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Distractions for motorcyclists caused by acute mental disturbances: A Sri Lankan Study

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ABSTRACT

A motorcycle/motorbike accident is a collective outcome of human and nonhuman factors. The possible contribution of acute mental disturbances resulting in motorcycle accidents was poorly studied in Sri Lanka. As a result, the purpose of this study was to study the potential contribution of acute mental disturbances/psychological disturbances resulting in accidents or collisions. A few other specific objectives included determining the place of the accident, speed and related demographics, and the severity of the road rage. The acute mental disturbance was defined by five components: the presence or absence of road rage, consumption of alcohol or substance abuse, having a problem with friends or at the workplace, having a problem at home, and an unspecified mental disturbance and or tiredness. A descriptive cross-sectional study was conducted to study these aspects with the participation of 2500 patients admitted to a tertiary care hospital in Sri Lanka. Each participant completed a questionnaire administered by an interviewer. There were n=2151 males, and the majority of victims were in the age group of 20-30 years, accounting for 28%. 5% of drivers had encountered road rage. 45% of the population reported experiencing at least one of the acute mental disturbances. 12% (n=291) had revealed that they had consumed alcohol or any other substance within the 24 hours of the incident. There was a statistical significance between the experiencing of acute mental disturbance and the speed, age and the place of the accident though there wasn't a statistical significance between the sex. The mental state at the time of a road traffic injury is worth investigating as revealed by this study because it may be possible to find remedial actions through behavioural, attitudinal, educational and infrastructure changes.

KEYWORDS: *Motorbike/motorcycle, Motorcyclist/driver, Acute mental disturbance, Road rage, Driver distraction, Acute psychological disturbance*

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1 INTRODUCTION

A motorcycle is the most cost-effective and convenient mode of transportation for an average Sri Lankan. The affordability of motorcycles is the most compelling reason for the increasing number of motorcycles in Sri Lanka. According to Sri Lankan statistics, accidents and fatalities are on the rise, resulting in a never-ending slew of health and social issues. According to Brown et al, motorcycle fatalities are comparable to an epidemic (Brown et al. 2016). The driver of a two-wheeled motor vehicle is 6-13 times more likely to be involved in a road accident than other vehicle types (Yousif, Sadullah & Kassim 2019).

Though driving or riding a bike is common on Sri Lankan roads, there are no designated bicycle lanes or motorcycle lanes. If one of the drivers makes a mistake, it will affect others, resulting in personal and public property damage. According to global estimates, road traffic injuries are the most important category of injuries that can be classified as preventable (Global status report on road safety 2015). As a result, road traffic accident prevention has received a lot of attention over the years. Road conditions in most parts of Sri Lanka may be unsatisfactory, as in many other developing countries. To reduce motorcycle accidents, all aspects, including the environment, road, and vehicle, as well as human factors, must be addressed. Driving with a distracted mind had been identified as a risk factor in the causation of injuries and even fatalities (Rupp, Gentzler & Smither 2016). Even in several developed countries, the improvement of road, environmental, and vehicle factors has only resulted in a 51.1 percent reduction in accidents (Romero et al. 2019). That indirectly shows that human factors accounted for nearly half of the incidents. It emphasizes the importance of the study about the human factors that may be contributory or causative to road accidents.

The behavioural factors, according to Petridou et al, can be broadly classified into three categories. Long-term behavioural effects, such as age, chronic diseases, chronic alcoholism, and drug abuse, fall into the first category. The second category includes items that temporarily impair driving abilities, such as a few acute psychological problems, drowsiness, short-term drug effects, acute alcohol intoxication, and so on. The final category is related to risk-taking behaviours, such as habitual speeding, disobeying traffic rules etc. (Petridou & Moustaki 2000). The current study focuses on temporary behavioural factors which is the second category as per the above description.

The research question of this study was "to explore the gravity and to understand the relationship of acute mental disturbances as a contributory or causative factor in causing motorcycle accidents and to emphasize the relevant stakeholders to develop new intervention procedures to achieve significant reductions in crashes and casualties". The study's main goal was to investigate the extent of acute mental disturbances or the role of mental status in accidents. Other goals included determining the severity of road rage that was experienced, the place of the accident, whether it occurred at a pedestrian crossing or not and the demography of the study population.

