

Safety Rear Guard for Tricycle

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Abstract- *This study determined the acceptability of the proposed rear guard model in terms of comfort, safety, security, functionality, likeness and it's seriousness of their problems encountered by the drivers and back riders. In the Philippines tricycle are built in different style, like in San Fernando La Union backrest, handrail, and footrest are required for back rider of the tricycle but in some part of Pangasinan tricycle are built with their own styles but still incur possibility of fall. The researchers developed a safety device for tricycle as introduced among drivers on the acceptability and problems encountered by them. Descriptive research was utilized with 76 respondents as pilot tested at Lingayen, Pangasinan. Most respondents are in age bracket of 16-20 years old, male, single, with no child, college undergraduate, with monthly income of 9001 and above, spouse government employee, member of TODA, don't have trainings in driving, but have 5-9 years in driving. The problems encountered by tricycle drivers and back riders were on the use found moderately serious. Feel comfortable, safe and secure, satisfied in the functionality and the likeness of the design, its installation, overall features. The develop model should be presented to the Municipality of Lingayen and Sangguniang Panlalawigan for possible adoption and increase the number of ordinances on road safety protection and submission of the device for crash testing is recommended.*

Keywords: *safety guard protection device, tricycle, back rider*

INTRODUCTION

It is a worldwide problem on road accidents of any kind which estimated around 1.25 million people die and about 50 million got wounded or acquire disabilities. The Global status on Road and Safety 2015 as according to World Health Organization (WHO) said, that 53% of the reported road traffic fatalities in the Philippines are riders of motorized of two – or three wheeler vehicles.

Tricycles are king of the road particularly in the inner alleys and even highways. They are in great numbers and popular where they are one of so called the Philippine transportation vehicles. The tricycle is so multipurpose it can bring you to anywhere as long as the right contact fare was agreed upon [1]. It can serve passengers rain or shine. It can take one to several street corners. [2]. Tricycle was regarded as essence of Filipino resourcefulness, because the vehicles are made mixture of different parts and materials [3]. Tricycles are built in different styles, building sidecar and attaching to a motorcycle and there is

no standardized design [3]. Philippine tricycle is composed of motorcycle fitted with a single wheel sidecar or with a two-wheel cab, operated as a public transport for a fee. [4]. Under the Local Government Code, local government units (LGU's) are ultimately the ones that grant franchise and supervise operations and subject to guidelines set by the Department of Transportation and Communication (DOTC) through the Land Transportation Franchising and Regulatory Board (LTFRB)[9],[10].

Ideally, tricycle accommodates only four (4) passengers including the driver but the real scenario is even up to ten (10) passengers mostly students elementary or high school with small physical built are heavily pressed inside the sidecar, some are at the backseat, some are hanging from the rear or even atop.

According to Ordinance No. 2011-07 of San Fernando City back riding for tricycle shall be allowed with the following conditions; 1) there should only be one back rider; 2) backrest, handrail, safety belt, and foot rest shall be installed

and shall follow specification prescribed design by the Office of City Engineer; 3) back riding passenger must not be a minor aged between twelve (12) and below, a senior citizen nor person with disability; 4) back rider must not be under the influence of liquor [7]. Over half million of motorcycles operating all over the Philippine archipelago and more than 50 percent is for hire vehicle [1].

A study conducted by the Asian Development Bank, it was revealed that most commuters prefers the use tricycles because of their 1) high accessibility, 2) availability, 3) affordability; and 4) convenience [2]. The demand for tricycle increases and with relatively small capital to start a tricycle business so the proliferation of tricycles over the past years has become evident. The increase number of vehicles and commuters has deciphered into higher incidence of road accidents [8].

Former President Benigno S. Aquino III signed last April 28, 2011 the Proclamation No. 159 declaring 2011 as the launching year of the Decade of Action for Road Safety: 2011-2020 because of the alarming numbers of road accidents particularly motorcycles and tricycles [9],[10].

Road safety is a shared responsibility, and calls for multi-sectoral collaboration, and for that several national agencies joined together to advocate on violence and injury prevention program where the Department of Health in particular facilitate in coordinating, integrating activities as per AO 2007-0010 known as the “National Policy on the Injury Prevention Program”[11]. The Department of Transportation and Communication (DOTC), and other partners, are also willing to extend service but have limited funding, so stretching arms to reach out to other agencies and sectors, like transport, police, public works, education, and others towards safety and injury prevention. [2],[5]. Information Education campaign (IEC) materials and training manuals were developed but reproduced and disseminated minimally [5].

In the education sector and in support of the advocacy on road safety and injury prevention their contribution is through research and health and safety education among the commuters and drivers. As a part of the academe and as

researchers out of research we developed a safety device for tricycle among back riders. The device is place at the backseat of the driver where limited to only one back rider to ride so as to ensure safety of the commuter.

Objectives of the Study

This aimed to determine the acceptability of the proposed safety rear guard model for tricycle in terms of comfort, safety and security, functionality and likeness also to determine the level of seriousness of the problem encountered by drivers and as back riders.

