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Role of Aggressive and Adaptive Anger Expression in Prediction of Accidents among Pakistani Drivers

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This study aimed to predict the role of driving anger expressions in accidents among Pakistani drivers. Driving Anger Expression Inventory (DAX; Deffenbacher, Lynch, Oetting, & Swaim, 2002) was translated and adapted into Urdu through back translation. After a tryout on 30 drivers it was administered on 310 car-drivers (218 male and 86 female drivers) with an age range of 18-62 years (*M*= 32.68*, SD*=10.91*).* Six participants did not mention their gender. Inclusion criterion included minimum age of 18 years; when one can legally possess driving license, six months of driving experience with at least 6 hours of driving weekly. Confirmatory factor analysis indicated poor model fit for the original four factor structure of DAX and exploratory factor analysis supported two factors solution which were named as aggressive anger expression (α = .95) and adaptive / constructive anger expression (α = .81). Further, logistic regression analysis revealed predictive role of aggressive anger expression in road traffic accidents (RTAs). Age and driving experience had significant negative relationship with aggressive anger expression and significant positive relationship with adaptive / constructive anger expression. Findings also showed that Urdu version of DAX is a valid measure that can help in measuring anger expressions among drivers and its predictive role in traffic related incidents. Based on the findings future implications were discussed to reduce RTAs and other negative consequences of the expressions expressed in driving.

Keywords: driving, anger expression, road traffic accidents / crashes / injuries.

Road rage and anger in the recent years have received considerable amount of attention from public and government sectors (Deffenbacher, Lynch, Oetting, & Swaim, 2002). In the traffic and driving context, road rage and anger can provoke an individual to drive aggressively and consequently increase the likelihood of getting involved in risky driving behaviors (Cantini, Santos, Machadi, Nardi, & Silva, 2015). Negative forms of anger expressions (yelling, swearing, making hostile gestures, tailgating, speeding, harming other road user with the vehicle, etc.) are some of the aggressive expressions of drivers found in the traffic congested areas (Hennessy & Wiesenthal, 1997). Aggressive driving behaviors, over-speeding, and switching the lane through without any intention to harm others, predicted one to two-third of vehicle crashes and injuries (Martinez, 1997; Snyder, 1997). Nevertheless, driver who indulge in clash with other drivers on the road are more prone to traffic offenses and accidents (Hemenway & Solnick, 1993). Researchers agreed that in order to minimize the negative consequences of risky driving both trait and state anger should be assessed (Deffenbacher et al., 2002). It is also evident that along with trait anger, anger expression in either adaptive or maladaptive form has a crucial role in determining its significance (Deffenbacher, Oetting, Lynch, & Morris, 1996).

In anger provoking situations, individual response varies (Villieux & Delhomme, 2010), and to assess how drivers show their anger while driving on the road 49-item measure of Driving Anger Expression Inventory (DAX) (Deffenbacher et al., 2002) constituting of four subscales was constructed. (1) *Verbal Aggressive Expression* and it assess how an individual express his / her anger verbally (yelling or swearing). (2) *Physical Aggressive Expression* assesses driver's physical strength for anger expression and includes

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physical fight with other drivers or making hostile physical gestures. (3) *Using Vehicle for Aggressive Expression* measures the person's use of vehicle for showing anger to other driver, including speeding and tail gaiting. (4) *Adaptive or Constructive Anger Expression* assesses how a driver reduces his / her anger behind the wheel using cognitive ways. It has been applied in number of countries including Britain by Lajunen and Parker (2001) and in France by Dellhomme and Villieux (2005) to assess driving anger expressions.

Factor structure of DAX in the earlier studies of Deffenbacher et al. (2002) has two solutions. An overall subscale formulated by combining three similar forms of anger expressions, mainly aggressive (verbal, physical, and using vehicle), into one and taking adaptive expressions as second subscale. Former is a way of showing one's anger while driving through words, physical expressions, or using vehicle to communicate one's aggression with the intention to intimidate or harm the other driver. While in the latter, driver avoids expressing his anger by means of cognitive reconstruction; distracting his attention, reducing speed on purpose, backing down consciously to avoid clash with other drivers, and instructing himself to focus on safe driving. The findings of the Deffenbacher et al. (2002) indicated positive relationship between all forms of aggressive anger expressions (verbal, physical, vehicle aggressive expressions). However, inconsistent findings of non-correlation and negative correlation of the two subscales of DAX exists in the literature. The factor structure of DAX in different cultures also displayed inconsistency, as French adaptation and assessment of psychometrics (Villieux & Delhomme, 2008), Sârbescu (2012) in Romanian sample, and Sullman (2015) study with New Zealand's drivers revealed three-factor solution of the scale. However, Turkish version of DAX (Eşiyok, Yasak, & Korkusuz, 2007) confirmed four-factor structure as proposed in original scale. Thereby, variant factor structure of DAX might be attributed to the fact that anger expression varies across cultures.

