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The background of the entire poster is a photograph of a city skyline, featuring several tall skyscrapers and a dense urban landscape. The image is partially obscured by blue geometric shapes that frame the text.

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USER'S PERSPECTIVE TOWARDS SAFETY AWARENESS ON ESCALATOR ACCIDENT AT THE SHOPPING MALL

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Abstract:

Every day, there is no doubt that there are thousands and millions of people who use the escalator as transmission facilities in the world. Escalators could efficiently and safely be transporting people from floors to other floors in places such as shopping malls, cinemas, airports, railway stations, metro stations and other public places. Even though escalators seem safe to use, it can be extremely dangerous when used inappropriately or when not maintained correctly. This research was aimed to reduce escalator accidents among users at the shopping mall. The scope is focused on the user who used the escalator at Kuala Lumpur's shopping mall since there are few cases that have happened there. Three shopping malls were selected for this research. This research was conducted using quantitative methods and 82 questionnaires were distributed among the users. The data was then analysed using Statistical Package for Social Science (SPSS) version 26.0. The result shows that most of the respondents are aware of escalator accidents and have knowledge on escalator safety. In addition, the major factor that contributes to escalator accidents is the design factor. In order to reduce escalator accidents respondents suggested that the user have to follow safety guidelines and safety devices on escalators should be tested.

Keywords: Users; Awareness; Escalator accident; Shopping Mall

1.0 INTRODUCTION

Escalators or moving stairs are one of vertical transportation under the mechanical equipment, which is commonly used to transport people from one place to another. In shopping complexes, it plays a vital role in transporting passengers to above and below floor levels (Janipha, Alwee, Ariff and Ismail, 2018). Nowadays, there are a lot of escalator accidents. David (2015) stated that, even though escalators are very helpful for transmitting users in the vertical way, lack of safety awareness will cause danger to the user. Escalator accidents are something that cannot be treated lightly as it could involve the fatality. It can happen due to many reasons. It can be from human fault or from the escalator itself. Basir, Yaziz, Zamri and Halim (2018) stated that escalators are competent sources that could lead to injuries and deaths to the users and workers that install, repair and maintain the escalator.

1.1 Problem statement

According to the Department of Occupational Safety and Health (DOSH), there are approximately 85 accidents and six deaths occurred from lift and escalator accidents in 2012 to 2018 (The Sun Daily, 2018). Furthermore, from the year 2011 to 2015, 97 percent of the involved escalator accidents are young children which is the largest number of victims that caused permanent disabilities and life-threatening situations towards them as claimed by DOSH (Naseer, 2016). This means escalator accidents are not something that could take it lightly. This had been proved when there was a case involving a three-year-old boy who had his hand caught in an escalator belt while he was playing with escalator's handrail in Klang Wholesale City Plaza (Esther, 2019). Another case where a 10-year-old girl where her shoe stuck in an escalator at the Mid Valley Megamall (Samachar, 2019). Other than that, due to the substandard maintenance, wrongful use, vandalism and the failure of use escalator accidents could lead to accidents (Nst, 2018). The escalator accident may happen due to malfunction like a case at The Garden Mall, Kuala Lumpur. A shopper at The Garden Mall was terrified when one of the escalators suddenly malfunctioned (Ruxyn, 2016). Maintenance and safety practices are the important elements that should not be taken lightly by each party involved as there were many accidents recorded (Janipha et al., 2018).

1.2 Aim

The aim of the study is recommend the ways to reduce escalator accidents among users at the shopping mall.

1.3 Research objectives

- i. To identify the level of safety awareness among users on escalator accidents at the shopping mall.
- ii. To identify factors that contribute to escalator accidents at the shopping mall.

- iii. To suggest the effective ways to reduce escalator accidents among users at the shopping mall.

1.4 Research questions

- i. What are the level of safety awareness among users on escalator accidents at shopping mall?
- ii. What are the factor that contribute to escalator accidents at the shopping?
- iii. What are the effective ways to reduce escalator accidents among users at the shopping mall?

1.5 Scope of research

The study focused on the escalator accident at the shopping mall, where the questionnaires were distributed to public users, workers and visitors since the research focuses on the user of the escalator at the shopping mall. The location for this research is Kuala Lumpur. The main reason why Kuala Lumpur was chosen is because there are few cases related to escalator accident had happened at the shopping mall in Kuala Lumpur (Yen, 2014; Parry, 2015; Samachar, 2019). In order to small the scope of this research, three shopping mall in Kuala Lumpur were selected for the case study which are The Gardens Mall, Kenanga Wholesale City and Mid Valley Megamall.

