Morton, and Hartos (2006) claim that parents have their own views about driving risks, their role in risk management, and the restrictions which should be placed on early driving. The few studies that have examined the nature of these views reveal that parents are concerned about their teens driving under risky conditions, believe they should be closely involved in their children’s driving, and plan to substantially restrict the driving of their adolescent children during the first 3 months after licensure (Williams et al., 2006). Moreover, parents report being strong supporters of graduated licensing programs (e.g., Williams, Nelson, & Leaf, 2002). Although these studies teach us something about parents’ attitudes to teen driving in general, and their view of restrictions on young drivers and GDL programs in particular, less is known about how both parents and youngsters experience this phase, and specifically how they respond to accompanied driving. In addition, little information is available regarding what might influence young drivers’ ATAD and how it is impacted by parents.

A first step in this direction was made in a series of two studies in which Taubman – Ben-Ari (in preparation) found that the five factors on the ATAD scale (Taubman – Ben-Ari, 2010) were related to young drivers’ perceptions of their parents. More specifically, they indicated that young drivers’ ATADs were associated both with perceived parental driving style and with their parents’ general parenting mode. Thus, parents’ risky driving was related to higher Tension, Avoidance, and Disapproval among their children, parents’ angry driving was related to higher Tension, parents’ anxious driving style was related to higher Avoidance, and parents’ careful driving style was associated with lower Tension. In addition, it was found that the more responsive the mother or father is perceived, the lower young drivers’ ATADs of Tension, Avoidance, Disapproval, and Anxiety, and the higher their Relatedness; the more demanding the parent is perceived, the more Avoidance and Anxiety are reported by their children; and the higher the perception of parental autonomy-granting, the lower the Tension, Disapproval and Anxiety of the young driver. These studies therefore provided the first indications of the important role of parents in establishing positive attitudes toward accompanied driving.

Previous studies have also highlighted associations between parents’ driving habits and those of their offspring. Investigations using different self-report measures indicate the intergenerational transmission of driving styles (Bianchi & Summala, 2004; Taubman – Ben-Ari, Mikulincer, & Gillath, 2005), a compatibility between parents’ and children’s risk representations and driving behaviors (Lahatte & Le Pape, 2008), and parents’ involvement in traffic violations and car crashes as a predictor of their children’s involvement in similar incidents (Ferguson, Williams, Chapline, Reinfurt, & De Leonardis, 2001; Wilson, Meckle, Wiggins, & Cooper, 2006). One study which used in-vehicle data recorders to collect behavioral data from young drivers and their parents for a period of 9 months, including the ADP (Prato, Lotan, & Toledo, 2009) found significant correlations between the behavior of young male drivers on one hand, and mothers and fathers, on the other, and between young female drivers and their mothers. Furthermore, the correlations varied over time, with the behavior of the young drivers being most closely related to that of their parents during the 3 months of accompanied driving. The authors suggest that this is due to the young drivers’ motivation to gain the approval and trust of their parents. During the following months, the youngsters’ behavior diverged progressively from that of their parents due to changes in their own driving

patterns. That is, the lower correlations resulted from greater risk taken by the young drivers, especially males, and not from changes in the parents' driving styles.

The extent to which these associations may be due to shared genetics, parental role modeling, or other socializing influences cannot be determined (Bianchi & Summala, 2004). Socializing may be the direct result of parenting attitudes, values, and practices, or may operate through the past influence of parents on the norms of their children and the development of self-control and respect for parental authority and expectations (Simons-Morton, Quimet, & Catalano, 2008). Whatever the dynamics, the question of whether young drivers' ATADs are also influenced by their parents' driving styles and ATADs may have major implications; it may direct intervention efforts at parents, giving them not only practical information about how to supervise, and later on monitor, their young drivers, but also highlight their important role, working with them on attitude and behavioral change.