2 RESEARCH METHODOLOGY / MATERIALS AND METHODS

The study was cross-sectional and lasted from January 2017 to mid-2020. The study took place in a tertiary care hospital and the Ethics Review Committee of the hospital concerned granted approval. A pretested questionnaire was completed using the interviewer-administered method. The study sampled patients admitted to the accident service unit of the hospital concerned. Patients who did not provide consent were in severe pain, and those who were not encountered by the data collectors were excluded. The questionnaire included three sections: demographic information, information about the ride and information about the respondents' acute

mental state, personal behaviours, and drug history. IBM SPSS Statistics version 23.0 was used to enter and analyze the data. The responses to the independent variables of whether the rider consumed alcohol within the previous 24 hours, a problem with a friend or employer, a problem at home, tiredness/any other mental disturbance, prolonged use of medicinal drugs, and road rage were combined to create a single score to represent the rider's overall acute mental disturbance at the time of the incident. The category 'any other mental disturbance' was made up of the patients that expressed generalized tiredness, unfitness or any other acute mental disturbance that was not classified by the researchers beforehand. Before collecting data, the victim was acknowledged with the general meaning of the road rage and tiredness and what included the unspecified mental disturbances. Road rage is defined as "the aggressive behaviour by the rider in response to the actions of another road user. Tiredness is defined as the state of being drained of mental strength and energy. Then the patient was requested to provide their psychometric grade to the data collectors. The grade/s given were marked on Likert scales. The Likert scales were prepared to extract data on how the victims had perceived the specified entities while filling the interviewer-administered questionnaire. The data were analyzed as univariate and multivariate variables, with *p* values less than 0.05 deemed statistically significant.

3 RESULTS & DISCUSSION

The total number of the study sample was 2500.

The sex of the sample

The male-to-female ratio was 6:1 (2151:349).

The distribution of age in each class range

There were five victims (0.2 %) under the age of 18, which was the smallest number. The second-lowest proportion came from those under the age of 60, n= 149(6 %). The age range of 20-30 years was the most prevalent, n= 700, (28 %). Then, in increasing order, the age ranges 30-40 years, n= 646 (26%), 18-20 years, n=452 (18%), 40-50 years, n= 397 (16%), and 50-60 years, n=151 (6%) were represented.

Occupations of the participants

Executive 5% (n=125), mangers 6 % (n=150) teachers 5% (n=125), armed forces/police 4% (n=100), clerk and clerical work supporters 15 (n=375%)%, labourers 38% (n= 950) and unoccupied 27%(n=675).

COMPONENTS USED TO DETERMINE THE ACUTE MENTAL DISTURBANCE

a. Road rage experienced or not

Only 5% (n=125) of the population had experienced road rage. The severity of road rage was classified as severe, average, or mild. Five per cent (n=40) had experienced severe road rage, 2% (n=59) had experienced mild road rage, and 2% (n=26) had experienced it on an average level.

b. Consumption of alcohol

Within the last 24 hours of the incident, the consumption of alcohol or any other type of substance of abuse was enquired. There were 291 participants (12%) who abused alcohol and or other substances.

c. Acute mental disturbance due to issues with friends and at workplaces

At the time of the incident, 11% of individuals (n=286) reported experiencing an acute mental disturbance as a result of a friend or a work-related problem.

d. Acute mental disturbance due to problems at home

A 15% of the sample (n=375) reported experiencing a mental disturbance as a result of issues at home at the time of the incident in this study.

e. Experienced tiredness and or unspecified mental disturbance/ distress

25% of the study sample (n=612) indicated that they were either tired or not mentally fit at the time of the accident for unspecified reasons as already defined by the researchers.

Long-term usage of medicinal drugs (prescribed medication)

Long-term medication use was revealed in 4% (n=102) of the population.

The frequency of having acute mental disturbances that were specified by the researchers.

Table 1: The frequency of having acute mental disturbances at the time of injury

The number of mental disturbances experienced by the patients	Frequency	Percentage
No mental disturbances were experienced	1365	54.6
Had experienced one entity	848	33.9
Had experienced two entities	144	5.8
Had experienced three entities	35	1.4
Had experienced four entities	92	3.7
Had experienced five entities	16	0.6
Total	**2500**	**100.0**

The five acute entities/ mental disturbances used here are as follows: road rage, consumption of alcohol or any other substances of abuse within 24 hours of the accident, whether the victim had experienced any problem with a friend or at the workplace, whether the victim experienced any problem at home and the experiencing of tiredness and or unspecified mental disturbance (Table 1).

