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Roadblock Approach Method: Child Restraint System (CRS) Advocacy Program in Malaysia's Rural Areas

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ABSTRACT – *The Child Restraint System (CRS) has been proven to reduce the injury severity and risk of fatality on children during road traffic crashes. This paper aimed to determine the awareness, usage, and compliance with the use of CRS. In addition, another objective was to determine the challenges of non-compliance use of CRS. In this advocacy program, the RTD (JPJ) enforcement team will set up roadblocks and the respondents were invited to participate in the advocacy program. The advocacy team was to provide advice and guidance on the correct use of CRS, promote and register CRS purchase subsidies and conduct a general study on awareness of the use of CRS among rural residents. As a result, more than 80% of respondents who join the advocacy program recognized CRS and almost 94% believed that CRS can reduce accidental injuries to children. 79.0% of them are interested in buying child safety seats if they are given a subsidy. More than 70% of the respondents agreed that the higher price of CRS, lack of awareness, and program are the factors that cause the lack of use of CRS. In conclusion, the use of CRS is lower in rural areas compared to urban areas. Even after CRS was made mandatory, the level of use is still at a moderate level.*

KEYWORDS: Child safety, Child Restraint System (CRS), child occupant, advocacy program

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1. INTRODUCTION

According to Royal Malaysian Police (PDRM), child passengers in Malaysia aged between one to nine years are the main group of victims who died because of road crashes involving private vehicles (Mohamed et al., 2011). The usage of the Child Restraint System or better known as CRS has been made mandatory on January 1, 2020, to reduce fatalities and injuries due to road crashes among children (Paiman et al., 2021). The government has enforced regulations related to the use of CRS under the Motor Vehicle (Seat Belt) (Amendment) Rules 2019 (MIROS, 2019). However, a study of use in the Klang Valley area found that the use of CRS is still at a moderate level even though the law has been enforced (Figure 1).

Although the enforcement of laws and regulations plays an important role, it is still not enough to maximize the use of CRS (Jawi et al., 2016). It needs to be included with elements of education and continuous enforcement (Paiman et al., 2021). However, studies related to the use of CRS in rural areas in Malaysia are still lacking. Therefore, this study needs to be done since there are no statistics on the use of CRS in rural areas. Through this study, researchers will be able to find out the constraints faced by rural communities concerning the use of CRS.

According to previous studies, there are several methods in research to determine the rate of CRS usage in Malaysia (Table 1). Among the methods that have been made are roadside observations and community surveys. So far, there has never been a study using the roadblock method to determine the rate of CRS usage. This study was conducted in conjunction with the Child Restraint System (CRS) Advocacy Program which focuses on rural areas.

This advocacy program has been carried out together with three agencies, i.e., the Road Safety Division (BKJR) of the Road Transport Department (RTD/JPJ), the Road Safety Council (MKJR), and the Malaysian Institute of Road Safety Research (MIROS) (Figure 2).