It is evident from the previous findings that driving anger expression varies across gender as well, researchers (Esiyok, Yasak, & Korkusuz, 2007; Jovanovic, Lipovac, Stanojevi, & Stanojevi, 2011) suggested that female drivers are likely to score high on adaptive / constructive anger expression and male drivers in maladaptive forms of anger expressions. These findings were also supported by Esiyok et al. (2007) and Dahlen and Ragan (2004). However, non-significant gender differences have also been reported (Villieux & Delhomme, 2010). Age and driving anger expression relationship is also evident in the literature as consistent findings backed positive relationship between age and adaptive / constructive scale (Deffenbacher et al., 2007) and negative association of age with the aggressive anger expressions of drivers is evident in the findings of Jovanovic et al. (2011) and in the recent study of Sullman, Stephens, and Kuzu (2013). It is also evident from the literature that driving experience negatively affects RTAs (Ivers, Stevenson, Norton, & Woodward, 2006; Sagberg & Gregersen, 2005). These results are consistent with the previous literature as well (McCartt, Shabanova, & Leaf, 2003; Maycock, Lockwood, & Lester, 1991). These findings indicate increase ratio of RTA and RTIs in the initial days of driving and the toll reduces after some time of driving.

Driving anger and its expression is equally important in a country like Pakistan, where vehicles on the roads are increasing at an alarming rate and awareness about traffic laws is minimum among the public. Road Traffic Accidents (RTAs) are a huge burden to the economy and are accounted for an estimated economic cost of more than hundreds of billions to Pakistan (Ahmed, 2007). Downing (1985) also reported that fatality rate in RTAs are fourth highest in Pakistan among 29 developing countries; close to 9,000 people have been killed in RTAs since 2011 (Pakistan Bureau of Statistics, 2014). Although high influx of urbanization and increased number of vehicle during 1960-1994 contributed in RTAs (Ghaffar et al., 2001), researchers (Bhatti, Ajaib, Masud, & Ali, 2008) argued that Road Traffic Injuries (RTIs) are the most reported injury type in the hospitals of Pakistan. Approximately 1,244 (6.8%) reported cases in hospitals are of RTIs and this number is ever increasing since 1985. Keeping in mind the existing findings, current research aimed to explore and understand somewhat risky and dangerous driving behaviors along with driving anger expressions among Pakistani drivers. DAX was translated into Urdu language because of the absence of the indigenous measure. Based upon literature, following hypotheses were generated: (1) Aggressive anger expression positively

predicts accident rates. (2) Age and driving experience will positively correlate with adaptive / constructive anger expression.

Method

The study was conducted in two phases, Phase I involved translation, adaptation, and try out of the DAX. Phase II included validation of DAX and hypotheses testing.

Phase I

In this phase, DAX was translated into Urdu to be applicable for Pakistani population. Translation was carried out using standard method of the forward and back translation, carried out by proficient bilingual experts in both English and Urdu. Both forward and back translations (done by independent bilingual experts, 3 each in both steps) received was compared with the original measure in a committee based upon authors of the study. Changes were incorporated only in item 46 which states "I slow down to frustrate the other driver" after comparing back translations with the original. The literal meanings of frustration are "*aazij karna*". Translators had also translated it as "*zich karna*" and "*tang karna*". In the committee approach, "*tang karna*" was decided instead of "*zich karna*".

After finalizing the Urdu translation of DAX, to ascertain the understanding of the items by the target sample, it was administered on 30 drivers from Islamabad, Pakistan with 18 - 52 years of age range (*M*=29.52*, SD*=7.47*)* using convenience sampling. Sample included 20 male (66.7%) and eight female drivers (26.7%), while two drivers (6.7%) did not mention their gender. These individuals were also requested to comment on the items of the Urdu version of DAX, if they found any ambiguity or difficulty in responding to the items. Reportedly, participants did not face any difficulty while responding to items. They took 5-7 minutes to complete the measure.

