

# Brief Communication on Parents' Perception towards Favourite Play Equipment, Satisfaction Level and Safety of Public Climbing Equipment in Malaysia

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## Abstract

Public playground injuries caused by unsafe climbing equipment is a public health concern. This study aims to measure Malaysian parents' perception towards their children's favourite play equipment and satisfaction level on public equipment safety. A self-administered survey was employed among 50 Malaysians citizen, aged between 18 to 45 years. Data was descriptively analysed using SPSS version 21.0. The results showed that climbing equipment was favourite playing equipment among children. Furthermore, our study revealed that (90%) of parents were dissatisfied with public climbing equipment. We found that while (92%) of the parents agreed that safety levels of the climbing equipment should be improved. In addition, the study revealed that more than three quarters of respondents agreed to reduce free fall height, improve product materials, focus on reducing falls, and implement effective safety inspection including regular maintenance to improve the safety level of public climbing equipment. Results from this study could assist in advanced urban recreation safety for controlling injuries and regain parents' trust on playground safety.

**Keywords:** Children, Public Playground Injuries, Urban Recreation Safety, Public Health, Outdoor Play, Recreation Equipment

## 1. Introduction

Accident at the public playground remains the largest cause of playground injuries among children aged between 3-12 years old (Sherker & Ozanne-Smith, 2004). Each year more than 200,000 children are treated at emergency department for injuries happening in playgrounds (Suminski et al., 2015). According to the statistics from the Epidemiology of Injuries in Malaysia, there were about 3000 injuries cases every three months in Malaysia. Most of the injuries are caused by the falls of children from public recreation equipment. Research indicate that 75% of the injuries at the playground are caused by the fall of children from equipment (Norraliza, 2012). Out of 39,730 selected cases, 84% happened in public playgrounds (Keays & Skinner, 2012), where climbing equipment were always accounted for most of the injuries among children (Cassell & Clapperton, 2014).

Climbing equipment is publicly known to be one of the most prevalent equipment among children (Bourke & Sargisson, 2014; Mani, Mehdi Hosseini, & Abdullah, 2012; McDonald, 2001; Sargisson & McLean, 2013). Past research revealed that children engaged in risky play to meet their needs of playing, often taking risk through experience of height and speed (Bourke & Sargisson, 2014; Brussoni, Olsen, Pike, & Sleet, 2012)). In addition, research indicate that children love equipment that provides opportunity to develop risk-taking behaviour in order to meet their basic psychology needs of competence (Ryan & Deci, 2000), where they'll imaged themselves expert or being good while using the climbing equipment (Tobin, Nadalin, Munroe-Chandler, & Hall, 2013). According to a study by Noriah, (2014), the safety level of

our playgrounds is very low and more should be done to make playgrounds safe. Despite the availability of safety standard of Malaysian government (ASTM, 2017); most of the playgrounds do not comply with the general safety requirement (Ahmad Sid & Hassan, 2014). Likewise, an improper maintenance of the equipment by concerned authorities is also an area of concern (Ahmad Sid & Hassan, 2015).

As Malaysia is heading towards industrialization, urban recreation safety should not be neglected considering the importance of outdoor play in children's physical health and mental development (Ripat & Becker, 2012; Brussoni et al., 2015; Bond & Peck, 1993). Playing was recognised to be one of the highest achievements of human being as it can foster to intellectual achievement and emotional well-being (Whitebread, 2012). Research indicate that outdoor time spend is significantly associate with physical activity, cardiorespiratory fitness and sedentary behaviours (Casey Gray et.al). A detailed perception theory described that the final perception towards a product or service is influenced by a person's mental set, past experiences, needs and alteration (Robbins, Millett & Waters-Marsh, 2004). Likewise, (Oliver, 1997) concluded that satisfaction is said to be a judged when the features of climbing equipment provide a pleasurable level of consumption-related fulfilment, including under- or over-fulfilment.

