



Non-Compliance of Malaysia Motor Vehicles (Safety Seatbelts) Rules 1978

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Abstract

Background: Seat belts have been proven as one of the most successful means of preventing or reducing injuries to occupants of cars during an accident. This paper examines the reasons behind the non-compliance of the seat belt law in Malaysia and suggests possible measures to get the percentage of seat belt usage up higher.

Methods: Various databases of articles were searched for seat belt usage in Malaysia, related legislation, related accident data, type of injuries and reviewed to put forth the need for a new measure to increase the usage of seat belts in Malaysia.

Results: In various studies carried out previously, car occupants (driver and front passenger) used the seat belts mainly with the knowledge that seat belts prevents injuries, the fear of being fined by the authorities, comfortability of the seat belt, speed of travel, trip purpose and driving location. However, when these factors are removed, seat belts usage starts becoming lax. Other reasons were driving short distance (known location), forgetfulness and were in a hurry.

Conclusion: Enforcement of seat belt usage by either the Police or Road Transport Department is only a short term solution. The relevant agencies are urged to consider making compulsory for all car makers in Malaysia to enable a system where the car would not be able to start without the seat belt being fixed first for the driver and passenger and to make auto seat belt fixing enabled in the car when the driver and or passenger enters the car.

Keywords: Seat belt, Safety, Compliance, Car, Malaysia

Introduction

Road traffic related injuries are fast becoming a major worldwide public health concern. High income and developed countries have made great strides to address these problems unlike many developing or lower income countries, which just do not have the resources to address this problem (1). Road traffic related accidents is fast becoming one of the main reasons of injuries and fatalities in Malaysia. Worldwide every year, the World Health

Organisation (WHO) estimates that close to one million people are fatally injured, three million people are severely disabled for life and thirty millions are injured in road traffic accidents (2). Cars, motorcycles, lorries and busses typically make up the majority of traffic on Malaysian roads. It is estimated that there will be over 20 fatalities per 100,000 people by the year 2020 in Malaysia (3). A Head injury is the major reason behind these fatal-

ities in car accidents where it makes up of more than 56.4% of these fatalities. With this reason in mind, the most important injury control strategy for people in cars is the restraint of their head and body in its initial position. Thus, one of the most effective and successful ways to reduce accident fatalities in Malaysia is with the constant use of seat belts by the car occupants (4). Wearing a seat belt has been a proven intervention for safety on the road, as seat belts are able to reduce and control the number of fatal and injuries among car occupants. Vehicle accidents can never be totally wiped out. However, the use of protective measures such as seat belts will help to reduce the number of death and injuries during accidents (5). The use of a seatbelt can reduce the risk of fatality among front passengers by 45% to 50% (6).

Seatbelts has been recognised all over the world as one of the most effective means of reducing the risks of fatal and non-fatal injuries during accidents (7, 8). The Motor Vehicles (Safety Seatbelts) Rules 1978 is the governing law for the use of seat belts in vehicles in Malaysia (6). The Malaysian seat belt laws were enacted in the 1970s to try to bring down the severity of injuries faced by car drivers and passengers when they meet in an accident (4). Back in the sixties Malaysia, many of the car manufacturers were not yet including seat belts as a standard in the cars that were sold. Instead, seat belts were mainly put into cars as an option. As such, many people chose not include the seat belt, as they did not want to pay extra money for their cars. The government realising this, decided to enact the mandatory seat belt law to force the car manufacturers to install seat belts into their cars and to force car owners to use their seat belts that came with their new cars. As time has passed occupant safety has come to the forefront of both governments and vehicle manufacturers (6). The Malaysian Motor Vehicles (Safety Seatbelts) Rules 1978 states that cars manufactured on November 1st 1977 onwards had to have seat belt fixed to the front seats. It also states that cars registered from 1st January 1967 and the 31st October 1977 had to have seat belts retrofitted to the front seats (9). The government ran campaigns in the newspapers, televisions and radio to educate the public

on the use of seat belts in their cars. Soon, all new cars had seat belts and the cars manufactured before the 1960s were being phased out. As such in the 21st century today almost 35 years after the seat belt law was introduced in Malaysia, all cars have at least the front seats with seat belts with many cars manufactured from the 90s onwards having rear seat belts as well. Recently the government of Malaysia introduced the rear seat belt law (6). There is also overwhelmingly positive evidence that whenever a country passed the mandatory seat belt law, the rate of deaths and injuries in automobile accidents reduced drastically (10)

