

Work-family Conflict, Perceived Stress and Intention to Commit Traffic Violations: A Model Guided by The Theory of Planned Behavior

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ABSTRACT

Despite the importance of traffic violations in relation to road safety, little is known, however, about the link between stress particularly work-family conflict and violations behaviors. This study assessed the predictive effect of the theory of planned behavior (TPB) constructs and additional predictors to account for drivers' intentions to commit three specific driving violations: speeding, overtaking in dangerous situations and running red light. This study also extended the theory by adding stress factors (work-family conflict, perceived stress) to assess their influences on the traffic violation intentions. A sample of Malaysian drivers (N = 482; (44.6) males and (55.4%) females), with the average age of 36.7 (SD =10.0) was surveyed with a questionnaire constructed to measure TPB components (attitude, perceived behavioral norm; PBC, subjective norm), stress measures (work-family conflict, perceived stress), additional predictors (past violation behavior and anticipated regret) and behavioral intentions. Results showed that TPB provided a significant prediction of speeding, running red light and overtaking (43%, 55%, and 47% respectively) with subjective norm construct was the most predictive variable, followed by the PBC. The addition of past behavior and anticipated regret produced small amount of variance explained. No association was found perceived stress and work interference with family (WIF) and violation intentions. Family interference with work (FIW) significantly predicted speeding intention, indicating that as FIW increased, intention to avoid speeding weakened. Mediation analyses confirmed that FIW was related to speeding and overtaking intentions through attitude component. Of demographic variables, gender and age were significant predictors of intention to commit traffic violations. Practical implications of the findings for work-family roles and road safety are discussed.

Keywords: *Theory of planned behavior, work-family conflict, traffic violation intentions.*

1. INTRODUCTION

According to WHO [1], the global rate of traffic death continues to rise steadily, accounting for 1.35 million death each year while between 20 and 50 million people suffer non-fatal injuries and disabilities. Driving violation is a common form of law breaking found as the contributing factor for traffic accidents [2]. This would highlight the need to understand what triggers or motivates the commission of driving violations. Previous studies have considered socio-cognitive determinants, within the Theory of planned behavior as a strong theoretical foundation for predicting intention to commit driving violations [3-6]. However, the literature still lacks of view whether stress factors including work-family conflict would relate to the intentions to perform such behaviors. With the aim to expand our understanding

on traffic violations, in particular of speeding, running red light and dangerous overtaking, the present study examines the application of the TPB within the stress and work-family literature.

The Theory of Planned Behavior model (TPB, [7]) is one of the most widely applied theoretical frameworks within the health behavior context. An underlying assumption of the TPB is that behavioral intention predicts behavior. Behavioral intention reflects individual's motivation to perform that particular behavior based on by his/her efforts and planning. In the TPB, behavioral intention is a function of three independent determinants: attitudes, subjective norms and perceived behavioral control (PBC) over the behavior. Attitude refers to favourable or unfavourable attitude toward the behavior, subjective norm is defined as individual's

perception whether important people would approve or disapprove the behavior, while PBC refers to the perceived ease or difficulty of performing the behavior. Within traffic literature, the TPB model has been cited to explain a range of safety behaviors and intentions on the road with the view to identify the modifiable determinant of motivation behind driving can better guide the development of road safety interventions. There are increasing number of studies that have demonstrated the contribution additional variables on intentions and behaviors, even after the TPB have been taken into account [8]. Two additional variables were examined in the present paper: past behavior and anticipated regret. Past research showed that the addition of anticipated regret [9] and past behavior [4] significantly improve the prediction of intentions traffic violations.

The issue of the impact of stress on driving behavior has attracted increasing attention in recent years in transport literature [10-12]. Ge et al. [10], for instance, found that the general perception of stress derived from ongoing life circumstances and expectations concerning future events was significantly correlated with dangerous driving behavior. Despite the importance of traffic violations in relation to road safety, however, very few studies have examined the role stress factors including work-family conflict within the context of violations behaviors. Work family as defined by Greenhaus and Beutell [13] is “a form of inter-role conflict in which the role pressures from the work and family domains are mutually non-compatible”. Most research has recognised the bidirectional and conceptually distinct of two forms of conflict [14]; in a form of the work domain that interfere the family domain (work interference with family; WIF) and family demands that interfere the performance in the work domain (family interference with work; FIW). It was argued that both stress extraneous to the driving environment and stress directly elicited by driving must be considered part of a dynamic system that may have a negative impact on driving behaviors [12]. The focus of potential effect of work-family conflict on direct effect on road safety and particularly applicable in understanding traffic violations was driven by the notion that most research concerning work-family conflict research has on time pressure and psychological strain perspectives [15]. Hence, this study extends previous studies to explore the possible influence work-family conflict (WIF, FIW) and perceived stress on traffic violation intentions.