Since playing is important for physical and mental health of the children (Marie et. al (Bond & Peck, 1993; Brussoni et al., 2012)), various researcher has tried to discussed the issue related to climbing equipment and its impact on children injuries (Wakes & Beukes, 2012). Although there are number of studies on parent's perception toward the exposure of their children to nature,

importance of nature exposure in children mental and health development, barrier to nature exposure and the factors that discourage parent to expose their children to nature (Brussoni et al., 2012). However, there are limited studies that investigate that how the safety and maintenance of the climbing equipment is related to level of satisfaction of parents from playing equipment and their perception about the safety of these equipment. Previous literature reports that rate of injuries of children from playing equipment is increasing. However, little is known about the relationship between injuries to the children and its effect on the parent perception of the safety of these equipment and their level of satisfaction from the usage of the climbing equipment. In addition, there are little studies investigating the relationship between standards on fall protection and its effect on the parent perception toward climbing equipment and their level of satisfaction from climbing equipment's. Thus, an exploratory study investigating the level of satisfaction of parents from service quality of climbing equipment will help the concerned authorities to gain information about the developers of climbing equipment, the role and responsibility of inspectors. The provision of safety information about the equipment, highlighting the role and responsibility of the safety inspector will help in gaining the trust of the parent to use this equipment. It will also affect the parents level of satisfaction of allowing their children to use climbing equipment.

This study fills this gap by investigating the role of climbing equipment maintenance on parents' safety perception and level of satisfaction. In addition, we also investigate the relationship between injuries and parent's safety perception and level of satisfaction. Furthermore, how the standards on fall are rated to parent perception and level of satisfaction are the aims of the present study.

## 2. Literature Review

### 2.1 Maintenance and Safety Regulation

Climbing equipment are most widely used playing equipment among children (Bourke & Sargisson, 2014; Mani, Mehdi Hosseini, & Abdullah, 2012; McDonald, 2001; Sargisson & McLean, 2013). Despite playing equipment playing a vital role in mental and physical development of children, it is not without negative repercussion, especially among children. According to (Cassell & Clapperton, 2014) most of the injuries to the children come from climbing equipment. Although it is known fact that children engaged in risky play to meet their needs of playing, often taking risk through experience of height and speed (Bourke & Sargisson, 2014). Besides, the poor maintenance of the equipment also results in injuries to the children. According to (Ahmad Sid & Hassan, 2014) Malaysian playground mostly lack compliance of safety regulation. In addition, these playgrounds are poorly maintained (Ahmad Sid & Hassan, 2015). Using Oliver, (1997) theory, we argue that poor maintenance and safety regulation of the climbing equipment affect parent level of perception about the safety and their level of satisfaction. If climbing equipment are well maintained, then parent will perceive the safety of the equipment positively. In addition, parent positive perception of the climbing equipment will also positively affect parent level of satisfaction. Furthermore, providing information about the developers of climbing equipment and providing detail of the safety inspectors role and responsibility had been proven to help parents regain their trust, which, in turn, will provide a safe environment for the children to play. We argue that when parent have knowledge about the climbing equipment developers, they will trust on the usage of climbing equipment's. Similarly, if the parents perceive that safety inspector are diligent in carrying out their duties, they will have more trust in the climbing equipment's. In addition, parent knowledge about the inspectors and their role and responsibility will positively relate to their level of satisfaction.

### 2.2 Children Injuries, Safety Perception and Satisfaction Level

According to (Children, Centre, & Edition, n.d.) children should not be allowed to play in a playground with bad condition, since the bad condition always risk the life of children and it may result in fatal accident to the children. Research indicate that the poor maintenance, height of climbing equipment and poor rule and regulation often result in injuries to the children. It is also knowing that parents are reluctant to send their children to playground due to fair of unexpected injuries (Brussoni et al., 2012). According to the statistics from the Epidemiology of Injuries in Malaysia, every month in Malaysia, around 3000 injuries are reported. One of the major cause of these injuries in the fall of the children from equipment (Norraliza, 2012). Although research prove that injuries prevent parents to send their children to play (Wakes & Beukes, 2012), but little is known how it affects their perception of the safety of the equipment and their level of satisfaction. Drawing upon Oliver (1997) theory, we argue that rate of injuries negatively affects parent perception about the safety. If the rate of injuries is high, parent will perceive equipment safety negatively. Similarly, the rate of injuries to children also affect parents' level of satisfaction about the equipment.