Thus the literature provides evidence of the importance of parental supervision of teen drivers, the intergenerational transmission of driving styles and practices, more negative ATADs among adolescents who perceive their parents to drive more recklessly, angrily, or anxiously, and an association between more responsive and autonomy-granting parenting styles with more positive ATADs among young drivers. What remains to be examined is how parents perceive the ADP, and how this attitude, combined with parental driving styles and driving history, contributes to young drivers' ATADs.

The aim of the current study was therefore to examine the associations between the views of young drivers and their parents in respect to accompanied driving and to see whether parental driving styles, driving history, and attitudes toward this experience contribute to the way teen drivers view accompanied driving. It was hypothesized that a correspondence would be found between the ATADs of young drivers and their parents. In addition, parents' negative ATADs, non-adaptational driving styles, and involvement in car crashes were expected to contribute to negative ATADs among young drivers.

## 2. Method

### 2.1. Participants

One hundred and twenty-nine young drivers from various geographical areas in Israel, along with the parent they identified as their principal accompanying driver, volunteered to participate in the study. The sample of young drivers consisted of 81 women and 47 men (one participant did not identify his/her gender), ranging in age from 17 to 22 years ( $M = 18.49$ ,  $SD = 1.26$ ), who had held a driving license for 1–22 months ( $M = 6.83$  months,  $SD = 4.05$ ). The parents, 75 fathers and 52 mothers (two participants did not identify their gender), ranged in age from 34 to 62 years ( $M = 49.26$ ,  $SD = 5.95$ ) and had held a driving license for 6–41 years ( $M = 26.27$  years,  $SD = 7.75$ ). They were recruited via a convenience sampling: the questionnaires were distributed to an initial sample of research assistants who were university and college students from all over Israel, who asked friends, acquaintances, and family members who were young drivers to complete the questionnaires together with their principal accompanying driver.

### 2.2. Measures

ATAD was assessed by the *Attitudes toward Accompanied Driving Scale (ATADS; Taubman – Ben-Ari, in press)*, a 23-item scale tapping five domains of ATAD which has previously been used to assess the attitudes of young drivers. In the current study, the scale was completed both by the young drivers and by their parents. On the questionnaire for the parents, the items were phrased to relate to parents' perceptions, but were otherwise identical to the questionnaires completed by their offspring. Each of the five ATAD factors is represented on the scale: *Tension*, 10 items (Cronbach's Alpha = .94, .92, for youngsters and parents, respectively) relating to the tendency to perceive the experience of accompanied driving as distressing and conflictual, and characterized by stress, tension and anger (e.g., "For us, accompanied driving is a battle"); *Relatedness*, 2 items (Cronbach's Alpha = .80, .60, for youngsters and parents, respectively) relating to the perception of accompanied driving as an opportunity to get closer to the accompanying driver/young driver and to better relate to him or her (e.g., "Accompanied driving gave me and my accompanying driver an opportunity to bond in a way we hadn't done in a long time"); *Avoidance*, 3 items (Cronbach's Alpha = .72, .65, for youngsters and parents, respectively) relating to the preference to avoid accompanied driving and to spend as little time as possible in the situation (e.g., "On the whole, I wanted to spend as little time as possible behind the wheel during the accompanied driving period"); *Disapproval*, 4 items (Cronbach's Alpha = .70, .73, for youngsters and parents, respectively) relating to the tendency to receive and express criticism and disapproval during accompanied driving (e.g., "I often expressed criticism of the way my accompanying driver wanted me to drive or the way he/she was handling accompanied driving"); and *Anxiety*, 4 items relating to the tendency to be anxious while driving with the accompanying driver/young driver, or to be afraid of being involved in an accident or making mistakes/causing an accident or doing mistakes, because of his or her presence in the car (e.g., "I was afraid that I might make mistakes on the road because of the stress I felt during accompanied driving"). In the current sample of parents, one of the items (No. 39) lowered the reliability of this factor and was therefore excluded from the calculations. The final reliability coefficients for Anxiety were Cronbach's Alpha = .79, .60, for youngsters and parents, respectively. Participants were asked to rate the extent to which each item fit their feelings, thoughts, and behavior during the accompanied driving period. Responses were marked on a 5-point scale, ranging from 1 (*not at all*) to 5 (*very much*). Scores for each of the five factors were computed by averaging the items in each domain, with higher scores reflecting a higher endorsement of that attitude.