A total of 55% of individuals (n=1365) reported having not encountered any disturbance. One mental disturbance was reported by 34% (n=848), two mental disturbances were reported by 6% (n=144), three mental disturbances were reported by 1% (n=35), four mental disturbances were reported by 4% (n=92), and all five were reported by 1% (n=16).

Table 2: Dividing of the study sample based on the presence or absence of an acute mental disturbance as defined in this study

Presence or absence of at least one acute mental disturbance at the time of the incident or none		
	Frequency	Percent
Experienced at least one of the identified disturbances	1135	45.4
Not experienced any identified mental disturbance	1365	54.6
Total	2500	100.0

To assess the severity of the acute mental disturbance, the study sample was divided into two major groups: those who did not experience any mental disturbance and those who did experience at least one or more issues.

ASSOCIATION OF ACUTE MENTAL DISTURBANCE WITH OTHER VARIABLES (CROSS-TABULATION AND CHI-SQUARE ANALYSIS)

Pearson chi-square tests for independence were used to examine the association between a few independent variables: age, sex, the speed of travelling, and whether the accident had occurred at a pedestrian crossing or not.

I. Association between the age and the presence of acute mental disturbance

Table 3: Age and the presence of an acute mental disturbance

Age	Experiencing mental disturbance		Total	Significance
	Had experienced mental disturbance	Not experienced mental disturbance		
Less than 18	1 1%	4 3%	5 2%	X^2 = 435.487, df =6, P value = 0.000
18-20	67 5.9%	385 28.2%	452 18.1%	
20-30	469 41.3%	231 16.9%	700 28.0%	
30-40	206 18.1%	440 32.2%	646 25.8%	
40-50	177 15.6%	220 16.1%	397 15.9%	
50-60	112 9.9%	39 2.9%	151 6%	
More than 60	103 9.1%	46 3.4%	149 6%	
Total	1135 100%	1365 100%	2500 100%	

The age and the presence of acute mental disturbance showed a statistical significance, p<0.05. The age range of 18-50 years showed a significant difference when it was compared to the age groups that lie on either side of that range, (X^2 (6) N= 435.48, p= 0.000).

II. Association between the sex and the presence of an acute mental disturbance

Table 4: Sex and the presence of an acute mental disturbance

	Experiencing mental disturbances		Total	Significance
	Experienced mental disturbance	Not experienced mental disturbance		
Female	170	179	349	X^2 = 1.793, df =1, P value = 0.181
	15.0%	13.1%	14.0%	
Male	965	1186	2151	
	85.0%	86.9%	86.0%	
Total	1135	1365	2500	
	100.0%	100.0%	100.0%	

Sex of the patients had not been a significant factor while considering the acute mental status according to this study, being p> 0.05, X^2 (1) N= 1.793, p= 0.181

III. Association of the place of accident and the presence of acute mental disturbances

Table 5: Place of accident and the presence of an acute mental disturbance

		Experiencing mental disturbances		Total	Significance
		Experienced mental disturbance	Not experienced mental disturbance		
Did the accident occur at or near a pedestrian crossing?	Yes	100	1	101	X^2 = 122.032, df =1, P value = 0.000
		8.8%	0.1%	4.0%	
	No	1035	1364	2399	
		91.2%	99.9%	96.0%	
Total		1135	1365	2500	
		100%	100%	100%	

There were 101 incidents/accidents (4%) that occurred near or on-road crossings/pedestrian crossings and there had been a significant

statistical association between the presence of acute mental disturbance and occurring of the accident at a pedestrian crossing.

IV. Association of the speed and the presence of acute mental disturbances

Table 6. The speed and the presence of acute psychological disturbance

Two groups based on the speed of travelling	Experiencing mental disturbances		Total	Significance
	Experienced mental disturbance	Not experienced mental disturbance		
Speed <40	22	137	159	$X^2 = 68.243$, df =1, P value = 0.000
	1.9%	10.0%	6.4%	
Speed >40	1113	1228	2341	
	98.1%	90.0%	93.6%	
Total	1135	1365	2500	
	100%	100%	100%	

The speed that the victims were travelling was divided into two groups, below 40 kilometers per hour and above 40 kilometers per hour. While cross tabbing the two variables, there was a significant association between the speed of travelling and the presence of an acute mental disturbance. Individuals with an acute mental disturbance had travelled fast when it was compared to the group who travelled at less than 40 kilometers per hour.