### 2.3 Standards on Fall Prevention

Despite compliance of standards on fall prevention, occurrence of playground child injuries are common (Sherker & Ozanne-Smith, 2004). According to (Ripat & Becker, 2012; Brussoni et al., 2015) the safety of recreation facility should not be neglected. Standards on fall prevention are the yardstick through which playground equipment are regulated and maintained. According to (Sherker & Ozanne-Smith, 2004) in Australia, the standards on fall prevention were adequately complied, but still the rate of injuries from playground equipment was common. According to (Ahmad Sid & Hassan, 2014), standards and life of the climbing equipment is affected by low use of low quality material. He furthered that most of the playground in Malaysia do not comply with standards on fall prevention. We argue that when standards on fall prevention are not implemented, it will affect the parents' perception about the safety of the climbing equipment and their level of satisfaction. According to (Sherker & Ozanne-Smith, 2004) safety standards of the playground equipment is directly related to the fall in injuries to children. Research indicate that injury prevention are essential ingredient of children development (Brussoni et al., 2012). He found that a balance should be maintained between implementing injury prevention rules and children access to play ground, since too many restrictions also affect the development of children.

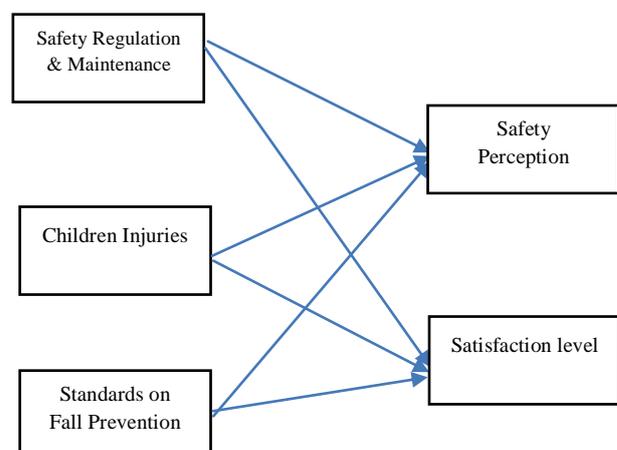


Figure1: Conceptual Framework

### 3. Method

#### 2.1 Instrument and Data Analysis

This study aims to investigate the preliminary information or initial exploration on topical events of urban recreation safety. A sampling fraction of 1/634,000 from the Malaysian population of 31.7 million people was used. We used probability sampling for the selection of appropriate sample size. The total sample size for the study was  $1/634,000 \times 31,700,000 = 50$  respondents. The sample size includes Malaysian parents and guardians, aged between 18 to 45 Years. The sample size of 50 respondents was strong enough to investigate the existence of that particular topical event. According to Johanson & Brooks, (2010), a low sample size is appropriate to use, as it sufficient enough to investigate the hypothesis. In addition, small sample size has the advantage of simplicity. The respondents were selected by randomly from 13 states and three federal territories. The survey method was used for data collection. The survey consisted of part A and part B. Part A included the respondent's profile information, while part B focused on the respondent's perception on their favourite play equipment, satisfaction level and safety of the equipment. The data was analysed using SPSS version 21.0. The descriptive analyses and hypotheses testing are discussed in the following sections.

### 4. Results and Discussion

#### 4.1 Descriptive Statistic

Data was descriptively analysed using SPSS. A majority of the respondents were young parents and guardians. The age of the respondent lay in between 18-25 years old. Sixty percent (60%) of the respondent were with a low monthly income amounting to less than RM1, 499. The detail of the respondents is provided in the following table.