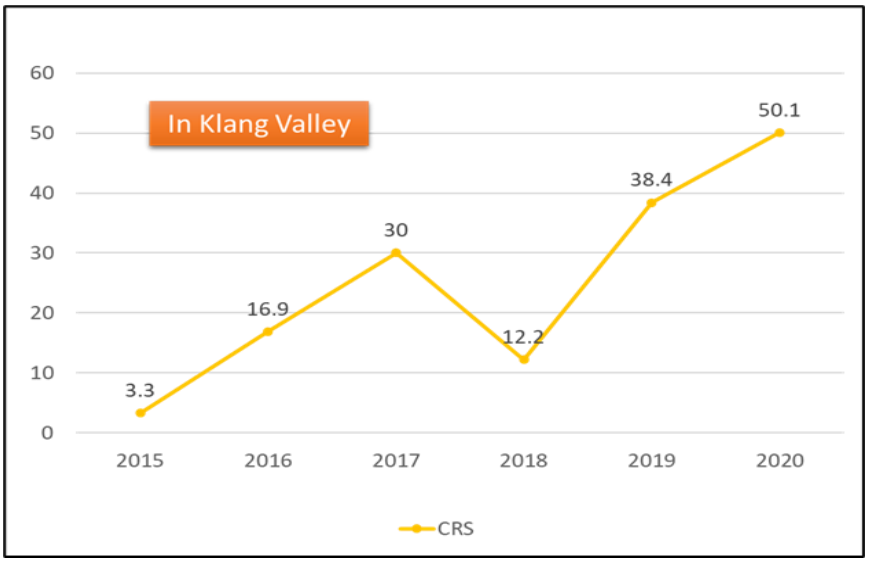

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FIGURE 1: Restraint wearing rate by type of occupants (CRS) during OPS 2015 – 2020

TABLE 1: Comparison between methods to determine the CRS rate of use

Roadside Observation	Community Survey	Car Seat Check Event	Roadblocks by Enforcement Agency (RTD/JPJ)
√ This method has been implemented before √ Often implemented in urban areas			√ This method was never implemented before √ Focus on rural areas
Sometimes, data collection could not be performed properly due to various factors such as weather, vehicles (tinted mirrors), and human factors.	Requires the voluntary involvement of the respondent	Respondents were limited to parents who owned CRS only.	The advantage of using this method is that researchers can obtain target respondents more quickly and easily. This is because the respondents who have been identified will be detained by JPJ enforcement to participate in advocacy programs.

FIGURE 2: The agencies involved

Among the things emphasized in this advocacy program is the Malaysian Family Child Restraint System Purchase Subsidy Program (MyCRS). Through Malaysia's Budget 2022, the government also announced a subsidy of 50% or up to RM 150 for the purchase of CRS exclusively for the B40 group – the bottom 40 percent of citizens according to their household income (Mansor et al., 2020). This

subsidy provides an opportunity for those who are less able to own and use CRS. Therefore, this platform will be one of the methods for promoting CRS subsidies, especially for rural residents. Furthermore, it is expected to have a positive impact on the CRS usage rate in Malaysia.

2. METHODOLOGY

This program has been carried out in four rural areas in several states in Peninsular Malaysia. The list of program locations is as below:

i. Road Transport Department Enforcement Station, Bukit Bunga, Kelantan.
ii. Road Transport Department Enforcement Station, Benta, Pahang.
iii. Road Transport Department Enforcement Station, Pedas, Negeri Sembilan.
iv. Road Transport Department Enforcement Station, Tenang, Johor.

The list of activities that have been implemented in this advocacy program was to provide advice and guidance on the correct use of CRS, promote and register CRS purchase subsidies, and conduct a general study of the behavior or awareness of the use of CRS among rural residents (Figures 3, 4, 5 and 6).

The targeted program participants are all private vehicle passengers and those with children in their vehicles including cars, vans, Multi-purpose Vehicles (MPVs), Sport Utility Vehicles (SUVs), and four-wheel drives that pass through the program location. The JPJ enforcement team will set up roadblocks and vehicles that meet the criteria will be invited to participate in the advocacy program inside the premises of the enforcement station.

FIGURE 3: JPJ enforcers detained selected vehicles to participate in the program

FIGURE 4: Parents are filling out the information in a survey form

FIGURE 5: Explanation regarding CRS

FIGURE 6: Description of CRS subsidy

3. RESULTS

Based on Table 2, a total of 214 respondents participated in this advocacy program, where the majority were men (69.2%), aged 31-40 years (52.8%), Malay (94.9%), married (91.6%), income households are less than RM 3,000 (63.1%), and have children over 5 years old (53.7%).

TABLE 2: Respondents' socio-demographic profiles

Variables	Total
Total Respondents	214
Gender	
Male	148 (69.2%)
Female	66 (30.8%)
Age	
21 – 30 years	30 (14%)
31 – 40 years	113 (52.8%)
41 – 50 years	54 (25.2%)
51 years and above	17 (7.9%)
Race	
Malay	203 (94.9%)
Chinese	7 (3.3%)
Indian	4 (1.9%)
Status	
Single	11 (5.1%)
Married	196 (91.6%)
Widow / Widower	7 (3.3%)
Income	
< RM 3,000	135 (63.1%)
> RM 3,000	79 (36.9%)
Child's age	
0 – 2 years	64 (24.9%)
3 years	41 (19.2%)
4 years	38 (17.8%)
5 – 12 years	115 (53.7%)

All the areas are in the rural categories, which are mostly from the B40 group. Bukit Bunga, Benta, Tenang, and Pedas are rural areas lived in mainly by residents and those who are self-employed. Therefore, most of our respondents are seen as self-employed parents with low- and middle-income households.