Discussion

Driving/riding is a complex process in which data is gathered and transformed into decisions to keep the vehicle running safely for both the driver and other passengers. While driving, the rider makes the best decision possible in any given situation. Numerous stimuli must be responded to by a rider in order to avoid a collision. In other words, a rider must act as an information processor in response to the continuous stimuli received. The rider is in control of the moment, beginning with an appreciation for the constant stimuli and culminating in actions based on the decisions made. A complex but precise psychological process is necessary to avoid a collision or injury to the rider or others.

To emphasize the fact that according to John A. Groeger's textbook, traffic safety is rarely investigated in relation to the psychology of driving. Distractions of various types can occur while driving. However, those distractions may or may not impair one's ability to drive. Hedlund, Simpson, and Mayhew define distraction as an occurrence in which the driver's attention is diverted away from driving, resulting in a loss of awareness of the driving process (Sullman 2012). Distractions impair decision-making and performance, increasing the likelihood of the need for corrective actions, near-collisions, and crashes. Distractions can be associated with any cognitive process, such as daydreaming, mind wandering, problem-solving, or various decision making, as well as with the use of information systems in the vehicle (radio, navigation, phones, etc.), all of which can affect the driver's attention to the driving process (Cvahte Ojsteršek & Topolšek 2019). When the mind is preoccupied with other distractions, the optimal focusing required for driving is compensated for. Acute mental disturbances may be associated with behavioural changes, cognitive abilities, and perception abilities, all of which have a high likelihood of impairing driving abilities (Effects of psychiatric conditions on driving n.d.).

According to a study conducted in Sri Lanka, 90% of males were involved in accidents, and males were the majority of those injured (Samadhi & Ruwanpura 2019). Numerous other studies conducted in Sri Lanka also

indicated a male predominance. Another study found that the male gender represented and accounted for 93 % of the population (Rathnaweera & Gunarathna 2020). Males constituted 90.5% of the population in a study conducted in Karachch (Alam et al. 2019). There was no evidence of female predominance in any of the research conducted locally or internationally. The male: female ratio was revealed as 6:1 in this study as well with a male preponderance.

According to Ahamed Shajith, the age group of 19-24 years had the highest rate of motorcycle accidents (Shajith et al. 2019). Another study reported that the age group of 20-34 years was the majority. In another study conducted in Sri Lanka, the age group most affected was 21-30 years, which was responsible for 39.8% (Rathnaweera & Gunarathna 2020). Another Sri Lankan study found that the majority, 84.5%, were between the ages of 20 and 40, 5.4 % were between the ages of 41 and 60, and 1% were over the age of 60 (Alam et al. 2019). However, the study under discussion revealed that the age range of 20-30 years was the most prevalent, n= 700.

Almost all road traffic accidents in our country are investigated solely for legal purposes. However, the driver's or rider's behaviour cannot be overlooked since a vehicle is driven by a human. If there is a mechanism to scrutinize all the factors that could have contributed to road collisions, it may help to identify human factors other than the legal aspects. Such kind of psychological analysis will enable the authorities to get surfaced the causes and risk factors. The psychological analysis will define the true circumstances of a given situation that may have contributed to the accident. Drivers' behaviours can change frequently in response to the life circumstances in which they find themselves. The driver could be a distracted driver, an emotional driver, a new driver, or a drunk driver, for example, and this study focused exclusively on being emotionally disturbed.

According to a Sri Lankan study, road rage is a significant factor in drivers being aggressive and reckless. (Rodrigo et al. 2015) The term "road rage" was defined in this study as follows: a driver who drives the vehicle aggressively and, or, angrily at the time of the accident. However, this state of mind should have occurred as a result of an acute incident caused by unjustified provocation while driving. There is no universally accepted definition for the term, even though it is widely used. Additionally, environmental/non-psychological factors, general psychological factors, and association with other psychological diseases have been identified as contributory factors to road rage. In general, it is stated that approximately one-third of drivers suffer from road rage, with young males constituting the majority. Rodrigo et al further emphasized that the high prevalence of road rage in Sri Lanka needs intervention. Males were the majority of those who experienced road rage in this study under discussion, though there is no statistically significant correlation between gender and road rage (Table 4).

Impatience and selfishness, combined with careless driving, were identified as contributing factors to road rage and subsequent accidents. There was no traceable study to cite in relation to road rage in the motorcycle riders of Sri Lanka. However, one study performed on motorcycle riders identified the fact of lacking data about the pre-crash details of the mentality and the physical status that would be causative or contributory to the accident.