**Table 1:** Profile of Respondents (N=50)

| Profile of Respondents (N=50) |                     |               |               |              |
|-------------------------------|---------------------|---------------|---------------|--------------|
| Age group                     |                     | 18 – 25(n=29) | 26 – 35(n=16) | 36 – 45(n=5) |
| Variables                     | Description         | No. (%)       | No. (%)       | No. (%)      |
| Relationship                  | Parent              | 3(6)          | 12(24)        | 5(10)        |
|                               | Guardian            | 26(52)        | 4(8)          | -            |
| Monthly personal Income       | Less than RM1, 499  | 19(38)        | 1(2)          | -            |
|                               | RM1, 500 – RM3, 999 | 9(18)         | 12(24)        | 1(2)         |
|                               | RM4, 000 – RM6, 999 | -             | 3(6)          | 4(8)         |
|                               | RM7, 000 and above  | 1(2)          | -             | -            |
| State/City                    | Perlis              | 1(2)          | -             | -            |
|                               | Kedah               | 3(6)          | -             | -            |
|                               | Penang              | 2(4)          | -             | -            |
|                               | Kelantan            | 2(4)          | 1(2)          | -            |
|                               | Terengganu          | -             | 1(2)          | -            |
|                               | Perak               | 5(10)         | 1(2)          | -            |
|                               | Pahang              | 2(4)          | -             | -            |
|                               | Selangor            | 4(8)          | 3(6)          | -            |
|                               | Kuala Lumpur        | 3(6)          | 5(10)         | 5(10)        |
|                               | Putrajaya           | -             | 1(2)          | -            |
| Housing Type                  | Negeri Sembilan     | 1(2)          | 4(8)          | -            |
|                               | Malacca             | 2(4)          | -             | -            |
|                               | Johor Bahru         | 3(6)          | -             | -            |
|                               | Sarawak             | 1(2)          | -             | -            |
|                               | Apartment           | 3(6)          | 2(4)          | 3(6)         |
|                               | Condominium         | -             | 1(2)          | 1(2)         |
| Number of children            | Bungalow            | 10(20)        | 1(2)          | -            |
|                               | Terrace house       | 15(30)        | 10(20)        | 1(2)         |
|                               | Semi-detached       | 1(2)          | 2(4)          | -            |
|                               | None                | 1(2)          | -             | -            |
| Number of children            | One children        | 22(44)        | 9(18)         | 3(6)         |
|                               | Two children        | 1(2)          | 7(14)         | 2(4)         |
|                               | Three children      | 5(10)         | -             | -            |
|                               | None                | 1(2)          | -             | -            |

#### 3.2 Parents' Favourite Play Equipment

The findings showed that climbing equipment was in the top two categories of parents' favourite equipment choice. Fifty-two percent (52%) of the parents prefer climbing equipment for their children. The result of our study is aligned with the findings of (Bourke & Sargisson, 2014; Mani, Mehdi Hosseini, & Abdullah,

2012; McDonald, 2001; Sargisson & McLean, 2013), who found that climbing equipment is favourite playing tool among children.

#### 4.2. Satisfaction Level

Level of satisfaction was measured using mean. Mean value below three (3) represent low level of satisfaction and value above three (3) represent high level of satisfaction. The findings showed that majority of the respondents (90%) have relatively low level satisfaction. Parent showed dissatisfaction with the maintenance and safety regulation of the equipment. They were also not satisfied with the standards on fall prevention of the climbing equipment. Thus, it is concluded that overall parents were no satisfied with existing feature of climbing equipment.

**Table 2:** Satisfaction Level on Climbing Equipment (N=50)

| Level of satisfaction  | I | II | III | IV | V | Mean( $\bar{X}$ ) | Std. Deviation( $\sigma$ ) |
|--|---|----|-----|----|---|-------------------|----------------------------|
| Effective safety regulation & maintenance  | 5 | 21 | 20  | 3  | 1 | 2.48              | 0.839                      |
| Caused less injury   | 6 | 25 | 14  | 5  | 0 | 2.36              | 0.827                      |
| Effective standard on fall prevention  | 6 | 27 | 15  | 2  | 0 | 2.26              | 0.723                      |
| Overall mean value = 2.37  |   |    |     |    |   |                   |                            |
| Note: I = Strongly disagree II = Disagree III = Fairly agree IV = Agree V = Strongly agree |   |    |     |    |   |                   |                            |

**Table 3:** Level of Satisfaction (N=50)

|  | Frequency (No.) | Percent (%) |
|--|-----------------|-------------|
| Low satisfaction ( $\bar{X} = 1-3$ )     | 45              | 90.0        |
| High satisfaction ( $\bar{X} = 3.01-5$ ) | 5               | 10.0        |
| Total                                    | 50              | 100.0       |

#### 4.3. Respondents' Safety Perceptions

For the measurement of respondent perception about the safety, we used Robbins, Millett & Waters-Marsh, (2004) perception models. The respondents were asked to give their insights on the need to improve climbing equipment safety perception be based on their mental set, past experiences, needs and alterations. The result showed that 62% respondents agreed playground shade need to improved. In addition, 81% of the respondent report that reducing height is an important aspect of children safety, thus, the result showed that height of the climbing equipment should be reduced. With regard to improvement in the product materials, 62% were the view that it need consideration from the authorities. Likewise, 82% of the respondent agreed that fall of the children from equipment should be given more attention. They agreed that reducing fall will improve their safety perception of about the climbing equipment.