The Multi-dimensional Driving Style Inventory (MDSI, Taubman – Ben-Ari, Mikulincer, & Gillath, 2004) is a validated and reliable 44-item scale assessing four broad domains of driving styles: (1) *Reckless and careless driving style* – 11 items relating to risky and high-speed driving. The items tap the tendency to seek stimulation, sensation, and risk during driving, to take risky driving decisions, and to engage in risky driving. They also refer to the tendency to drive fast and to display signs of time pressure while driving; (2) *Anxious driving style* – 19 items, tapping anxious, dissociative, and distress-reduction driving. The items relate to the tendency to feel distressed when driving, to display signs of anxiety and fear in given driving situations, to express doubt and lack of driving confidence, to commit driving errors as a result of being easily distracted, to display cognitive gaps and dissociation during driving, and to engage in emotion-focused coping activities in order to reduce distress and achieve relaxation and calm while driving; (3) *Angry and hostile driving style* – 5 items relating to the tendency to be hostile toward other drivers, to behave aggressively, and to feel intense anger when driving; and (4) *Patient and careful driving style* – 9 items relating to the tendency to be polite toward other drivers, to feel no time pressure and display patience while driving, to drive carefully, to plan an effective route, and to adopt a problem-solving attitude toward driving-related problems and obstacles. In the current study, this questionnaire was completed only by the parents. They were asked to rate the extent to which each item fit their feelings, thoughts, and behavior when driving, indicating their responses on a 6-point scale ranging from 1 (*not at all*) to 6 (*very much*).

In previous studies (Taubman – Ben-Ari et al., 2004), these factors were found to reflect coherent and meaningful driving styles, and to have adequate internal reliabilities and validity. In the current study, Cronbach's alpha coefficients were .76 for the anxious style, .80 for the reckless style, .76 for the angry style, and .68 for the careful style. Four driving style scores were computed for each parent by averaging the items in each factor, with higher scores reflecting greater endorsement of a specific style by the parent who served as principal accompanying driver.

A *demographic inventory* was used to tap gender, age, length of time the participants has held a driving license (in months for young drivers and years for parents), and parental lifetime involvement in car crashes.

### 2.3. Procedure

The participants (a young driver and his/her accompanying driver) were presented with a packet of five questionnaires: the ATADS for the young driver and for the parent, demographic inventories for each of the participants, and the driving style inventory for the parent. They were asked to complete the questionnaires at their own pace and return them to the researcher, who was waiting for participants to complete them. Participation was voluntary and no incentive offered.

### 2.4. Statistical analyses

Firstly, to assess differences in ATAD scores between young drivers and their own principal accompanying driver, a one-way repeated measure MANOVA was conducted. Secondly, to examine the associations between the ATAD scores of young drivers and their parents, Pearson correlations were computed. Thirdly, to assess the associations between parents' driving styles and their offspring's ATAD, Pearson correlations were calculated. Finally, a series of hierarchical regressions was conducted for each of the ATAD domains to examine the unique contribution of the background variables and parent's ATAD and driving style to the young driver's ATAD.

## 3. Results

A one-way repeated measure MANOVA was conducted to assess differences in ATAD scores between young drivers and their principal accompanying driver, as they belong to the same family unit. The analysis yielded a significant main effect for family member,  $F(5, 123) = 7.03$ ,  $p < .001$ ,  $\eta^2 = .22$ . Following one-way repeated measure ANOVAs were then conducted to examine specific differences in ATAD between the two generations. Table 1 shows the means, standard deviations, and  $F$  test results on the ATAD factors for teen drivers and their principal accompanying driver.