Phase II

Sample

To validate Urdu version of DAX and for hypotheses testing, Scale was administered to 310 car-drivers with an age range of 18 - 62 years (*M* = 32.68*, SD* =10.91). Sample consisted of 218 (71.7%*)* male and 86 (28.3 %*)* female drivers, while six (1.9%) did not mention their gender. Sample was taken from Rawalpindi and Islamabad and inclusion criteria was minimum age of 18 years in which legally one can possess driving license along with six hours of driving weekly, as objective was to include those drivers who drove on weekly basis at least. Only those participants were included who could read and write Urdu. Likelihood of women on the roads (as drivers) as compared to men is less than 50 percent (DeGroat, 2012) also female drivers are comparatively less in number than male drivers (see Pakistan Today, 2011; The Express Tribune, 2012). Experience of drivers was calculated and found between 1 to 41 years with a Mean and Standard Deviation of 10.73 and 8.82 respectively.

Instruments

Driving Anger Expression Inventory - Urdu (DAX-U). Urdu version of DAX comprised of 49 items responded on Likert Scale which explained how an individual expressed his/her anger while driving. English version of the Deffenbacher et al. (2002) scale has four subscales: (1) Verbal Aggressive Expression (12 items, α = .91), (2) Physical Aggressive Expression (11 items, α = .81), (3) Using the Vehicle for Aggressive Expression (11 items, α = .88), (4) Adaptive or Constructive Expressions of Anger (15 items, α = .90).

Procedure

This cross-section study was conducted using survey method by employing convenience-sampling technique. The first author personally approached individuals and briefed them about the purpose of the research. After taking written informed consent, they were given the DAX-U along with demographic sheet to get information related to gender, age, driving experience, number of accidents and challan (driving ticket) etc... They were assured about the confidentiality and anonymity of the information provided by

them in the study. None of those approached refused to participate. After taking data, participants were thanked for their time and cooperation.

Results

Confirmatory Factor Analysis (CFA)

CFA was carried out to confirm the factor structure as proposed by the original authors of DAX-English version (Deffenbacher et al., 2002). Several fit indices were examined including chi-square (χ^2 = 2712.87 (1121), p > .000), relative / normed chi-square (χ^2/df = 2.42), Root Mean Square Error of Approximation (RMSEA = .07), Comparative Fit Index (CFI = .77), and Incremental Fit Index (IFI = .77). The chi-square statistics assess whether the model holds exactly in the population (Brown, 2006), and a non-significant result at .05 threshold suggests a good model fit when evaluating the χ^2 statistics (Barrett, 2007). Results revealed poor model fit for this scale, as no indices were in the acceptable range (except for RMSEA). Previous validation studies for DAX encountered the similar situation where only RMSEA was in acceptable range. In the Romanian validation study, Sârbescu (2012) rejected the DAX model with only RMSEA in an acceptable range. Similarly, Sullman, Stephens, and Kuzu (2013) also rejected the initial four-factor solution of the DAX among Turkish drivers because of poor fit (except RMSEA in acceptable range), Though, Sullman (2015) fitted the three-factor solution of DAX among New Zealand drivers after modification indices, but initially rejected the poor model with RMSEA in acceptable range. The current model could not fit despite of addition of error covariance; therefore, EFA was explored.

Exploratory Factor Analysis (EFA)

The items of DAX were subjected to EFA with principal axis factoring and oblique rotation (Direct Oblimin) as there was no composite scoring of the scales and original author in personal communication suggested that the factors might correlate. The suitability of the data for factor analysis was assessed by using KMO measure of sampling adequacy and Bartlett's Test of Sphericity. The KMO index was found to be (.90) in the acceptable range (i.e., KMO ≥ .50). Similarly, Bartlett's Test of Sphericity was also found to be significant, (χ^2=, 7396.51(1176), p > .001) indicating sample adequacy for factor analysis.