However, international studies have made a significant contribution with extensive studies on road rage. Gunson et al. compared road anger in ‘motorcyclists’ and ‘car drivers’. Those researchers are of the opinion that existing models that had been completed for the drivers do not fit for the motorcyclists. Reckless behaviour and poor road environment are the risks identified for motorcycle riders. Whereas to that rudeness of other road users had been identified for drivers (Gunson, Beanland & Salmon 2019). Zhang et al from China studied

"fatigued driving" as a separate entity. This study had provided an adequate emphasis on road rage and they have named it "silent killer". (Zhang et al. 2016).

A motorcycle-dominant country, Vietnam, had performed a survey and highlighted the importance of driving anger (Trung Bui et al. 2022). Rowden et al emphasize that aggressive riding and driving are correctable factors through education and training (Rowden et al. 2016). Sri Lanka is also a country where the motorcycle is one of the favourite modes of transportation. Hence further studies are mandatory on pre-crash factors of the riders.

It is worthwhile to conduct research into the consumption of alcohol and/or other substances of abuse, as these substances continue to be a significant factor in motorcycle accidents (National Agenda for Motorcycle Safety 2022; one.nhtsa.gov, n.d.) Substance abuse seriously impairs problem-solving abilities and awareness. Such substances impair the ability to anticipate resulting in poor judgement in the aftermath of accidents. This study was able to figure out the percentage that alcohol or any other substances were used within the last 24 hours of the incident as 12% (291 participants). In a study conducted in Iran, the prevalence of narcotics and alcohol use less than two hours before driving was 64 (15.5 %) (Heydari et al. 2016). Previous studies revealed high alcohol consumption rates (8.6 % and 12 %, respectively) among injured and fatally injured drivers (Drunk Driving, NHTSA 2022). According to the CDC, 10,497 people died in drunk driving crashes in 2016, accounting for 28% of all traffic-related deaths in the United States (Tahmasebi et al. 2020). Previous studies conducted in Sri Lanka revealed that 24% of riders were intoxicated at the time of the accident and 11% were under the influence of alcohol.

Not only recreational drugs but also the long-term use of prescribed medicinal drugs should also be considered in the context of 'administered chemicals' into the body. This study revealed that 4% (n=102) of the population was using some kind of medicinal drug at the time of the incident. According to Orriols et al and Olesen et al. there is supportive evidence that usage of prescribed drugs had shown a relation to an increase in the risk of traffic crashes (Olesen et al. 2022; Orriols et al. 2010)

Acute psychological disturbances resulting from a conflict with a friend or employer were reported by 11% (n=286) of participants in this study, while a problem at home was reported by 15% (n=15%). Regardless, there is no traceable literature available to compare locally or internationally regarding the psychological state at the time of the accident examined in this study. In any case, accidents are the result of a complex web of psychological factors.

Taking into account the entity of general 'tiredness' or any other unspecified acute psychological state, this study discovered that 25% (n=612) of the participants had experienced such a condition. Tiredness has been blamed for accidents because it impairs the driver's ability to control the vehicle. Tired drivers are more stressed while driving than non-tired drivers, resulting in increased response time and frequent acceleration and braking. A Sri Lankan study based on motorcycle crashes from the year 2009 to 2013 revealed that there had been 98 crashes due to fatigue or sleeping (Amarasingha 2021). Driver/rider exhaustion and tiredness had been identified as a significant factor for motorcycle accidents by Sumathipala et al. and they have suggested employing a detective and alert system for drowsiness. (Sumathipala et al. 2020) A study done in Vietnam highlighted self-reported fatigue-related crashes among motorcycle taxi drivers. 37% of all the crashes were related to fatigue (Truong, Nguyen & Tay 2020). According to Haworth et al, fatigue in motorcycle riders is under-studied when compared to driver fatigue (Haworth &

Rowden 2016). They are of the opinion that the rider fatigue is an entity that is largely ignored and hence it is emphasized to take measures to investigate the extent of the existing problem. A study in Iran about the factors contributing to crash severity of motorcycles on suburban roads also revealed that fatigue is a considerable factor. (Ariannezhad, Razi-Ardakani & Kermanshah 2014).