**Table 1**  
Means, SD's and  $F$  scores for ATAD, by family member.

	Teen drivers		Accompanying parents		$F(1, 0127)$
	$M$	$SD$	$M$	$SD$	
Tension	2.07	.87	1.83	.70	13.96***
Relatedness	2.61	1.04	2.93	.86	11.18***
Avoidance	1.93	.82	2.11	.75	4.44*
Disapproval	2.29	.78	2.21	.79	1.65
Anxiety	2.13	.94	1.97	.60	3.54

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

The data in Table 1 reveal significant differences in three of the ATAD factors, with teen drivers reporting higher Tension, whereas parents report higher Relatedness and Avoidance. Although the difference on Anxiety was not significant, it indicated a tendency ( $p = .06$ ) for young drivers to report higher Anxiety than their parents. No difference was found for Disapproval. Another three-way MANOVA for the five ATAD scores was conducted with generation as the repeated measure (teens, parents), and gender of parents (fathers, mothers) and teens (sons, daughters) as independent variables. This analysis did not yield any additional significant results.

Pearson correlations were then computed between the ATAD scores of young drivers and their parents in order to examine the associations between them. The results appear in Table 2.

As Table 2 indicates, moderate to high correlations were found between youngsters and their parents on each of the ATAD factors (.31–.59). Other significant associations also emerged: Young drivers' higher perceptions of Tension and Disapproval were related to higher parental perceptions of Disapproval and Tension, respectively, as well as to a higher parental perception of Avoidance and Anxiety, and a lower parental perception of Relatedness; young drivers' higher perception of Relatedness was related to lower parental perception of Tension and Disapproval; young drivers' higher perception of Avoidance and Anxiety were related to higher parental perception of Anxiety and Avoidance, respectively, as well as to higher parental perception of Tension and Disapproval; and higher Anxiety on the part of young drivers was related to a lower parental expectation of Relatedness.

Next, Pearson correlations were calculated between the four driving styles of the parents and their offspring five ATAD scores. The results are presented in Table 3.

As can be seen from Table 3, among young drivers, Tension was related positively to the reckless, angry, and anxious driving styles of their parents. Relatedness was negatively associated with the reckless and angry driving styles, and positively with the careful driving style. Avoidance and Anxiety were positively associated with the reckless, angry, and anxious styles, and Disapproval was positively associated with the accompanying driver's reckless and anxious driving styles, and negatively with the careful style. In other words, parents' maladaptive driving styles were positively related to more negative ATADs as reported by the teen drivers. Moreover, the careful driving style was inversely related to negative ATADs and positively associated with Relatedness among teens.

Finally, a series of hierarchical regressions was conducted for each of the ATAD domains to examine the unique contribution of the background variables and parent's ATAD and driving style to the young driver's ATAD. In Step 1 of the regression, youngster's age and gender, and parent's age, gender, and involvement in car crashes were entered in a forced order to control for their variance. In Step 2, the parent's ATAD and driving style were entered using a stepwise method, so that only variables showing significant ( $p < .05$ ) contributions were entered in the equation. The results appear in Table 4.

As can be seen from Table 4, in the first regression, the independent variables significantly predicted Tension,  $F(7, 124) = 11.18, p < .001$ , explaining in total 40% of its variance. Specifically, Step 1 contributed 6% of the variance, with only

**Table 2**  
Pearson correlations between the ATADS factors among young drivers and their parents.

Young driver's ATADS factor	Parent's ATADS factor				
	Tension	Relatedness	Avoidance	Disapproval	Anxiety
Tension	.59***	-.25**	.32**	.49***	.24**
Relatedness	-.20*	.39***	-.16	-.29***	-.07
Avoidance	.30***	-.13	.32***	.24**	.22**
Disapproval	.52***	-.21*	.28*	.54***	.22**
Anxiety	.43***	-.27**	.41***	.39***	.31***

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

**Table 3**  
Pearson correlations between Parent's driving style and young driver's ATADs.

Young driver's ATAD	Parent's driving style			
	Anxious	Risky	Angry	Careful
Tension	.25**	.30***	.28***	-.16
Relatedness	-.05	-.21*	-.18*	.17*
Avoidance	.35***	.28***	.37***	-.28***
Disapproval	.22**	.22**	.13	-.18*
Anxiety	.29***	.24**	.29***	-.19*

\*  $p < .05$ .