Close to 40% of all vehicles on the road are made up of cars. However, there have not been much studies being carried out to address under usage of seat belts in Malaysia issue. There are articles in the newspapers, advertisements in the newspapers and internet that advocate car occupants' safety by reminders to use always the seat belt. However, a general observation is that not everyone adheres to this law. This paper reviews the reasons behind the noncompliance of the Malaysian seat belt law and suggests possible remedial action in getting the seat to be worn by the occupants of the car.

Methods

Various Universities databases and other databases such as Springer Online, BioMed Central, PubMed, Taylor and Francis, Elsevier and MIROS were searched with specific search terminologies (11). The keywords searched were seatbelts, Malaysia, accidents, injury, fatalities, legislation, worldwide. The research screened covered a time span of between the years 1982 to 2013. This large span of time was taken in order to ensure that we have covered all possible research done in this field (12). The inclusion criteria were seat belt usage (compliance) in Malaysia, seat belt and safety related legislation in Malaysia and around the world, related accident data, among adults to children, type of injuries due to non-usage (non-compliance) of seat belt in passenger vehicles only. We excluded seat belt usage in other types of ve-

hicles namely lorries, goods vehicles, busses and other public transportation.

Results

When the driver and the car occupants take simple safety precautions and use the seat belts available, they are increasing their survivability chance and reduces the probability of harm caused in accidents (13). The developed countries' experience have shown that seat belts are the most effective way to reduce road traffic accident related fatalities where studies have shown that seat belts are the best option available currently to mitigate the severity of injuries during road accidents(4). Typically, during an accident, the safety belt distributes the forces of rapid deceleration over larger and stronger parts of the person's body (such as the chest, hips and shoulders). The safety belt stretches slightly to slow the body down and to increase its stopping distance. There is a significant difference between an unbelted person's stopping distance compared to a belted person's stopping distance that is more often than not the difference between life and death (14). The risk of not wearing seat belt could result the person in the front of the car being thrown through the car's windshield into the road in front, which could be another car or being crushed, by their own car because of the momentum (4). This applies to rear passengers who also will get thrown to the front occupant's seat and injuring the front occupants as a result. The rear passenger could even be thrown out of the car in some extreme cases. When the rear passenger has not buckled up, it could be potentially dangerous to the front occupants of the car. The risk of a front seat occupant being killed in a frontal impact has been estimated to increase by about three-quarters if there is an unrestrained passenger in the seat behind them (15). It has to be noted that a study carried out in Kuwait has found that the fatality rate for car users who do not use seat belts were six times greater than that of users of seat belts of all ages in that country (16).

As mentioned above, the seat belt law was started to being enforced from the mid-seventies following the passing of the Motor Vehicles (Safety Seatbelts) Rules 1978 (6). Since that period, the usage of seat belt would have dramatically increased since the usage of seat belts in cars became mandatory (6). However, Malaysia has not carried out any nationwide data collection or study to study the increase of seat belt usage since the law was introduced (4, 6). There were some smaller studies carried out on specific groups of people. One of those studies was a study carried out on taxi drivers in Kuala Lumpur and Selangor in the year 1993. The results showed a seat belt usage compliance rate of 40% from a sample of 60 taxi drivers in Kuala Lumpur. However, the size and type of sample was too small to be generalised as an overview of the general population (4). The first true effort to gauge the usage of seat belts on a larger scale was through the Malaysian National Health Morbidity Survey III (NHMS III) which was carried out in 2006 (6). The NHMS III was conducted involving 34,539 respondents above the age of 18 years. The NHMS III was a cross-sectional household survey of the prevalence of chronic diseases in all states of Malaysia (17). According to the NHMS III, the compliance rate for the usage of seat among the front occupant of cars was 71.3%. There was not any mention of the results for the patterns of compliance rate according to category of occupants (drivers, and front passengers), time, road type, vehicle type and gender (6). One thing that is worth noting is that in the rural areas, the usage of seat belts is lower than the urban areas (4).