2.0 LITERATURE REVIEW

2.1 Safety awareness among user towards escalator accident at the shopping mall

Safety awareness is a sense for the external conditions which might pose a threatening remark towards the passenger safety. Most of the accidents occurred at the shopping mall compared to other public places, therefore, users should be aware of their own safety. Children and senior citizens are the most common one to be involved with escalator accidents as stated by Dhanasekaran, Sreenatha, Vinothkanna, Narendra and Bala (2016). For children, these kinds of accidents might have occurred due to the playful nature while senior citizens might have lost their balance when riding the escalator. Janipha et al. (2018) also stated that escalators are potential sources of injuries and deaths to the general public and to the workers. In addition, safety devices includes comb plates which were created to avoid users from tripping, balustrade skirts help preventing clothes from getting stuck while the automatic service break was created to enable the escalator so that it could stop smoothly if the drive chain or step chain is broken or if an object gets stuck into the handrail's inlet (Xie and Liu, 2019). Knowledge about escalators are required as it could reflect passengers' comfort, common sense and even their own safety awareness such as familiarity with structure of the escalator, knowing the place of safety features such as emergency stop button and understanding the safety rules of using escalators as stated by Alonso et al. (2018). There is safety information regarding escalators displayed on the glass panel near the entrance to the escalator. Safety rules refer to both safety-related regulations and restrictions for the escalator passenger on what they should do and what they should avoid when riding escalators (Xie and Liu, 2019).

2.2 Factors that contribute to escalator accident at the shopping mall

2.2.1 Design factor

Traffic pattern includes in the escalator design criteria as it directs people to use the escalator. Al-Sharif (2015) stated that poor escalators may lead to accidents such as design of braking systems that could compromise between stop within a particular distance or stop in a smooth way. Therefore, if the design is not precise, a harsh stop could lead the passenger to falls. Apart from that, the maximum number of escalator users per ride should be counted as well to know the escalator capacity. There is a direct relationship between the capacity to carry loads with the expected peak traffic demand and in the crucial hours where the number of users expands during peak hours (Janipha et al., 2018).

2.2.2 User factor

According to Basir et al. (2018), human errors are one of the biggest contributions to escalator accidents. Human factor was rather believed that it could divide into two factors which are individual factors and task factors. of an individual factor are human carelessness, wearing improper outfits such as loose clothing, rubber shoes/slippers. Generally, 99% of escalator accidents involved rubber shoes since they are at a higher risk in getting stuck on the escalator's gap (Nst, 2016). It is revealed through a study led by the DOSH that between 2011 and 2015, almost every 31 escalator accidents that happened nationwide were caused by victims who were wearing rubber shoes. Due to its rubber texture, it could easily be pulled or seized by the escalator. While then, task factors include playing on an escalator, not holding the handrail, carrying packages, standing on the

edge of the escalator steps or within the yellow lines, run or walk on the escalator (Basir et al., 2018). DOSH (2010) stated on the guidelines of the safe use of lift and escalator that escalator accidents might happen if the user travels or facing in the opposite direction of travel. This may lead to imbalance or a fall. Bringing along a trolley, wheelchair or baby stroller while riding the escalator are one of the factors which could lead to escalator accidents (Al-Sharif, 2015).

2.2.3 Management factor

Management errors always appear in safety incidents (Xie and Liu, 2019). The maintenance aspects cover areas of engineering like periodic preventative maintenance plus remedial works as well as items including cleaning in order to avoid accumulation of dirt and dust which could trigger fires as stated by Al-Sharif (2015). It is necessary to do an inspection which is preferable by third parties in order to ensure the escalator is well maintained, all the safety features could operate and the systemic integrity of every component and parts are in a safe condition. All safety signage and escalator travel direction should clearly display, the edge of every step must be marked with yellow lines, emergency break switch must be function well included in the aspects of maintaining the escalator (Janipha et al., 2018). Chi et al. (2005) stated that, all facilities including the escalator must be tested to ensure conformity of standard especially safety devices in the escalator, accidents in using these facilities are not completely foreseeable and preventable. Lifespan of escalators also could increase if it is maintained regularly as stated by Janipha et al. (2018).

2.2.4 Hazard pattern factor

There are many types of injury involving different types of scenarios which are associated with hazard pattern factor. One of the common factors is entrapments. Entrapments are categorized under four factors which are entrapment between two consecutive steps, between the step and comb, between the step and the skirt and under the handrail or the handrail entry point (Al-Sharif, 2015). Dhanasekaran et al. (2016) stated that, most of the risks that cause the escalator injuries involve entrapment between the gaps to the side of the steps and skirt. Al-Sharif, (2015) stated that electrocution, fire and falls or slip are associated and related with hazard pattern factors. Generally, falls could also be the mechanism of injury, being followed by entrapment injuries (Gan, 2018).

2.2 Effective way to reduce escalator accident at the shopping mall

It is necessary to improve several aspects in order to reduce the number of escalator accidents. There are few constructive ways to reduce the number of escalator accidents which are increase maintenance of escalator, follow safety guideline when use the escalator, the escalator itself must follow requirement and standard by DOSH, safety device on escalator should be tested, indicating escalator safety poles at the entrance of escalator and provide Safe-T-Riders for children program by spreading safety messages on escalator.