\*\*  $p < .01$ .

\*\*\*  $p < .001$ .

**Table 4**  
Hierarchical regression coefficients (beta weights) for the prediction of young drivers' ATADs.

	Tension	Relatedness	Avoidance	Disapproval	Anxiety
<i>Step 1</i>					
Young driver's gender	.09	-.12	.01	.19 <sup>*</sup>	-.02
Young driver's age	.03	.18 <sup>*</sup>	.09	.01	.07
Parent's gender	.02	-.03	-.01	-.03	-.06
Parent's age	-.11	.06	-.14	-.13	-.08
Parent's involvement as driver in car crashes with casualties	.23 <sup>*</sup>	-.22 <sup>*</sup>	-.05	.24 <sup>**</sup>	.20 <sup>*</sup>
$\Delta R^2$	.06	.10 <sup>*</sup>	.03	0.10 <sup>*</sup>	.06
<i>Step 2</i>					
Parent's ATAD					
Tension	.58 <sup>***</sup>	-	-	.25 <sup>*</sup>	.45 <sup>***</sup>
Relatedness	-	.34 <sup>***</sup>	-	-	-.26 <sup>**</sup>
Avoidance	-	-	-	-	.27 <sup>**</sup>
Disapproval	-	-.17 <sup>*</sup>	-	.52 <sup>***</sup>	.21 <sup>*</sup>
Anxiety	-	-	-	-	-
Parent's driving style					
Anxious	-	-	.26 <sup>**</sup>	-	.18 <sup>*</sup>
Risky	.17 <sup>*</sup>	-.22 <sup>**</sup>	-	-	-
Angry	-	-	.40 <sup>***</sup>	-	-
Careful	-	-	-	-	-
$\Delta R^2$	.34 <sup>***</sup>	.18 <sup>***</sup>	.21 <sup>***</sup>	.28 <sup>***</sup>	.33 <sup>***</sup>
$R^2$	.40 <sup>***</sup>	.28 <sup>***</sup>	.24 <sup>***</sup>	.38 <sup>***</sup>	.39 <sup>***</sup>

<sup>\*</sup>  $p < .05$ .

<sup>\*\*</sup>  $p < .01$ .

<sup>\*\*\*</sup>  $p < .001$ .

parent's lifetime involvement as the driver in car crashes as a significant contributing variable. Step 2 added 34% to the explained variance, indicating that parents' ATAD of Tension and their risky driving style contributed positively to Tension among young drivers. In the second regression, the independent variables significantly predicted Relatedness,  $F(8, 123) = 5.61, p < .001$ , explaining in total 28% of its variance. The results showed that Step 1 accounted for 10% of the variance, so that the older the young driver and the lower their parent's involvement in car crashes, the higher the youngster's tendency to report Relatedness. Step 2 of the regression added 18% to the explained variance, indicating that the higher the Relatedness and lower the Disapproval reported by the parent, and the lower the parent's tendency to drive recklessly, the higher the youngster's experience of Relatedness during the ADP.

In the third regression, the independent variables significantly predicted Avoidance,  $F(7, 124) = 5.40, p < .001$ , explaining in total 24% of its variance. Whereas Step 1 accounted for 3% to the explained variance, with no significant contribution of the demographics of either the young drivers or their parents, Step 2 added 21% to the explained variance of Avoidance. Specifically, the higher the parents' angry and anxious driving styles, the higher the levels of Avoidance reported by young drivers. In the fourth regression, the independent variables significantly predicted Disapproval,  $F(7, 124) = 10.33, p < .001$ , explaining in total 38% of its variance. Step 1 accounted for 10% of the explained variance, with the young driver's gender and parental involvement in car crashes contributing significantly. Thus, young male drivers experienced higher Disapproval than female drivers, and higher parental involvement as the driver in car crashes was associated with higher reports of Disapproval by young drivers. Step 2 added 28%, indicating that higher Tension and Disapproval on the part of the parents were significantly associated with higher young drivers' reports of Disapproval during the ADP.