Originally, DAX has four factor solutions with no composite scores. Therefore, four, three, and two factor solution was tried for Urdu Version of DAX to find out the most interpretable solution in Pakistani context. The results of scree plot further supported two-factor solution (see Fig. 1). Thereby, two-factor solution was retained based on face validity and factor loading of items above .30 as well as on the original author's suggestion for combining the first three negative subscales into one factor and naming it Aggressive Anger Expressions and a second factor for Adaptive / Constructive Anger Expressions.

Table 1

Factor Loadings, Eigen Value, and Percentage of Explained Variance of Two Factors of DAX-U (N=310).

	Statements	Factors			Statements	Factors	
		1	2			**1**	2
1	Physical aggression	**.37**	.01	25	Constructive expression	-.20	**.63**
2	Vehicle aggression	**.63**	-.01	26	Constructive expression	-.27	**.68**
3	Vehicle aggression	**.58**	-.05	27	Vehicle aggression	**.60**	.07
4	Vehicle aggression	**.64**	-.13	28	Verbal aggression	**.62**	.09
5	Verbal Aggression	**.66**	-.09	29	Constructive expression	-.13	**.66**
6	Verbal Aggression	**.60**	-.16	30	Constructive expression	-.09	**.49**
7	Vehicle aggression	**.67**	-.12	31	Verbal aggression	**.58**	.01
8	Physical aggression	**.69**	-.02	32	Constructive expression	.28	**.36**
9	Verbal aggression	**.67**	.10	33	Vehicle aggression	**.58**	.06
10	Physical aggression	**.44**	-.03	34	Physical aggression	**.57**	-.14
11	Verbal aggression	**.47**	.15	35	Constructive expression	-.05	**.67**

12	Physical aggression	**.73**	-.03	36	Constructive expression	-.19	**.68**
13	Physical aggression	**.62**	-.12	37	Verbal aggression	**.58**	.03
14	Verbal aggression	**.56**	-.09	38	Verbal aggression	**.75**	-.04
15	Vehicle aggression	**.67**	-.02	39	Verbal aggression	**.68**	-.14
16	Vehicle aggression	**.68**	-.01	40	Verbal aggression	**.65**	.00
17	Physical aggression	**.67**	-.11	41	Physical aggression	**.62**	-.09
18	Physical aggression	**.63**	-.18	42	Constructive expression	.04	**.66**
19	Vehicle aggression	**.70**	.00	43	Verbal aggression	**.51**	.18
20	Physical aggression	**.67**	-.06	44	Constructive expression	.05	**.51**
21	Physical aggression	**.77**	-.10	45	Constructive expression	-.02	**.60**
22	Vehicle aggression	**.65**	-.06	46	Vehicle aggression	**.55**	-.08
23	Constructive expression	-.06	**.50**	47	Constructive expression	.17	**.31**
24	Constructive expression	.15	**.34**	48	Constructive expression	-.04	**.48**
				49	Constructive expression	-.01	.11
Eigen Value						14.23	5.07
Percentage of Explained Variance						29.05	10.35
Accumulated Percentage of Variance						29.05	39.40

Note. The bold faced represents the items lying under respective factors. Factor 1 = Aggressive Anger Expression; Factor 2= Adaptive/Constructive Anger Expressions.

Table 1 results show the variance accumulated and the factor loadings of the two factors. This two-factor solution gives the meaningful depiction of the factor solution with variance of 29.050 % for factor one and 10.35% for factor two along with an accumulated percentage of explained variance as 39.40%. The table illustrates satisfactory factor loadings (>.30) except for item 49, which has very low factor loadings; hence, provides sufficient condition to be removed from the final version of DAX-U. The removal of this item does not affect the reliability of the overall scale. Therefore, this item was deleted from the scale and 48-item scale was finalized with two subscales.

Table 1 clearly reflects two domains based on factor loadings and meaningful grouping of items on the respective factors: (1) the combination of items of first three subscales; Verbal Expressions, Physical Expressions, and Using Vehicle for Aggressive Expressions named as Aggressive Anger Expressions (34 items), and (2) Adaptive / Constructive Anger Expressions (14-items). Original author also endorsed this structure; combining the first three subscales based upon similar expressions of anger (i.e. aggressive) into factor one, and adaptive expressions as factor two.