As a theory of the proximal determinants of behaviors, the TPB is considered to mediate the

influence of distant factors and other psychological factors [16]. Increasingly, previous studies [17-20], have linked the TPB with psychological stress, indicating that stress factors have impact on attitudes, control and beliefs to understand various types of intentions and behaviors. Such studies have provided insight suggesting that the socio-cognitive model should be expanded to include psychological stress to explore the mechanisms that may transmit the effect of stress on intention and behavior. Until now, no attention has been paid to examine such framework within the field of aberrant driving behavior and traffic violations. Because stress factors have the ability to disrupt the cognitive components including changing attitudes and lowering control [19], it is possible that attitude and PBC play the role as important mediators, this study examines whether both TPB constructs mediate the relationship between stress (perceived stress, WIF, FIW) and violation intentions.

To summarise, the aims of the present study are:

- 1) to examine intention to violate (speeding, running red light, overtaking in dangerous situations) using the TPB model, and additional variables of anticipated regret and past violation behaviors.
- 2) to assess the unique effect of stressors, namely WIF, FIW and perceived stress.
- 3) to explore the mediating effects attitude and PBC of TPB construct in the relationship between stressor and violation intentions.

2. METHOD

2.1. Sample

Participants were recruited through a convenience sampling procedures. For this study data from 482 participants were analysed. There were 215 (44.6) males and 267 (55.4%) females. The average age 36.7 years (SD = 10.0 years), ranging from 18 to 60 years old. Majority of the respondents were married (75.5%). With respect to their driving, half of the participants reported driving less than 30 minutes to work, will 33.4% of them took within 1 hours to commute to work.

2.2. Measures

A structured questionnaire was used to collect data for the proposed study contained the following measures:

2.2.1. Demographic information.

Age, gender, marital status, number of children were compiled for each participant.

2.2.2. Components of Theory of Behavior

Theory of Planned Behavior components were measured in relation to 3 types of traffic violation; speeding, overtaking in risky situations, running red lights. The basic component of the TPB were measured using standard questions from the literature [21]. All items were measured on 5-points response scales. Attitudes towards violation intention were measured using four semantic differential items. The participants were asked whether the target behavior would be (*foolish- wise; not enjoyable- enjoyable; harmful- beneficial; unpleasant – pleasant*). Subjective norms were measured using 2 items consisted of the statement, “e.g., Most people who are important to me think I should refrain from driving above the posted speed limit” (*strongly disagree – strongly agree*). PBC was assessed using two items “e.g., How difficult is it to refrain from driving above stated speed limit when you are really in a hurry” (*very easy – very difficult*). Past behaviors were measured by two items “e.g. During the past, I frequently drove above the posted speed limit” (*strongly disagree – strongly agree*). Anticipated regret was measured by one single item “e.g. I will feel regret if I drive more than the above stated speed limit” (*strongly disagree – strongly agree*). Intention was assessed using two items “e.g. I intend to refrain from driving above the posted speed limit over the next two weeks” (*strongly disagree -strongly agree*).

2.2.3. Stress Measures

Work-family conflict was measured using scales based on Carlson et al. [22]. The scales assess the directions of the conflicts (i.e., WIF and FIW) capturing time and strain based work-family conflict. Twelve items were used, with each subscale measured by three items scored on a 5-point Likert-type scale ranging from (*strongly disagree-strongly agree*), where higher scores indicate greater conflict. The Perceived Stress Scale [23] was used to measure the perception of stress over the past month. An abbreviated version of PSS was used which contained 10 items with rating scale (*never- very often*).

3. RESULT

To examine most relevant predictors of different violation intentions, multiple regression analyses were conducted, that are presented in Table 1 and Table 2.

3.1. Predicting avoiding speeding intention

As can be seen in Table 1, demographic variables accounted for a significant proportion of the variance in speeding intention ($\Delta R^2 = 0.02$, F change (3,384) = 3.26, $p < .05$), indicating gender as a significant predictor. Examination of the means for speeding intention showed that male drivers reported lower intention to avoid speeding ($M = 10.20$, $SD = 3.26$) than female drivers ($M = 11.12$, $SD = 3.00$). At step 2, TPB variables explained 43% of the variance, with injunctive, descriptive norms and PBC were significant (F change (5,379) = 61.51, $p < .001$). At step 3, entry of WIF, FIW, perceived stress, regret and past violation explained a further 1% of variance (F change (5,374) = 2.30, $p < .05$), indicating that FIW as a significant predictor.