3.0 METHODOLOGY

This research used questionnaires as the main instrument to collect the data. The questionnaires are constructed with Likert scale range from 'strongly disagree' to 'strongly agree' and distributed at three shopping malls Kuala Lumpur which are The Gardens Mall, Kenanga Wholesale City and Mid Valley Megamall. The questionnaires are distributed based on the population's convenience sampling method to the respondent. The data were analysed using the Statistical Package for Social Science (SPSS) software.

4.0 ANALYSIS AND FINDINGS

4.1 Level of safety awareness among user towards escalator accident at the shopping mall

Based on the research study that has been analysed, it found that most of the respondents aware that escalator accidents can cause serious injuries since it gets the first ranked with highest frequency and percentage which are 71 and 86.6%. Janipha et al. (2018) stated that, escalator accidents also can lead to deaths. Children and senior citizens need company and proper adult supervision while using an escalator are ranked as second with 52 frequency and 63.4%. These kinds of accidents might have occurred due the playful nature of children while for senior citizen might have lost their balance when riding the escalator (Dhanasekaran et. al., 2016). However, there are still few respondents who are not aware that emergency contact number has displayed on the information notice at the escalator since it got the last ranked with the lowest frequency and percentage

which are 28 and 34.1%. Hence, it can be said that most of the respondents are aware and have knowledge on escalator safety. This is because the frequency percentage of ‘strongly agree’ choices are always higher than the others.

Table 1. Safety awareness on escalator accidents

Descriptions	Ranking
Escalator accidents always happen at shopping mall compared to other places	6
Children and senior citizen passenger are most likely to be involved in an escalator accident	3
Children and senior citizens need company and proper adult supervision while using an escalator.	2
Escalator accidents can cause serious injuries.	1
There are safety devices on escalator	5
There are safety information regarding escalator have displayed on the glass panel near the entrance to the escalator	8
There are tips on do's and don'ts when using escalator	4
There is an emergency contact number on the information notice at the escalator	9
Escalator needs daily inspection	7

4.2 Factors that contribute to escalator accident at the shopping mall

Table 2. Factor that contribute to escalator accidents.

Descriptions	Ranking
Design factor	1
User factor	4
Management factor	3
Hazard pattern factor	2

Table 2 shows the data that has been analysed and found that the major factor contribute to escalator accident is design factor as first ranked. This finding is slightly different from Basir et al. (2018) and Al-Sharif (2015), where it was found that user factors in ranked fourth are the main factors in contributing to escalator accidents in their research. Most of the accident cases happened in the past research are because of a user factor where the user itself wears improper outfit such as rubber shoes or lets the children playing or riding the escalator unsupervised. However, Janipha et al. (2018), Al-Sharif (2015), Chi et al. (2005) and Basir et al. (2018), supported that design factors are one of the factors that contribute to escalator accidents.

4.3 Effective way to reduce escalator accident at the shopping mall

Table 3. Effective ways to reduce escalator accidents

Suggestion	Ranking
Increase maintenance of escalator	3
Follow safety guideline when use the escalator	1
Indicating safety pole at the entrance of escalator	8
Provide incentive on user education on safety awareness of escalator accidents.	6
Escalator must follow requirement and standard by DOSH	7
Training employee to know better location of safety features	4
Safety devices on escalators should be tested.	1
Making frequent public announcements on do's and don'ts of using escalators.	5
Provide Safe-T-Riders for programs by spreading safety messages on escalators.	2

Section D discussed the suggestion that could be made in order to reduce escalator accidents at the shopping mall. Based on the findings, most of the respondents agreed that follow safety guidelines when use the escalator and safety device on escalators should be tested as the first ranked to reduce escalator accidents at the shopping mall. The results for both suggestions are the same, so that both of the suggestions get the first ranked. It is supported by Janipha et al. (2018), Smith (2018) and Lobert (2018) that the effective ways to reduce escalator accidents is to maintain and tested the safety devices on escalators regularly in order to avoid malfunction. DOSH (2010) also published the guideline on the safe use of lift and escalator for users, owners, government and competent firm aware regarding the use of the escalator. Second ranked for this section is provide Safe-T-Rider for program by spreading safety messages to them and followed by increased maintenance of escalators in the third ranked. However, the others' suggestion also was agreed by the user as they feel that those suggestions will help to avoid escalator accidents.

5.0 CONCLUSION

Most of the respondent are aware on escalator accident and have knowledge on escalator safety. In addition, the major factor that contributes to escalator accidents is design factor. In order to reduce escalator accidents, respondents suggested that the user have to follow safety guidelines and safety devices on escalators should be tested.

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