Finally, in the fifth regression the independent variables significantly predicted Anxiety,  $F(9, 124) = 7.26, p < .001$ , explaining in total 39% of its variance. Whereas Step 1 contributed 6% to the explained variance with higher parental involvement in car crashes associated significantly with higher reports of Anxiety by the young drivers. Step 2 added 33% to the explained variance, indicating that higher parental ATADs of Tension, Avoidance, and Disapproval and a lower ATAD of Relatedness, as well as a higher tendency to drive anxiously were associated with young drivers' higher experience of Anxiety during the ADP.

#### 4. Discussion

The current study aimed to examine the similarity between attitudes toward accompanied driving as reported by young drivers and their parents. In addition, it sought to uncover the relationship between parents' driving styles and driving history and their children's ATAD. The findings provide evidence of a correspondence between parents' and children's views of the ADP, and the contribution of parental driving styles and driving history to the way young drivers perceive this period.

As predicted, parent's ATAD was positively related to the same ATAD as reported by their teenage child. Moreover, various negative parental ATADs were associated positively with adolescents' negative ATADs and negatively with youngsters' Relatedness. It is important to note that parents and children do not necessarily adopt a given ATAD to the same extent. The

results of the current study indicate that teens experience higher Tension and Anxiety than their parents, whereas parents experience higher Relatedness and Avoidance than their children. Nevertheless, our main concern here was not the prevalence of the various ATADs among different family members, but the link between parents' perceptions and those of their teens.

Significant correlations were also found between parent's habitual driving mode and the young driver's ATAD. Thus, the accompanying driver's tendency for the anxious, risky, or angry driving style was related to higher reports of Tension, Avoidance, Disapproval, and Anxiety by the child during the ADP. In contrast, a higher tendency for the careful driving style was related to less experience of negative ATADs by young drivers. This means that the parent's regular driving behavior is reflected not only in the adoption of a similar driving style by their teen, as evidenced in previous studies (Bianchi & Summala, 2004; Ferguson et al., 2001; Prato et al., 2009; Taubman – Ben-Ari et al., 2005; Wilson et al., 2006), but also in the young driver's attitude to the critical accompanied driving period, which is meant to be a key factor in ensuring safer driving practices once the youngsters are allowed to drive on their own. When we call on parents to monitor and supervise their children's early driving, we should be aware that their habitual modes of driving may limit the chances of achieving the desired outcome from this process.

This is an important point, as previous studies (Taubman – Ben-Ari, 2010) have shown that accompanied driving which is characterized by the negative attitudes of Tension, Disapproval, and Avoidance may be a precursor of later reckless driving. It was found that the more negatively accompanied driving is perceived, the less careful and courteous youngsters assess themselves as drivers. On the other hand, lower attitudes of Disapproval and Tension among young drivers were found to be related to a higher perception of reckless driving as risky (Taubman – Ben-Ari, 2010).

The results of the hierarchical regressions provide further support for the contribution of parents' driving styles and ATADs to their children's ATADs, since at least one parental driving style and one parental ATAD contributed to almost each of the ATADs factors among the youngsters. Moreover, the regressions highlighted the significant effect of parental involvement as the driver in car crashes with casualties: higher involvement was associated with teens' higher Tension, Disapproval, and Anxiety, and with their lower Relatedness. Thus, it is not only parents' driving styles or the attitudes that matter. Children apparently pay attention to the results of their parents' behavior as well.

