STUDY PROTOCOL

Determinants of Unintentional Home Injury Prevention Practice Among B40 Parents of Under-Five Children in Selangor: A Study Protocol

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ABSTRACT

Introduction: Unintentional injuries among children are considered a major public health concern since they are one of the leading causes of child death and disability. Inadequate study has been done on whether and how parental influences are linked to childhood injury at home especially among the community with low-socioeconomic status. The study aims to determine the factors affecting unintentional home injury prevention practice among low socioeconomic status (B40) parents of under-five children in Selangor, Malaysia. **Methods:** This is a cross-sectional and quantitative study. A sample size of 453 parents will be sampled among B40 parents with under-five children in Selangor using a stratified random sampling method. For analysis, only complete questionnaires will be used. Data entry and statistical analysis will be carried out using IBM SPSS version 28.0. Chi-square/Fisher Exact test and simple logistic regression will be used for data analysis. Multiple logistic regression will be used to examine the predictors of poor home injury prevention practice. **Discussion:** Findings from the study will provide insight on challenges experienced by B40 parents of children under five in implementing preventive injury measures at home.
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INTRODUCTION

Injuries remain a significant public health problem around the world as it threatens the health and life of the people although it is preventable. Injuries among children are categorized as either intentional injury or unintentional injury (1). According to the World Health Organization, an unintentional injury is an incident that occurs unwillingly and causes physical and mental damage due to a sudden external force. Unintentional injuries can occur in a variety of ways. While common unintentional injuries include traffic injuries, falls, cuts, poisoning, suffocation, burns and scalds, drowning, pressure or force, electrical current exposure, and animal bites (2,3). Most of the injuries especially in children occur at home, where they spend most of their time in the house.

Death of children under five due to injury was found to be consistent in Malaysia from 1990 to 2016, which is worrying given the significant decline in other causes of death including infectious diseases (4). In the past year, in Malaysia, 994 (11.4%) out of 8017 children under the age of seven had some form of home injury (5). According to the National Health Morbidity Survey 1996, a population-based study conducted by the Ministry of Health Malaysia, the prevalence of home injury was 2.5%, with a greater frequency among children under five years old (6). The National Health and Morbidity Survey (NHMS) 2016 reported the most recent national data on child care and injury prevention, which indicated 80.5% of injuries among children under five happened at home (5).

Injury has a wide range of negative consequences. The effects of injury result in a reduction in life expectancy and a loss of productivity (3). Children may also be absent from school, which can interfere with their studies. When parents take time away from work to care for their children, it can affect their careers. Moreover, injury has a negative impact on parents' financial situation, especially in low socioeconomic status (SES) families. As a result, injury can have a severe psychological impact on the child and family members (7).

There are several factors that contribute to unintentional injury among children. Factors that influence the risk of unintentional injury include the child's age (8). Younger children require more attention and supervision from their parents (9). Moreover, parents' lack of knowledge is also a risk factor. This is because parents are unclear about their child's development, the risk of home-based injury and prevention practises (10, 11). Apart from that, other factors include the child's home's structural and social settings (7, 11, 12, 13).

Unintentional injury is preventable. Many preventative measures can be taken to avoid unintentional injuries and reduce their risk factors, especially by the parent who lives with the children together. WHO encourages people in all countries to take part in initiatives to prevent child injury. Home injury prevention practice is done to reduce the burden on the family, the country, and the healthcare system due to the high number of unintentional injuries.

Parents are significant caretakers and role models for their children's attitudes. Therefore, they should master how to prevent domestic injuries and make their homes safer. The most common unintentional injuries that occur at home among children under five years are falls, poisoning, burns, drowning and choking (14). Less supervision by the parents can lead to these unintentional injuries among children. Children can gain access to flammable products, sharp knives, or electric current at any time, which is extremely dangerous to them. During the COVID-19 pandemic, home injury cases increase due to long-term isolation as children are exposed to potentially hazardous home environments and activities, resulting in a new wave of home injuries in 2020 (15). Infectious diseases such as measles and COVID-19 have been eradicated mainly due to widespread vaccination campaigns. However, there is no vaccine for a crucial public health problem that continues to jeopardize the health of all children: injury. This problem can be curbed if parents practise good injury prevention measures.

There is a lack of studies on parents' preventive practices against unintentional home injury. To date, most studies have concentrated on injury rates rather than injury prevention. It is critical to be aware of and comprehend the reality of unintentional home injury prevention practices in Malaysia. Unintentional injury can have a negative impact on low SES parents' financial situation because the injuries must be treated. It will be more burden to the livelihood of the low economic group if there is injury occurrence on their children due to the high cost of injury management. Parents can save money on medication or hospitalisation and have their children cared for more effectively if they practice home-accident preventive measures. The community and authority can plan and implement injury prevention programs for all families. The research findings will be useful for future studies on child injury and can devise solutions to this public health issue. As a result, the purpose of this study is to investigate the determinants and predictors of unintentional home injury prevention practises among low SES parents of children under the age of five in Selangor, Malaysia.