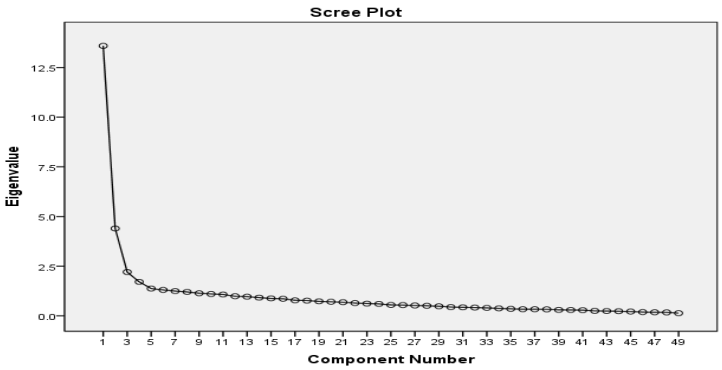

Figure 1. Scree plot for DAX-u

Descriptive Characteristics of DAX-U

Table 2

Descriptive Characteristics of the Study Variables (N=310).

Subscales		no. of Items	Scores Raw	Scores Transform	Range			
	α		*M(SD)*	*M(SD)*	Potential	Actual	Skew	Kurt
Aggressive Exp	.95	34	54.99(17.41)	1.62(.51)	1-4	1-3.44	1.08	.58
Adaptive Exp.	.81	14	35.31(7.47)	2.52(.53)	1-4	1-3.86	-.25	-.16

Note. K = no. of items; Skew = skewness; Kurt = kurtosis; Exp = Expressions.

Satisfactory alpha reliability is depicted in Table 2 along with other descriptive statistics of the scale. Transformed scores are computed by dividing sum on each subscale with respective number of items to make scores interpretable. Means of each subscale on transformed scores show that adaptive driving experiences are more prevalent than aggressive anger expression during driving in the current sample. Skewness and kurtosis are within range showing normal distribution of data along subscales.

Correlations with DAX-U

Construct validity was also established through item-to-total correlation; for Aggressive Anger Expression it ranges between .44 - .74 ($p < .00$) and .37 - .66 ($p < .00$) for Adaptive Anger Expression (for convenience short name is used in upcoming text).

Table 3

Correlation of Subscales of Driving Anger Expressions with Demographic Variables (N=310).

Variable	Aggressive Anger Expressions	Adaptive Anger Expressions
Adaptive Anger Exp.	-.09	-
Age	-.27**	.13*
Driving Experience	-.24**	.13*
Number of Accidents	.18*	-.013

*$p < .05$. **$p < .01$.

The negative relationship between adaptive and aggressive anger expressions (as shown in Table 3) provides the construct validity evidence for DAX-U (Cronbach & Meehl, 1995). Positive and significant correlation of age and driving experience with adaptive expression explains the use of adaptive ways to demonstrate that anger expressions increases with age and driving exposure; while opposite is true for aggressive anger expressions where significant negative correlation is observed. Furthermore, results also show that chance of accident increases as the driver aggressively expresses his/her anger.

Predicting Having Met Accidents through Anger Expressions

Logistic regression was carried out in order to explore the role of type of driving anger expression in the prediction of driving accidents. The categorical variable of having experienced accident was coded as 1 (yes) and 2 (No). Table 4 explains the more likely tendency of committing RTAs for the drivers who are aggressive in displaying anger while driving on roads.

Table 4

Simple Logistic Regression Analysis for Aggressive Anger Expressions, Adaptive Anger Expressions as Predictors of Meeting Accidents (N=310).

PREDICTOR	*B*	*S.E*	*WALD*	*exp b*	*p*	*95 % CI*	
						UL	*LL*
CONSTANT	1.03	.81	1.61	2.81	.21		
Aggressive Anger Expressions	-.04	.01	8.88	.97	.00	1.00	.97

Adaptive Anger Expressions	.003	.02	.03	1.00	.87	1.04	.97

Note. CI=Confidence Interval; LL=Lower Limit; UL = Upper Limit.

Gender frequencies across Demographic variables of the Study

Table 5 shows frequencies of male and female across different factors. Frequencies depicts that males have high rate of driving license possession as compared to female. High frequencies of traffic challan (traffic tickets) are also significantly high among men, and they reported higher numbers for getting challan (traffic tickets), indicating that men pay high traffic challan as compared to women. Men also reported multiple reasons for getting traffic challan (ticket) as compared to females. These frequencies are reported to illustrate sample characteristics, as the gender difference is not comparable because of less frequent female drivers in Pakistan (as mentioned earlier).