Discussion

In various studies carried out previously, the main reasons given by the respondents for not buckling up were that the respondents forgot to use the seat belt, travelling a short distance, they were not speeding, seat belt is troublesome and uncomfortable, they had just gotten into the car, no police road block, cannot see the benefit of using seat belt and were in a hurry. Other reasons given were

seat belts were only necessary when travelling a long distance (5, 18). It was also found that there is a strong relationship between compliance level of seat belt use and driving location. The studies also found that car occupants in city centers were more likely to use the seat belt compared with car occupants outside city-centers. This could be due to car occupants' perception of lesser enforcement activities outside city-centers compared to the city-centers, which tended to have stricter enforcement (4, 19).

It has also been noted that younger car users such as a teenage driver and their teenage front seat passenger are less likely to use seat belts compared to older drivers and older front seat passengers. In previous studies carried out, it was noted that the most of the students surveyed bulked up to prevent themselves from getting injured, followed by fear of being fined by enforcement officers. However, students who did not use seat belts said that they were only driving for a short distance, forgetful, were in a hurry as reason for not buckling up (16).

The use of the seat belts in motor vehicles has spread all over the world due to the release of the seat belt patent to all car manufacturers in the interest of safety to mankind where almost all automotive vehicle produced these days are equipped with seat belts. It has been noted that then a vehicle occupant puts on their seat belt before getting on to the road, they will stand to have a 50% better chance of surviving an accident (20). Road traffic injuries and deaths can be reduced by enforcing appropriate behaviours, which is not difficult. In developed countries like Finland, seat belt usage increased dramatically through enforcement of the law (21). In a study carried out in Canada, they were able to prove that school age children who were wearing seat belts were less severely injured in the event that they met in an car accident, irrespective of type of restraint (lap-torso or lap belt) or the position of the child in the car (front passenger or rear left seat) (22). A study was carried out in Saudi Arabia after the enactment of the seat belt law, showed a drop in the number of certain types of traffic accident related injuries (23). In another previous study carried out, it was

found that when a driver of a car uses their seat belt, the passenger will most likely to follow suit. This is true conversely as well where the passengers will most likely not use their seat belts when the driver does not use the seat belt (24). In a study carried out on students of Malaysian universities, 93.6% of the respondents understood the necessity of using seat belts but the rest of the respondent would use seat belts due to it being compulsory (25).

It was also noted that the creation of a full-fledged seat belt law covering both the front and rear passengers of a vehicle is necessary and important due to the fact of the increased risk posed by unrestrained rear-seat passengers onto the front passengers (26). The original seat belt law of 1978 originally covered driver and front seat passenger and did not cover the rear passengers. However, compulsory usage of the rear seat belt became law on January 1st 2009. The government of Malaysia gave a grace period of 3 years to get older cars retrofitted with rear seat belt and from the 1st of January 2013, rear seatbelts was compulsory for all cars. However, the take up to the rear seat belt usage is still low. In a study conducted in Malaysia previously, the respondents perceived the risk of being injured in the rear seat during an accident of being so low that they felt they did not need to use the rear seat belt (18). An interesting point to note that in Singapore, the law does state that when a child below 8 years old is seated in the rear they are required to be in a child restraint if a rear seat belt is available (27). Many countries around the world have managed to achieve a high rate of seat belt use. These achievements were mainly the result of the implementation of a wide range of strategies covering both behavioral and vehicle-based solutions (14).