3.1 Awareness of the Use of Child Restraint System (CRS)

Based on Table 3, More than 80% of respondents who join the advocacy program recognized CRS and almost 94% believed that CRS can reduce injuries and fatalities to children. As for the knowledge about the enforcement of the CRS usage law, there are still many people who are not aware of the enforcement of this law. Only 24.8% of the respondents know about the CRS subsidies for the B40 group. Nevertheless, 79.0% of them are interested in buying CRS if they are given a subsidy. This shows that subsidies or discounts can influence parents' decisions to buy child safety seats.

TABLE 3: CRS usage awareness among respondents

Awareness of CRS	Yes (%)
Respondents recognize Child Restraint System (CRS)	180 (84.1%)
CRS can reduce injuries to children caused by road accidents	200 (93.5%)
CRS usage was enforced on January 1, 2020	144 (67.3%)
Own a CRS in the vehicle for child passengers	75 (35.0%)
Aware of the CRS subsidy program for the B40 group	53 (24.8%)
Interested in buying a CRS if subsidized	169 (79.0%)

Based on a study conducted by Cai et al. (2021), respondents who used CRS had a higher knowledge score compared to those who did not use CRS. Similarly, parents who use CRS have significantly more positive attitudes toward CRS.

3.2 Restrictions on the Use of Child Restraint System (CRS)

Based on Table 4, a few questions were asked to the respondents about the obstacles faced by Malaysians, especially in the issue of using CRS. More than 70% of the respondents said that the expensive market price of CRS, the lack of knowledge about CRS, and the lack of awareness programs cause the percentage of CRS use to be still at an unsatisfactory level. While only 58.9% think that many children are a factor in the lack of use of CRS.

TABLE 4: List of potential restrictions to using CRS

List of Restrictions	Yes (%)
CRS market price is unreasonable/expensive	156 (72.9%)
Many children	126 (58.9%)
Lack of exposure/knowledge about CRS	156 (72.9%)
Lack of awareness program about CRS	163 (76.2%)

In a study from researchers in Singapore (Tan et al., 2020), based on a survey of parents, education to the public is the most often approach expressed by them. Important information should be provided by reliable agencies and social media should be used to approach the public about the importance of CRS. Locations such as general health clinics and hospitals function as advocacy locations to deliver CRS-related information to parents.

4. DISCUSSION

Based on the survey done in 2022, the number of parents who use CRS in urban areas (53.3%) is higher than in rural areas (35.0%) (Figure 7). Based on a study that has been carried out by Abd Rahman et al. (2021) in rural areas around Batu Pahat, the results of the study showed that 97.1% of respondents were aware of the enforcement of CRS on January 1, 2020, however, only 35.3% of parents used CRS every time they ride a vehicle. Parents who participated in the study indicated that they were aware of the risks of not using CRS, but the majority still did not comply with the law.

Table 5 shows a crosstab analysis that shows the relationship between the socio-demographics of the respondents and CRS usage. The analysis showed significant results in the age and total income of the respondents.

Based on Table 5, respondents aged 21-40 years tend to use CRS as much as 1.952 or 1 times compared to respondents aged 41 years and above. In addition, respondents with an income of RM 3,000 and below tend to use CRS as much as 0.407 smaller compared to respondents with an income of RM 3,000 and above.