Table 5

Frequencies and Percentage of Demographics across Gender (N=310).

Variables	*f (%)*	Male *f (%)* (*n*=218)	Female *f (%)* (*n*=86)
Insurance of Vehicle			
Yes	106 (34.2)	76 (34.9)	30 (34.9)
No	191 (61.6)	137 (62.8)	52 (60.5)
Missing	13 (4.2)	5(2.3)	4(4.7)
Driving license			
Yes	253 (81.6)	185 (84.9)	65 (75.6)
No	49 (15.8)	29 (13.3)	20 (23.3)
Missing	08 (2.6)	4 (1.8)	1 (1.2)
Challan Paid			
Yes	178 (57.4)	144 (66.1)	31(36.0)
No	101 (32.6)	58 (26.6)	43 (50.0)
Missing	31 (10.0)	16 (7.3)	12 (14.0)
Number of Challan Paid			
Never paid	101(32.6)	58 (26.6)	43 (50.0)
1-3 times paid	130 (41.9)	106 (48.6)	24 (27.9)
4-5 times paid	23 (7.4)	19 (8.7)	4 (4.7))
Variables	*f (%)*	Male *f (%)* (*n*=218)	Female *f (%)* (*n*=86)
5 plus times paid	3 (3.5)	24 (7.7)	18 (8.3)
Missing	32 (10.3)	17 (7.8)	12 (14.0)
Reason of Challan Paid			
Never Paid	101 (32.6)	58 (21.7)	43 (50.0)
Speeding	32 (10.3)	21 (7.9)	10 (11.6)
Seat Belt	26 (8.4)	20 (7.5)	05 (5.8)
Signal Break	36 (11.6)	31 (11.6)	05 (5.8)
Multiple Reasons	59 (19.0)	52 (23.9)	06 (7.0)
Mobile Phone	16 (5.2)	12 (5.5)	04 (4.7)
Missing	40 (12.9)	24 (11)	13 (15.1)
Accidents			
Yes	109 (35.2)	82 (37.6)	25 (29.1)
No	161 (51.9)	113 (51.8)	47 (54.7)
Missing	40 (12.9)	23 (10.6)	14 (16.3)

Number of Accidents			
Never had accident	161 (51.9)	113 (51.8)	47 (54.7)
1- 3times	95 (30.6)	74 (33.9)	19 (22.1)
More than 3	14 (4.5)	08 (3.7)	06 (7.0)
Missing	40 (12.9)	23 (10.6)	14 (16.3)
Reason of Accidents			
No accident	161 (51.9)	113 (51.8)	47 (54.7)
Speeding	22 (7.1)	15 (6.9)	06 (7.0)
Personal Mistake	22 (7.1)	17 (7.8)	05 (5.8)
People's Mistake	28 (9.0)	25 (11.5)	03 (3.5)
Multiple Reasons	32 (10.3)	21 (9.6)	10 (11.6)
Missing	45 (14.5)	27 (12.4)	15 (17.4)

Discussions

Validation of DAX – U

Factor structure of DAX Urdu version was explored through EFA, as Poor indices of CFA indicated that four factors are not compatible with Pakistani traffic culture. Two-factor structure emerged as meaningful, in which minimum number of items (i.e., only one item 49) failed to appear in either factor. In the initial findings, Deffenbacher and his colleagues (2002) also reported two-factors for DAX; a cumulative of the entire negative aggressive anger expression subscales (verbal, physical, and using vehicle for anger expression) as Aggressive Anger Expressions, and another factor as Adaptive / Constructive Anger Expressions. The original author also endorsed this two-factor solution when findings of the current study were shared with him. Factor structure of DAX varied in different cultures (Villieux & Delhomme, 2008; Sârbescu, 2012; Eşiyok, Yasak, & Korkusuz, 2007). Herrero-Fernandez (2011) found five factor solutions of DAX and Deffenbacher et al. (2002) named fifth factor as *displaced aggressive anger*, though this five-factor solution has not been validated in any other culture and study. Therefore, the current two-factor solution of DAX-U is applicable in Pakistani context and suggests that in Pakistan, driving anger is expressed in either adaptive way (by doing thought process) or in an aggressive form (honking, tailgating, speeding, and yelling). Based on EFA, it can be affirmed that participants of the current study have taken all forms of aggressive anger expressions (verbal, physical, and using vehicle) similar. They considered anger expressions only as positive and negative, irrespective of its types validated in other cultures. However, future studies can explore and confirm this factor structure further on different sample.