In studies carried out in Malaysia and Turkey, increased level of education among the respondents leads to higher rate of seat belt usage and hence a smaller rate of crashes and crash severities (4), (19). Prevention and control with emphasis on behavioural changes, education and law enforcement may reduce the number of road accidents in the future. Hence, we need to start early with educating future drivers in Malaysia on the need to

use seat belts at all times (28). We need to start educating the children whilst they are still studying in schools to emphasise the importance of seat belts in ensuring road safety as these children and adolescents are the ones who will eventually become future road users. Continues learning will benefit these future road users in the long run and it should be taught from an early age (28, 29). Certain countries have had success with the use of educational material such as posters encouraging the use of seat belts. Turkey has had success with the properly designed education materials posters to highlight the use of seat belts (30).

Laws governing the mandatory use of seat belts are important to regulate the usage of seat belts. However, additional interventions might be necessary to get more people to buckle up when in the car. A study was carried out where the use of device with pedal accelerator back force will limit the speed of the car when the drivers do not put on their seat belts. Once the driver puts on his seat belt, the force of the device relinquished. This study results showed that the pedal back force device achieved 100% compliance within 25 seconds and as such is a good (13, 31).

Conclusion

Enforcement of seat belt usage by either the Police or Road Transport Department can only be a short-term solution. Technological intervention is needed. The relevant agencies are urged to consider making compulsory for all carmakers in Malaysia to enable a system where the car would not be able to start without the seat belt being fixed first for the driver and passenger. A more advanced solution is to make auto seat belt fixing enabled in the car when the driver and / or passenger enter the car or accelerator back force.

Ethical considerations

Ethical issues (Including plagiarism, Informed Consent, misconduct, data fabrication and/or falsification, double publication and/or submission,

redundancy, etc.) have been completely observed by the authors.

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References

1. Forjuoh SN (2003). Traffic-related injury prevention interventions for low-income countries. *Inj Cont Saf Promot*, 10(1-2): 109-118.
2. Abdul Kareem (2003). Review Of Global Menace Of Road Accidents With Special Reference To Malaysia- A Social Perspective. *Malays J Med Sci*, 10(2): 31-39.
3. Ghadiri SMR, Prasetijo J, Sadullah AF, Hoseinpour M, Sahranavard S (2013). Intelligent speed adaptation: Preliminary results of on-road study in Penang, Malaysia. *LATSS Res*, 36: 106-111.
4. Kulanthayan S, Raha AR, Law TH, Radin Umar RS (2004). Seat Belt Use Among Car Users In Malaysia. *LATSS Res*, 28(1): 19-25.
5. Lee LK (2002): A study on the use of car occupant restraint in Selangor. *Med J Malays*, 57: 266-77.
6. Norlen M, Mohammad-Fadhli MY, Ilhamah O, Noradrenalina I, Wahida AB, Noor-Faradila P (2010). Short-Term And Long-Term Effects Of The Enhance Enforcement Programmes On Seatbelt Wearing Among Front Occupants In Malaysia. *J Community Health*, 16(2):47-56.
7. Salim MH, Sanjay YD, Shinde D, Deshpande G (2013). Importance of Federal Motor Vehicle Safety Standards 207/210 in Occupant Safety - A Case Study. *Procedia Eng*, 64: 1099 – 1108.
8. Hauswald, M (1997). Seat belt use in a developing country: Covert noncompliance with a primary enforcement law in Malaysia. *Accid Anal Prev*, 29(5): 695-697.
9. World Health Organisation (2009). Motor Vehicles (Safety Seatbelts) Rules 1978, Available from:

- http://www.who.int/violence_injury_prevention/road_safety_status/2009/laws/seat_belt_malaysia.pdf.
10. Adams J (1982). The Efficacy of Seat Belt Legislation, SAE Tech Pap # 820819. doi:10.4271/820819
 11. Sivasankar S, Karmegam K, Shamsul Bahri MT, Sadeghi N H, Kulanthayan S (2014 Feb 1), Safety System for Child Pillion Riders of Underbone Motorcycles in Malaysia, *Traffic Inj Prev*, 15(6): 564-571.
 12. Uibel S, Müller D, Klingelhofer D, Groneberg DA (2012). Bicycle helmet use and non-use. *J Occup Med Toxicol*, 7(1): 9.
 13. Vaughn MG, Salas-Wright CP, Piquero AR ((2012). Buckle up: non-seat belt use and anti-social behavior in the United States. *Ann Epidemiol*, 22: 825-831.
 14. Abdalla IM (2005). Effectiveness of safety belts and Hierarchical Bayesian analysis of their relative use. *J Saf Sci*, 43(2): 91–103.
 15. Zambon F, Fedeli U, Marchesan M, Schievano E, Ferro A, Spolaore P (2008). Seat Belt Use Among Rear Passengers: Validity Of Self-Reported Versus Observational Measures. *BMC Public Health*, 2008, 8(1): 233.
 16. Hejar AR, Nor Afiah MZ, Kulanthayan S, Law TH (2005). Car Occupants Accidents And Injuries Among Adolescents In A State In Malaysia, *P E Asia Soc Transp Stud*, 5: 1867 – 1874.
 17. Letchuman GR, Wan Nazaimoon WM, Wan Mohamad WB, Chandran LR, Tee GH, Jamaiyah H, Isa MR, Zanariah H, Fatanah I, Ahmad Faudzi Y (2010). Prevalence of diabetes in the Malaysian National Health Morbidity Survey III 2006. *Med J Malays*, 65(3): 180-6.
 18. Kamarudin A, David Daniel B, Khairul D (2007). A Study On Compliance Of Safety Belt Usage Among Car Drivers In The District Of Batu Pahat. *Natl Semin Civ Eng Res*, Skudai, Malaysia.
 19. Demirer A, Durat M, Hasimoglu C (2012). Investigation of seat belt use among the drivers of different education levels. *J Saf Sci*, 50:1005–1008.
 20. Bilgic S, Barut HB, Karacasu M, Er A, Yaliniz P (2011). The changes in usage of seat belts in Antalya, Turkey. *Procedia Soc Behav Sci*, 20: 588–593.
 21. Hallbauer UM, Joubert G, Ahmed SF, Brett S, Dawadi PR, Kruger J (2011). Restraint use and seating position among children in motor vehicles in Bloemfontein. *S Afr J Child Health*, 5(2):43 – 47.
 22. Halman SI, Chipman M, Parkin PC, Wright JG (2002). Are seat belt restraints as effective in school age children as in adults? A prospective crash study. *Br Med J*, 324: 1123-1126.
 23. Bendak S (2005). Seat belt utilization in Saudi Arabia and its impact on road accident injuries. *Accid Anal Prev*, 37: 367–371.
 24. Nambisan SS & Vasudevan V (2007). Is seat belt usage by front seat passengers related to seat belt usage by their drivers? *J Saf Res*, 38: 545–555.
 25. Redhwan AA, Karim AJ (2010). Knowledge, attitude and practice towards road traffic regulations among university students, Malaysia. *Int Med J Malays*, 9: 29-34.
 26. Bose D, Arregui-Dalmases C, Sanchez-Molina D, Velazquez-Ameijide J, Crandall J (2013). Increased risk of driver fatality due to unrestrained rear-seat passengers in severe frontal crashes. *Accid Anal Prev*, 53: 100– 104.
 27. Wong SHJ, Wu Y (1998). The Efficacy Of Safety Policies On Traffic Fatalities In Singapore. *Accid Anal Prev*, 30(6): 745–754.
 28. Moe H (2008). Road traffic injuries among patients who attended the accident and emergency unit of the University of Malaya Medical Centre, Kuala Lumpur. *J Univ Malay Med Cent*, 11: 22-26.
 29. Goldzweig IA, Levine RS, Schlundt D, Bradley R, Jones GD, Zoorob RJ, Ekundayo OJ, (2013). Improving seat belt use among teen drivers: Findings from a service-learning approach. *Accid Anal Prev*, 59: 71-75.
 30. Akbas O, Güven R, Cebeci G , Bertlek SB , Aldemir G, Bal E (2010). A study on the effects of seat belt posters on drivers. *Procedia Soc Behav Sci*, 2: 1002–1007.
 31. Van Houten R, Reagan IJ, Hilton BW (2014). Increasing seat belt use: Two field experiments to test engineering-based behavioral interventions. *Transport Res Part F*, 23: 133–146.