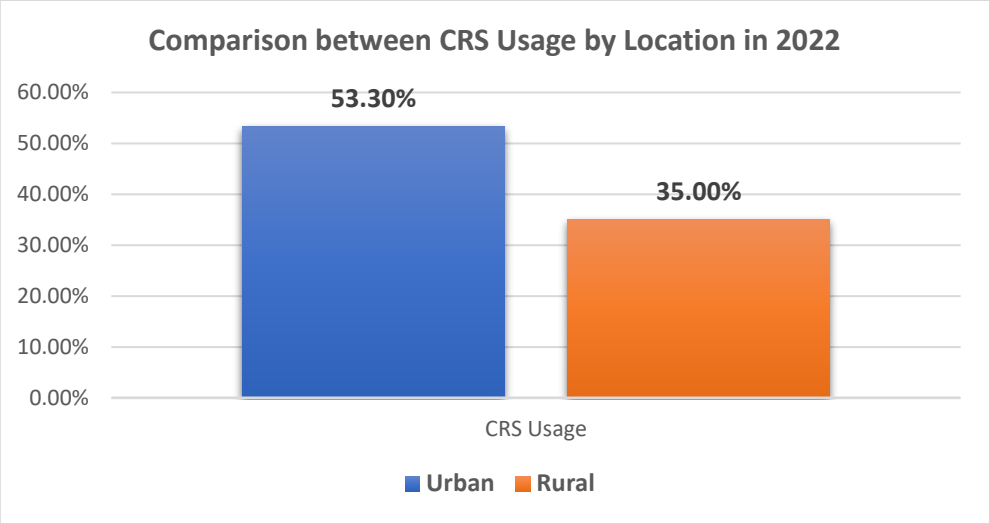

FIGURE 7: CRS usage according to location (urban dan rural area)

TABLE 5: Probability of vehicle passengers using CRS according to socio-demographics

Variables	Use CRS		Not Use CRS		OR[a] (95% CI)
	N	%	N	%	
Less than 4 children	68	31.78	125	58.41	1.088 (0.419,2.825)
More than 5 children	7	3.27	14	6.54	
21 – 40 years old	57	26.64	86	40.19	1.952* (1.039, 3.667)
41 years old and above	18	8.41	53	24.77	
Below RM 3,000	37	17.29	98	45.79	0.407* (0.228, 0.728)
RM 3,000 and above	38	17.76	41	19.16	

[a] Odd Ratio Analyses 2 x 2 Table (probability of vehicle passenger using CRS based on socio-demographic)
* Significant

Based on a study by Paiman et al. (2018), in which the study showed the relationship between CRS use and demographic characteristics, Kuala Lumpur residents and younger parents, aged 35 and under, were twice as likely to use CRS. In addition, respondents with a degree were 1.5 times more likely to use CRS for their children.

Although almost all respondents (93.5%) in this study are aware that CRS can reduce the risk of injury and death during accidents, more than half of respondents (65.0%) do not use CRS in their vehicles. According to a study carried out by (Ang et al., 2020) which states that parents' lack of awareness about CRS causes parents to be unaware of their children's physical weaknesses and believe that injury is inevitable. Bruce et al. (2017) also stated that knowledge about CRS has been identified as an important factor in influencing the use of CRS by parents. This indicates that proper education and the use of CRS among parents are very important.

Some interventions in promoting and increasing the use of CRS are the adoption and enforcement of laws that will reshape the perception and compliance of CRS by parents because some may comply with CRS laws when there is the presence of enforcement officers (Bhaumik et al., 2020). Bruce et al. (2017) also support consistent legislative and law enforcement efforts in influencing parents' decisions to comply with the use of CRS, if seen from another angle it can indirectly increase parents' knowledge and the benefits of using CRS. Lee (2002) suggested that to ensure a good compliance rate, stricter fines, and a demerit system could be imposed. Furthermore, CRS incentives should be provided to help low-income parents who cannot afford safety seats.

5. CONCLUSION

The implementation of the CRS awareness program in several locations in rural areas has provided a significant understanding of the small population in rural areas. This study will help researchers to carry out more in-depth studies on the use of CRS in the future. Among the further studies that can be carried out is a study on the effectiveness of the advocacy program, and a more in-depth study on the interventions that can be done to increase the use of CRS among vehicle passengers.