Non-significant correlation of the two subscales also established construct validity (Cronbach & Meehl, 1995) of DAX-U and findings are in line with the Deffenbacher et al. (2002) non-significant association of the subscales. Furthermore, item total correlation of each subscale also reflects internal consistency of both subscales; items of each subscale significantly and positively correlated with respective total of its subscale.

Driving anger and number of Accidents

First hypothesis of the study was confirmed by the logistic regression analysis. Deffenbacher et al., (1996) also illustrated the negative consequences of driving anger expressions (fatalities, injuries, accidents, and violations). Driving anger expressions depend on the number of personal and contextual factors including driver's anonymity and heavy traffic (Deffenbacher et al., 2000), however, individual differences in terms of anger expressions cannot be ignored (Dalhen, Martin, Ragan, & Kuhlman, 2005) whether they are adaptive or maladaptive (Deffenbacher et al., 1994). Adaptive expressions foster the chances of not getting hurt during driving while the maladaptive ways boost up the collision probability. The way drivers express their anger on road, affects their driving attention and can lead to the negative consequences such as injuries or road traffic fatality. The negative consequences of anger are more for aggressive drivers as compared to those who use adaptive ways to express their anger (Deffenbacher et al., 1994). Findings revealed that

physical anger expressions, verbal aggressive expressions, use of vehicle, and overall aggressive expressions increased the chance of collisions while adaptive or constructive expressions of anger decreased the possibility of RTAs (Dahlen & Ragan, 2004; Deffenbacher et al., 2002). In Pakistan, the high influx of vehicle is the major cause of traffic congestion and traffic accidents. Private transportation has increased since 1990, as public transport system is not efficient and facilitative, so people prefer their own vehicle as a mode of transport. Along with this driver's tendency to commit traffic violations (due to less familiarity with traffic laws) also creates traffic blockage and congestion. Moreover, the frequent traffic routes, unique to Pakistani culture, where traffic is temporarily blocked for very important persons (VIPs including ministers and high government officials) to move, creates hostility and aggression among the drivers which consequently result in one or other form of RTAs.

Role of Driving Experience and Age

In the current study, as assumed, positive correlation of driving experience and age was observed for adaptive anger expressions while negative correlation of driving experience was found with aggressive anger expressions. This fosters the fact that greater exposure of driving and age facilitates the driver in complex traffic situations. These findings are also consistent with the findings of following researchers; Deffenbacher et al., (2007) confirmed it in an American study, In France similar results were confirmed by Villieux and Delhomme, (2010), consistent results were observed in Turkey, Serbia, and Spain as well. Moreover, the findings of Forward (2015) also showed that younger drivers express their anger more overtly as compared to older drivers. Sullman (2006) elaborated that most likely young drivers got angry while driving and react aggressively, while older people use adaptive ways to express their anger while driving. Experienced and old age drivers are more adept to deal the complex traffic situations as they acquired the patience and skill to cope with the traffic environment with their ripe age and driving experience.

Non-significant gender differences are consistent with the previous findings of Villieux and Delhomme (2010). This can also be justified that female drivers are less in number as compared to male drivers in the current sample. Gender differences can be further explored in future studies by taking equivalent number of drivers.

Conclusion

DAX in Urdu is a valid and reliable measure to study anger expressions among Pakistani drivers. Aggressive anger expressions while driving was a major predictor of RTAs in the present study and adaptive ways to express driving anger increased with driving exposure and age.

Limitations and Suggestions

Current study was conducted only with non-professional drivers, future researches can focus different genre of drivers (bus, taxi, and van), and equal number of male and female drivers can be taken for comparative analysis.

Implications

This instrument can be helpful in understanding the driving related anger expressions. It can also assist traffic authorities to avoid and reduce RTAs. Traffic modules, workshops, and training sessions for the drivers on driving anger and its expression can pave way to ensure traffic safety among the young and experienced drivers as well.

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