Some limitations of the current study should be noted. First, the study relied solely on self-report measures which may be biased by social desirability and by recall biases as the sample consisted on individuals with driving experience from 1 to 22 months. Although our main purpose here was to examine attitudes, future studies might attempt to find support for subjective reports by the use of more objective measures, such as observation of the accompanied driving process. Secondly, the young drivers in our sample had not had a driving license for very long, making it impossible to collect data about risk indices such as involvement in car crashes. Investigations conducted just after the ADP and again some years later would allow for the inclusion of this important outcome variable and shed light on the long-term consequences of ATAD. Thirdly, although the design of the study was correlational, the findings are discussed in terms of causality as it was assumed that parents influence their children's attitudes and behaviors. This assumption should be treated with caution, since it is also possible that the teens' attitudes influence their parents' perceptions of the ADP. Future studies might seek to elucidate the nature of this intergenerational relationship and elaborate on the role that different personal and personality traits might play in the association between parents' and children's ATADs. Future studies could also offer answers to such questions as whether teens and parents with more favorable attitudes towards accompanied driving had actually more hours of accompanied driving. Finally, a convenience sampling was used for the study. Although it appears that the ATADs characteristics in the current study resemble those of other studies, some of which based on representative samples (Taubman – Ben-Ari, 2010), future investigations should make an effort to examine this issue in representative samples.

These limitations notwithstanding, the correlations found here between the five ATADs factors among young drivers and their parents and the associations between parents' driving styles and driving history and their children's ATAD indicate the importance of the model parents provide to their children, and attest to the importance of the current study. Children tend to model their parents from early childhood on, accommodating their behavior to what they understand to be the norm in their family. When they embark on the ADP, they may integrate what they have learned over the years into a negative or positive attitude toward driving safely in general, and accompanied driving in particular, and may ultimately pattern their driving on the legitimate mode in the family. Although peers have a strong influence in this phase in life, parents represent a key factor in promoting positive adolescent behavior (e.g., Haggerty, Fleming, Catalano, Harachi, & Abbott, 2006), and protect them from crashes (Ginsburg, Durbin, García-España, Kalicka, & Winston, 2009). It is parents who should provide the basis for telling right from wrong, for indicating normative careful vs. risky behavior, and for consistency between verbal messages and actual behavior. Parents should therefore be encouraged to fulfill their obligation to guide, set rules, and monitor their teens' early driving by modeling safe driving and positive attitudes. Indeed, it has been found for example in the United States, that relative to a comparison group, parents and teens involved in the Checkpoints Program reported significantly greater limits on high-risk teen driving conditions, and teen reported significantly less risky driving and traffic violations (Simons-Morton, Hartos, Leaf, & Preusser, 2006). In Israel, a study evaluating Green Light for Life, a novel program targeting both young drivers and their parents in an effort to ensure the effectiveness of the accompanied driving phase, indicated that program participants showed more positive views regarding the accompanied driving phase and were less involved in car crashes than non-participants (Taubman – Ben-Ari & Lotan, submitted for publication). What is more, the accompanied driving period might be a crucial opportunity for parents to reexamine their own driving styles and attitudes for the benefit of all members of the family, and society at large as well.