Through the programs and studies that have been carried out, a lot of information has been obtained, including awareness about the use of CRS and the challenges and constraints of using CRS for rural residents. With the availability of this information, it is hoped to provide insight to relevant parties in implementing appropriate interventions to ensure the safety of children and further reduce deaths among children, especially those aged 5 to 12 years.

In conclusion, the use of CRS is lower in rural areas compared to urban areas. Even after CRS was made mandatory, the level of use is still at a moderate level. To encourage parents to use CRS, there should be more awareness programs, and education programs and the dissemination of information through social media should be maximized. Things related to CRS that need to be emphasized are the importance of CRS in reducing injuries and deaths and increasing the use of CRS in the right way. This intervention needs to be supported by all parties such as government, private, non-governmental, and private agencies, enforcement, and stakeholders need to collaborate to encourage the use of CRS in vehicles.

REFERENCES

Abd Rahman, R., Khalik, N., Lim, W. M., Hassan, M. F., Mashros, N., Diah, J. M., & Bujang, Z. (2021). Parents' awareness on compliance with the use of child restraint system: A quantitative pilot study at kindergarten and nursery in Parit Raja, Batu Pahat, Johor. International Journal of Road Safety, 2(1), 19-23.

Ang, J. Y., Lai, J. M., Hss, A. S., Ramalingam, P., Ramasamy, M., Zainuddin, N. S., ... & Bahari, N. (2020). Awareness, perception, and experience on child restraint system (CRS) and its legislation among Malaysian parents with newborns. Traffic Injury Prevention, 21(4), 278-282.

Bhaumik, S., Hunter, K., Matzopoulos, R., Prinsloo, M., Ivers, R. Q., & Peden, M. (2020). Facilitators and barriers to child restraint use in motor vehicles: A qualitative evidence synthesis. Injury Prevention, 26(5), 478-493.

Bruce, B. S., Mundle, K., Cramm, C. F., & Williams, D. P. (2017). Promoting booster seat use for young children: A school-based intervention pilot study. Paediatrics & Child Health, 22(2), 89-91.

Cai, W., Lei, L., Zhou, H., Wang, Y., Peng, J., Jin, Y., & Deng, X. (2021). Child restraint system use and its associated factors in Shenzhen. Accident Analysis & Prevention, 160, 106321.

Jawi, Z. M., Isa, M. H. M., Mohamed, N., Awang, A., & Osman, M. R. (2016). A systemic analysis on the usage of safety items among Malaysian private vehicle users. Journal of Mechanical Engineering and Sciences,10(3), 2262-2274

Lee, L. K. (2002). A Study on the use of car occupant restraint in Selangor. Medical Journal of Malaysia, 57(3), 266-277.

Mansor, M. R. A., Kassim, K. A. A., & Jawi, Z. M. (2020). Willingness to purchase safer vehicles: A study base on Malaysia B40 income group. Jurnal Kejuruteraan, SI 3(1), 71-74.

Mohamed, N., Wong, S. V., Hashim, H. H., & Othman, I. (2011). An overview of road traffic injuries among children in Malaysia and its implication on road traffic injury prevention strategy. Kajang, Selangor: Malaysian Institute of Road Safety Research.

MIROS (2019). Garis panduan kerusi keselamatan kanak-kanak di Malaysia. Malaysian Institute of Road Safety Research, ASEAN Road Safety Centre.

Paiman, N. F., Borhan, N., Ahmad, Y., Radzi, M. M., Shaari, N., Jawi, Z. M., & Kassim, K. A. (2021). Development of Malaysian Child Occupant Safety Training Program for the safe transportation of Malaysian children. iLEARNed, 2(1), 15-21.

Paiman, N. F., Deros, B. M., Hamzah, A., Kak, D. W., Solah, M. S., & Ahmad, Y. (2018). A study on the use and misuse of child restraint system (CRS) in Malaysia. Journal of the Society of Automotive Engineers Malaysia, 2(1), 5-13.

Tan, R. M. R., Dong, C., Shen, G. Q., Feng, J. X. Y., Piragasam, R., Tyebally, A., & Chong, S. L. (2020). Parental knowledge and beliefs on the use of child car restraints in Singapore: A qualitative study. Singapore Medical Journal, 61(2), 102.