3.2. Predicting avoiding running red light intention

At Step 1, the demographic variables were able to explain 4 % of the variance in behavior (F change (3,394) = 6.38, $p < .001$), with age emerging as significant independent predictor (see Table 1). The addition of TPB variables at Step 2 produced a further improvement of the model ($\Delta R^2 = .55$; F change (5, 389) = 77.22, $p < .001$). Examination of beta weights indicated that cognitive attitude and injunctive norm had significant beta weights at this step. The addition of perceived stress, WIF, FIW, anticipated regret and past behavior at Step 3 led to a substantial increase in the amount of variance explained in intention ($\Delta R^2 = .02$, F change (5,384) = 4.36, $p < .001$). Anticipated regret and past behavior were significant predictors at this step.

3.3. Predicting avoiding overtaking in dangerous situation intention

Table 2 showed that gender was significant at Step 1 and accounted for 4% of the variance (F change (3,392) = 5.90, $p < .001$). Examination of the means for overtaking intention indicated that female sample ($M = 11.41$, $SD = 2.98$) tended to report stronger intention to avoid overtaking than male sample ($M = 10.23$, $SD = 3.40$). At Step 2, injunctive and descriptive norms were significant predictors, accounted for 47% of the variance (F change (5,387) = 107.69, $p < .001$). At step 3, only anticipated regret reached significance level. The increment in variance attributable to additional predictors was 2% after TPB variables had been controlled (F change (5,382) = 5.12, $p < .001$).

3.4. Mediation analyses

indirect effect of -0.0739 , $z = -0.741$, $p < .05$, supporting for partial mediation. The indirect effect is

Table 1. Regression of speeding and running red light intention on demographic, TPB variables and stress measures

Step	Predictors	Speeding intention			Running red light intention		
		Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
1	Gender	.12*	.03	.00	.09	.03	.06
	Age	.02	.02	.03	.18***	.03	.01
	Marital Status	.07	.01	.01	.06	.01	.00
2	Cognitive attitude		.12*	.11		.19**	.18**
	Affective attitude		.03	.01		.00	.00
	Injunctive norm		.53***	.50***		.61***	.58***
	Descriptive norms		.13**	.12**		.04	.03
	PBC		.12**	.10*		.08*	.04
3	WIF			.08			.02
	FIW			-.10*			-.03
	Perceived stress			.02			.06
	Anticipated regret			.09*			.07*
	Past behavior			-.08			-.14***
	R ²	.02*	.46***	.48*	.04***	.60***	.62***
	ΔR ²	.02*	.43***	.01*	.04***	.56***	.02***

To test the mediating effect of attitude and PBC of the TPB constructs, mediation analyses were conducted. Baron and Kenny [24] suggested that there are four steps in establishing a significant mediation effect. Firstly, there must be a significant relationship between the predictor and the outcome. Secondly, the predictor must be significantly related to the mediator. Thirdly, the mediator should be significantly related to the outcome variable. Finally, there is a significant mediation effect when the relationship between the predictor and the outcome becomes significantly weaker (partial mediation) or non-significant (full mediation), after the inclusion of the mediator. The bootstrapping method based on 5000 samples was used to assess the indirect effects with multiple mediators [25]. This method is also used to determine specific indirect effects, which are the most important among potential mediators being examined. In this study, perceived stress, FIW and WIF were specified as independent variables, TPB constructs (attitude, PBC) as the mediators, and the intentions served separately as the dependent variables. Of note, only significant mediating effects are reported in this article.

First, the results support the fact that both affective and cognitive attitudes act as mediators, with the

estimated to lie between $-.1379$ and $-.0080$ based on 95% BCA bootstrap CI. Two significant mediators were found; cognitive attitude (path= $-.0114$; 95% CI = $-.0314$ to $-.0006$) and affective attitude (path= $-.0625$; 95% CI = $-.1231$ to $-.0030$).

Next, with regard to the effect of FIW on overtaking intention, full mediation model was supported with an indirect effect of $-.1304$, $z = -1.312$, $p < .05$ and a 95% BCa bootstrap CI of $-.1981$ to $-.0692$. Two significant mediators were found; cognitive attitude (path= $-.0158$ 95% CI = $-.0350$ to $-.0047$), affective attitude (path= $-.1135$ 95% CI = $-.1774$ to $-.0609$).

3.5. Discussion

A key area of import within this study is to examine the extent to which the socio cognition variables within TPB framework and stressors of WIF, FIW, and perceived stress predict intention to violate traffic rules. Of particular interest, the study also examined the mediation effects of the direct measures of attitude and PBC in the relationship between the stressors and traffic violation intentions. Overall, the TPB variables were found to be the most important and consistent predictors compared to the stress measures and additional variables included in the study. Furthermore, the role of socio-cognitive

variables in predicting violation intentions was relatively strong. Specifically, the TPB model was found to explain 43%, 55% and 47% of variance in speeding, running red light and overtaking intentions. Hence, the observed effects were the same as the previous studies [3,6] suggesting that the TPB variables explained 47% of the variance with regard to speeding intention. In case of dangerous overtaking other studies reported slightly lower effect; 33% [4] and 31.7 [6]. Regarding the predictive effect of TPB variables, normative constructs (injunctive norm and descriptive norm) were found to exhibit strongest relations with violation intentions. After subjective norm, PBC was important predictor compared to attitude. In particular, the current study found normative component was important predictor of intention for all three violations, supporting previous studies on traffic violations [3, 26, 27]. The findings of Forward et al. [3] showed that norm as important determinant in understanding the difference between traffic violators and non-violators. Hence, it seems reasonable that, as noted by Parker et al. [6], perceived expectations of others is important source of influence in case of driving violations compared to other cognition variables partly because driving behavior is more or less a social performance and one's action is likely to have important implication on others.