## References

- Bianchi, A., & Summala, H. (2004). The genetics of driving behavior: Parents' driving style predicts their children's driving style. *Accident Analysis and Prevention*, 36, 655–659.
- Ferguson, S. A., Williams, A. F., Chapline, J. F., Reinfurt, D. W., & De Leonardi, D. M. (2001). Relationship of parent driving records to the driving records of their children. *Accident Analysis and Prevention*, 33, 229–234.
- Ginsburg, K. R., Durbin, D. R., García-España, J. F., Kalicka, E. A., & Winston, F. K. (2009). Associations between parenting styles and teen driving, safety-related behaviors and attitudes. *Pediatrics*, 124, 1040–1051.
- Haggerty, K., Fleming, C., Catalano, R., Harachi, H., & Abbott, R. D. (2006). Raising healthy children: Examining the impact of promoting healthy driving behavior within a social development intervention. *Preventive Science*, 7, 257–267.
- Hartos, J. L., Shattuck, T., Simons-Morton, B. G., & Beck, K. H. (2004). An in-depth look at parent-imposed driving rules: Their strengths and weaknesses. *Journal of Safety Research*, 35, 547–555.
- Lahatte, A., & Le Pape, M. (2008). Is the way young people drive a reflection of the way their parents drive? An econometric study of the relation between parental risk and their children's risk. *Risk Analysis*, 28, 627–634.
- Lotan, T., & Toledo, T. (2007). A novel program to enhance safety for young drivers in Israel. In *Proceedings of the 14th international conference on road safety on four continents, Bangkok, Thailand*.
- Mayhew, D. R. (2007). Driver education and graduated licensing in North America: Past, present, and future. *Journal of Safety Research*, 38, 229–235.
- McCartt, A. T., Shabanova, V. I., & Leaf, W. A. (2003). Driving experience, crashes, and traffic citations of adolescent age beginning drivers. *Accident Analysis and Prevention*, 35, 311–320.
- Prato, C. G., Lotan, T., & Toledo, T. (2009). Intra-familial transmission of driving behavior: Evidence from in-vehicle data recorders. Paper presented at the 88th Annual meeting of the Transportation Research Board, Washington, D.C.
- Simons-Morton, B. G., & Hartos, J. L. (2003). Improving the effectiveness of counter measures to prevent motor vehicle crashes among young drivers. *Journal of Health Education*, 34, S57–S61.
- Simons-Morton, B. G., Hartos, J. L., Leaf, W. A., & Preusser, D. F. (2006). The effect on teen driving outcomes of the Checkpoints Program in a state-wide trial. *Accident Analysis and Prevention*, 38, 907–912.
- Simons-Morton, B., Quimet, M. C., & Catalano, R. F. (2008). Parenting and the young driver problem. *American Journal of Preventive Medicine*, 35, 294–303.
- Steinberg, L. (1990). Autonomy, conflict, and harmony in the family relationship. In S. Feldman & G. Elliot (Eds.), *At the threshold: The developing adolescent* (pp. 255–276). Cambridge: Harvard University Press.
- Taubman – Ben-Ari, O. (in preparation). Attitudes toward accompanied driving and perceived parental characteristics among young drivers.
- Taubman – Ben-Ari, O. (2010). Young drivers' attitudes toward accompanied driving: A new multidimensional measure. *Accident Analysis and Prevention*, 42, 1009–1017.
- Taubman – Ben-Ari, O., & Lotan, T. (submitted for publication). The contribution of a novel intervention to enhance safe driving among young drivers in Israel.
- Taubman – Ben-Ari, O., Mikulincer, M., & Gillath, O. (2004). The multidimensional driving style inventory – Scale construct and validation. *Accident Analysis and Prevention*, 36, 323–332.
- Taubman – Ben-Ari, O., Mikulincer, M., & Gillath, O. (2005). From parents to children – Similarity in parents and offspring driving styles. *Transportation Research Part F: Traffic Psychology and Behavior*, 8, 19–29.
- Williams, A. F. (2003). Teenage drivers: Patterns of risk. *Journal of Safety Research*, 34, 5–15.
- Williams, A. F., & Ferguson, S. A. (2002). Rationale for graduated licensing and the risks it should address. *Injury Prevention*, 8(Suppl. II), ii9–ii16.
- Williams, A. F., Leaf, W. A., Simons-Morton, B. G., & Hartos, J. L. (2006). Parents' views of teen driving risks, the role of parents, and how they plan to manage the risks. *Journal of Safety Research*, 34, 835–842.
- Williams, A. F., Nelson, L. A., & Leaf, W. A. (2002). Responses of teenagers and their parents to California's graduated driving licensing system. *Accident Analysis and Prevention*, 36, 323–332.
- Wilson, R. J., Meckle, W., Wiggins, S., & Cooper, P. J. (2006). Young driver risk in relation to parents' retrospective driving record. *Journal of Safety Research*, 37, 325–332.