Materials and Methods

The descriptive-developmental research was utilized. In this study the researchers made used of a questionnaire checklist to be answered by the respondents able to experience riding with the device. The drivers and back riders as respondents assessed the prototype and wherein drivers of a tricycle acted as back rider for them to know the condition of being a back rider and able to draw what problems encountered, their comfort and feeling of secured and safe.

It was pilot tested in the Municipality of Lingayen and there were 76 respondents a residence of Lingayen, interview was conducted also. Percentage and weighted mean was utilized in the study. Below is the drawing of the device given recognition by Intellectual Property Office of the Philippines as Utility Model and Industrial design.

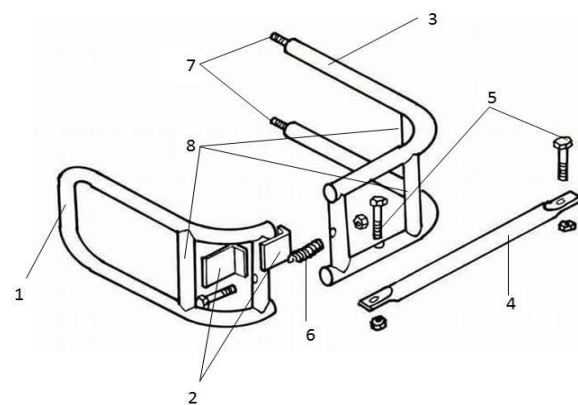


Figure 1. Exploded View of the Rear Guard



Figure 2. Device attached with Back rider



Figure 3. Device Attached

aged, temporary blindness occurs which may lead to accident [6]. Majority of the respondents are male with 94.7% and 5.3% are female. Traditionally, men have to work for his family particularly as driver which entails much of physical flexibility and stamina but there are some female tricycle drivers who are on the road but minimal only because they are solo parent. Majority of the respondents are single with 61.8% and 38.2% are married. The respondents don't have a child with 51.3% because most of the respondents were single and 2.6% are with 6 and 8 children. Most of the respondents are college undergraduate with 47.4 % and 1.3% are elementary graduate, elementary undergraduate and technical or vocational graduate. Most of the respondents in terms of monthly income 9001 and above with 31.6% followed by below 3000 with 27.6% which means that many are single and some are college graduate, some married with working spouse which might contribute to higher income while below 3000 as income implied that drivers are married with 2 to 5 children and some with unemployed spouse. Most of the spouse of the respondents is government employee with 27.6% and some are self-employed an in part-time basis with 5.3%. Majority of the respondents are member of TODA with 75% and 25% are members of other associations. Majority of the respondents don't have any trainings in driving with 80.3% but some undergo training with 19.7% the long years of driving assumed as their training of being experienced drivers. Majority of the respondents are 5-9 years in driving with 57.89% and some are in 10-14 and 15-19 years in driving with 1.32%.

On the level of problems encountered by tricycle drivers and as back riders of the device installed the overall weighted mean is 2.18 means "moderately serious" it implied that once new things was introduced there is always be resistance or conflict but when the driver have their appropriate orientation and explain further about the device installed then it may not be a problem.

On the level of problems encountered by back riders among tricycle drivers the overall weighted mean is 2.15 means "moderately serious" where in this study the respondents acted as the back riders during the test drive with the installed

Results and Discussions

As to their profile most of the respondents with age bracket of 16-20 years old with 25% hence only 2 tricycle drivers were found to be underage and the rest of this age bracket are of legal age. As according to Land Transportation Office (LTO) the minimum driving age will be raised from 16 to 17 for students and from 17 to 18 for non-professionals and upgrade to professionals if satisfies the requirements [9]. Usually those driving with student license are not accompanied by a holder of non-professional or professional licensed. Age bracket of 57-62 years old with 1.32% have the least maybe few are available during the conduct of study considering their visibility, reflexes, mental sharpness and physical aches are important among old age drivers for safety purposes. Photoreceptors deteriorate ones

safety rear device. The driver acted as the back rider so to feel the situation that they can relate whatever the commuter or back rider might experience so to avoid issues among them.

Majority of the respondents are agreeing with the comfort statement that they feel comfortable as back rider riding with the installed device with 78.9%. The respondents feel any fear with the device with 22.4%, with proper awareness and orientation about the device most likely lessens fear and anxiety. Most of the respondents agree that the respondents feel safe from falling because of the device except that 22% of the respondents feel strange. It implied that the device is new need to orient the public and introduce the device accordingly to them.

Most of the respondents agree that the device really for safety purpose, and able to meet the satisfaction of the commuters or back rider based on functionality. The respondents agree soundly on the likeness of the design, how it is installed, and the overall features of the device.

Conclusion and Recommendation

Based on the findings of the study it could be inferred that age matters in the road safety protection. Majority of the drivers are male, single, college undergraduate, a TODA member, do not have formal training and have long years' experience in driving tricycle.

The LTO must be strict in the issuance of license particularly the minimum driving age and old age. Certificate of training on road and safety measures among drivers is suggested before issuance of license.

The developed model will be presented to the Municipality of Lingayen and to the Sangguniang Panlalawigan for possible endorsement or adoption and for possible policy ordinance on road and safety measures among drivers and commuters of tricycle. Submission of

the developed device for crash testing is recommended.

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