The notable predictive effects of anticipated regret across the three intentions should be mentioned. This supports studies that found the addition of anticipated regret yielded statistically significant increases in explained variations in behavioral intentions

regarding risky behaviors [28,29] reflecting the fact that regret seems to be important with regard to intention formation of unsafe behaviors. Current study found little support for the predictive effect of past behavior, as the trend was only observed in the case of running red light. While previous studies have reported independent effects of past behavior on intention [30], it is argued that past behavior may influence intention future behavior only when the past experience had been positive [3].

Of the stress measure considered, only FIW was found to significantly predict speeding intention. Specifically, the standardised regression coefficient was negative, indicating that, as FIW increased, intention to avoid speeding weakened. Given the dearth of research on the relationship between work-family conflict and driving, it is still unclear why such a result emerged. Based on time-resource perspective, it seems plausible to assume that the perception of time scarcity [31] could increase drivers' involvement in speeding, as holding multiple roles may compete for a person's time. This may partly due to engaging in family roles (e.g., arranging children's school schedules) tends to be less structured and formalised, time in paid work is a fixed resource. This reinforces the finding of previous reports indicating saving time is the most prevalent reason for traffic violations under time pressure [32]. A study [3] reported that people who involved in speeding believed that the consequences related to perceived gains of involving in such violations including taking them to the destination faster, rather than perceived negative outcomes such as traffic

Table 2. Regression of overtaking in dangerous situation intention on demographic, TPB variables and stress measures

Step	Predictors	Overtaking in dangerous situations intention		
		Step 1	Step 2	Step 3
1	Gender	.17**	.07*	.05
	Age	.09	.00	.00
	Marital Status	.06	.05	.03
2	Cognitive attitude		.08	.06
	Affective attitude		.07	.04
	Injunctive norm		.53***	.44***
	Descriptive norms		.11**	.11**
	PBC		.09*	.02
3	WIF			.03
	FIW			-.03
	Perceived stress			-.01
	Anticipated regret			.16***
	Past behavior			-.05
	R ²	.04***	.52***	.55***
	ΔR ²	.04***	.47***	.02***

accidents. Similarly, another study [33] found that time pressure affects all drivers' intentions to violate traffic rules. While the current study provides insights into the effects of family roles on violation intention, future research is needed to confirm these findings and explore the rationale for the direction of work-family conflict to predict violation intentions and behaviors.

This study proposed integrated analysis of the mediating role of TPB constructs in stressor-violation intentions relations, with the assumption that the effects of stressors on intentions are accounted for within TPB framework. The effects of FIW on intentions were fully (or at least partially) mediated by attitudes. In particular, responses to higher levels of FIW led to decrease intention to avoid speeding and dangerous overtaking through changing attitude. On this basis it was concluded that FIW influences violation intentions indirectly through affecting the attitudinal determinants of the violation behavior. In sum, the present study's findings further strengthening the explanatory effect of TPB model by adding work-family stressors for understanding the individual motives behind traffic violations.

3.6. Conclusion

Overall, the findings of this study may be used as a starting point for both applied and theoretical focus, investigating the role of stress and psychological effects of juggling work and family role within TPB literature. The results of this study establish the usefulness of traffic safety campaign targeting on normative influences, as well behavioral control, and attitudinal components and anticipated regret in an attempt to reduce driving violation. The current finding also suggests the importance of acknowledging the effect of specific types of stressor of work-family conflict, particularly FIW, to understand the barriers that prevent individuals from breaking the traffic laws. Because of the growing evidence of the detrimental effects of FIW within health related behaviors and safety, including the present one, it is timely to introduce organizational interventions to support employees family responsibilities. Finally, though the assessing the traditional variables to explain violation was not the main of this study, results showed that gender and age added to the prediction of intentions. This would indicate that males had lower intentions to avoid traffic violation in relation to speeding and dangerous overtaking. The significant contribution of age indicated that older driver were more likely to have higher intention with regard to avoiding running red

light than younger samples. Thus, the present results suggest that intervention programmes should target specific population.

AUTHORS' CONTRIBUTIONS

The author confirms responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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