As described earlier, the purpose of this study was to examine the relationship between certain independent variables and the dependent variable (i.e: at least one acute psychological problem) in order to determine whether the victims exhibit any statistically significant relationship with their sex, age, speed, the place of accident, and whether it occurred at a pedestrian crossing or not. Out of those, there was a significant association between the age, speed and the place of the accident though there was no significant correlation between the victims' sex (Table 4-6). According to a Sri Lankan study, (Gobalarajah 2016) 17.9%, 15.2%, 17.9% and 18.2% of accidents had been reported on pedestrian crossings in the years from 2011 to 2013 respectively. This study revealed that 101 incidents/accidents (4%) occurred near or on-road crossings/pedestrian crossings. According to the Sri Lankan Traffic Police statistics, "more than 100 people die at pedestrian crossings every year and more than 1,000 are injured" (The Sunday Times Sri Lanka 2017). One of the specific objectives of this study was to reveal the number of casualties that would occur at or near the pedestrian crossing and the authors feel that pedestrian crossings should not bring a considerable chance to succumb to an accident.

According to psychology, "decisions, options, reactions, and explanations are constantly occurring in our minds as we cope with life's changing events," a process referred to as "making attributions" (Smith & Martin 2007). When this phenomenon is applied to the process of driving or riding, the criticalness of a clear and focused mind is better understood. As previously discussed, traffic psychology is concerned with individual behaviour. Such issues have not been discussed in Sri Lanka to date, and the author hopes that this research will initiate a dialogue among academics to conduct more focused studies. To express emotion, anger, or to deal with an acute mental disturbance, one does not have to become a driver. Such mental states are encountered daily by humanity. The emphasizing point here is that the same human being who becomes the rider of a motorcycle or on wheels should have to be vigilant. Thus, it is critical to educate drivers from an early age on how to recognize risky situations if they are psychologically/mentally vulnerable. Traffic psychology is not yet emphasized in Sri Lanka, and it is recommended that those aspects are to be studied and then integrated into the educational system. Before obtaining license, a training on how to recognize oneself once he or she is in a vulnerable situation with acute mental disturbances will be required. In other words, "Traffic psychology helps to raise drivers' self-- awareness". The burden that the health sector has to be borne is huge while managing the causalities of motorcycle accidents. The authors experience this grave problem every day during their routine hospital duties. All in all, it is the duty of the doctors to convey the gravity of this menace since it needs the urgent attention of other stakeholders to curtail the number of causalities presented to a hospital.

A few limitations have also been identified in this study. The psychometric analysis was performed as to how the patient felt its severity. If the road rage and tiredness are measured based on an objective scale it would have been more scientific. The study only included the available patients for the data collectors and there were missing patients as well. This study is somewhat authentic. As a result, comparable literature was unable to cite certain aspects that the authors had studied. However, the available studies had been included.

4 CONCLUSION & RECOMMENDATIONS

4.1 Conclusion

Worldwide, motorcycle/motor-bicycle accidents are recognized as a social and medical problem that poses a threat to societies. "Motorcycle pedestrian crashes are reportedly high, accounting for about 40% of pedestrian fatalities in Sri Lanka, according to the Weekly Epidemiological Record (WER), February 2021. Accidents can occur as a result of both human and non-human factors. Non-human factors are relatively straightforward to address, whereas human factors are more challenging to address due to their inherent complexity. The behaviour and the interaction between other humans on the wheels or pedestrians are believed to be a result of emotions that arise before or during driving. However, psychological aspects of motorcycle riding and driving, as well as underlying cognitive functioning, have received little attention. This research endeavoured to address that shortcoming in the Sri Lankan literature. 45% of the study population was experiencing an acute mental disturbance at the time of the incident. There was a statistical significance when correlating the acute mental disturbance and the speed, age and the place of the accident. However, there was no statistical significance between the acute mental disturbance and the sex. The dangers of riding a motorcycle while experiencing acute mental disturbances must be emphasized through proper education and additional research.

4.2 Recommendations

The following recommendations are put forward by the authors although some are not that practical in Sri Lanka. A rider's or driver's mental state is never assessed before or after providing a driving license. Moreover, driver discipline education is not taught in Sri Lankan school textbooks. The emphasis on contributory or causative human factors for accidents should be highlighted for the drivers/riders. When one person makes a mistake, it almost always affects others in the same way especially on the roads of Sri Lanka because of the traffic congestion in the capital city Colombo. Since the number of motorcycles that are being driven is on the rise, the preventive or safety measures should also ideally be on par. Anger management should be one of the applicable recommendations to reduce road rage. Awareness about the risk of drunk driving is also emphasized here. Better transport infrastructure should be one of the aspects to be considered while planning under the purview of the sustainable development goals in Sri Lanka. Effective motorcycle lane design is one of the recommendations that the authors would like to recommend. Further, the authors recommend performing more research on the same topic but utilizing more objective parameters to measure the acute mental disturbance at the time of the incident.

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