**Table 4:** Safety Perception on Improving Public Climbing Equipment (N=50)

| Safety Perception  | I | II | III | IV | V  | Mean( $\bar{X}$ ) | Std. Deviation( $\sigma$ ) |
|--|---|----|-----|----|----|-------------------|----------------------------|
| Playground shade   | 2 | 2  | 13  | 25 | 8  | 3.70              | 0.931                      |
| Reduce height  | 3 | 1  | 4   | 27 | 15 | 4.00              | 1.010                      |
| Improve material   | 4 | 4  | 11  | 22 | 9  | 3.56              | 1.128                      |
| Reduce falls   | 1 | 1  | 6   | 26 | 16 | 4.10              | 0.839                      |
| Overall mean value = 3.84  |   |    |     |    |    |                   |                            |
| Note: I = Strongly disagree II = Disagree III = Fairly agree IV = Agree V = Strongly agree |   |    |     |    |    |                   |                            |

### 5. Discussion

The purpose of the study was to investigate that how parent's perception of safety and maintenance of climbing equipment's, children injuries and standards on the fall prevention are related to parent's level of satisfaction and their safety perception of climbing equipment for their child playing. Since playground play vital role in the mental and physical health of the children, help in improving the social skills and moral development the children (Maryam Mani, Seyed Mehdi Hosseini and Aldrin Abdullah, 2012). Similarly, children imagery plays such as fun, social and

capabilities are positively related to their personal skills, social skills and self-confidence (Michelle D. Guerrero, 2016). Thus, keeping the importance of playing in children's growth and development, an investigation of Malaysia playground was necessary.

The result showed that climbing equipment is one the most favourite choice among Malaysian parents for their children. The result in the present study have revealed that the safety aspects of public climbing equipment was significantly low and thus, Malaysian parents have lost their confidence in these equipment. We can assume that children like to play more on climbing equipment but their parents might not allow them to do so because their parents have low confidence in the safety of the equipment. Our finding is aligned with (Bourke & Sargisson, 2014) conclusion that climbing is most prevalent play among children. We argue that low safety level towards particular recreational equipment might lead to lessening the children's time spent playing outdoors. Besides this, utilising recreation equipment can stimulate active and unrestrained play among children (Stephenson, 2002).

In addition, our result revealed that parent level of satisfaction from the usage of climbing equipment by their children is relatively low. This result revealed that parents are not satisfied with climbing's equipment. Thus, when parents are dissatisfied from the climbing equipment, they will not allow their children to play, which, in turn, will affect the mental and physical health of the children.

Furthermore, our findings revealed that there are five areas that need to be improved. Parents were not satisfied about the safety equipment and recommended that providing shade at the playground, improving product quality, reducing the height of the equipment's and reducing falls. Thus, we found that improvement in these five areas will improve the perception of the parents about the safety of the climbing equipment.

## 6. Conclusion and Directions for Future Research

This paper has proposed five methods that can improve safety performance of public climbing equipment in Malaysia. This study provide insight to management and administration to improve the service quality of the playground ground equipment. Five area that need the attention of the administration are product quality, reducing height of the equipment, providing shades in the ground and reducing falls. Thus, the provision of above will not only improve the parents' perception about the safety of the equipment, level of satisfaction, it will also lead to an increase the physical and mental health of the children.

The study showed that climbing equipment maintenance and the role of inspectors are essential in developing the trust of the parents on the safety of the equipment. Further, it is also vital for the satisfaction of parents from the usage of climbing equipment's. Thus, the study is helpful in enhancing the service quality of the climbing equipment's. Furthermore, it helps the administration, government agencies and urban public institutions in improving the service quality of the climbing equipment's. Improving the service quality of the equipment will indirectly affect the physical and mental capacity of the children. Besides, this paper also shows the significance and useful findings on a topical event about urban recreation involving children's safety outdoors.

Despite extensive investigation of climbing equipment and its relationship with parent's perception of safety of the equipment and level of satisfaction, our study has certain limitation. First, the study is exploratory in nature. Second, the small sample size limit the generalizability of the findings. Furthermore, using mean as standard of measurement of the construct also limit the generalizability of this study. Thus, carrying out a longitudinal study may provide better insight about climbing equipment service quality and its effect on the parent level of satisfaction.

Furthermore, an empirical study with large sample size is appropriate to explain the phenomena of interest. We encourage researcher to testify the propose model of the study with large sample size using advance statistical tools such partial least square structural modelling.

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