MATERIALS AND METHODS

Study design & study location

The study will be a cross-sectional study and a quantitative study. The study will be carried out in Selangor, Malaysia, and conducted for six months, from August 2022 to February 2023. Selangor is one of 13 states in Malaysia. Selangor has a total population of 6.47 million, as reported by the Department of Information Malaysia, ranking it as the most populous state in Malaysia (19.9%).

Study population

Parents who are the primary caretakers will be recruited from the list of B40 parents of children under five who lived in Selangor and fulfil inclusion criteria. The inclusion criteria are a citizen and individual aged 18 years old and above. The exclusion criteria are having a permanent disability such as illiterate due to vision impairment, or physically handicapped status, and having an underlying severe psychiatric disease such as depression, bipolar disorder, or schizophrenia.

Sampling method, subject recruitment and data collection

The researcher will use stratified random sampling method to sample the study population. All nine districts in Selangor are included in this study. The number of samples taken from each district will be stratified according to their percentage population of B40 households. The researcher will obtain the list of B40 parents from the district officer of each district in Selangor. In each area, the researcher set a number code based on the participant's name list. The list of these codes will be used to produce a computer-generated randomisation list of the participants. After the selection procedure, if the respondents fail to meet the inclusion criteria, met even one of the exclusion criteria, or cannot be contacted due to the wrong phone number, selections will be made again through the same method until the total sample size is reached.

The chosen parents will be called or messaged through WhatsApp and provided with oral and written information about the study, what they needed to do if they agree to participate, what benefits and risks they will get by participating in the study and their rights to withdraw from the study. The researcher will ask for consent first and set a time when the respondents are free to answer the questionnaire. The consent form and link Google form of the questionnaire will only be given via WhatsApp at the set time and date of data collection. Before the day of data collection, each respondent will

be reminded of the time for the session via phone call or personal message. The allocated time for the respondents to complete the questionnaire is 35 minutes maximum. After the questionnaire is completed, the participants will be given incentives as a sign of appreciation.

To ensure the validity of data or the questionnaire being answered in an online method, the time taken to complete the questionnaires play a role. Those who complete them very quickly may be more likely to respond carelessly such as just skimming over the questionnaire or answering randomly to complete the survey as quickly as possible. Therefore, in order to check the validity of the data, we used completion time monitoring (not too short and not too long). We will also ask the respondents to set a specific date and time to answer the questionnaire so that they can pay attention to the survey. The researchers ensure the study is well designed, instructions are clear, and that respondents understand the importance of paying attention and giving honest answers. Apart from that, to avoid missing data, we make important questions mandatory to be answered to guarantee that every respondent finishes completing the survey before submitting it.

Sample size calculation

The formula for hypothesis testing for two proportions by Hosmer & Lemeshaw was used to calculate sample size estimation for this study (16). This formula was applied because the study tested most of the hypotheses with respect to two groups. After adjusting for two sample groups for gender tested, n= 181 x 2 = 362. After adjusting for the estimated response rate of 80%, the final sample size for this study is 453.

Study Instruments

The researcher will use a self-administered questionnaire to investigate sociodemographic factors, parent-related factors, child-related factors and environmental factors that may influence parental injury prevention practice (Figure 1). The questionnaire that will be used in this study is adopted from a previous study on injury prevention practice at home among Malaysian parents (17). This questionnaire had been subjected to a reliability test, face validity, content validity and construct validity. Due to the limitation of time, budget and manpower, Google Forms was developed, which contains all of the study's questions.

There will be ten sections in the questionnaire which are the sociodemographic status of parent and child, child temperament, parent's perception, subjective norms, parent's attitude, parent's knowledge, parent's home injury prevention practice and house hazards.

Section A: Sociodemographic status of parent and child

This 15-item section will cover the parent's age, gender, ethnicity, education level, income level, occupational

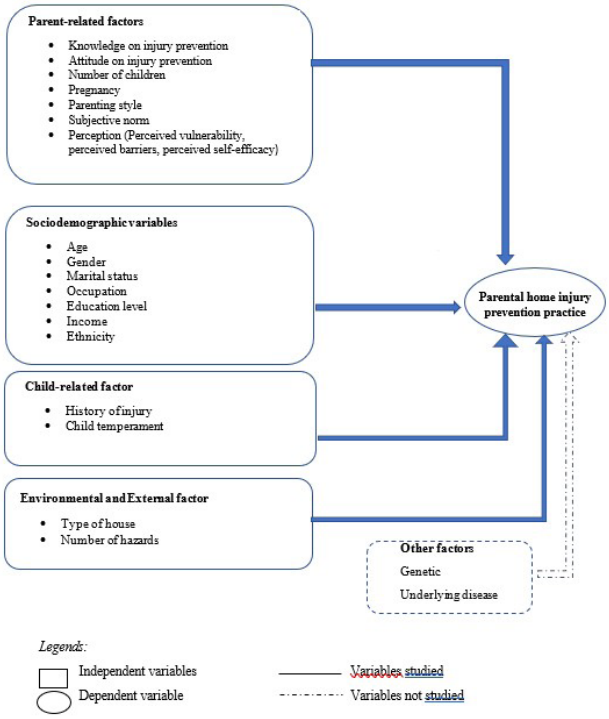

Figure 1: Conceptual framework of the study

status, marital status and type of house, number of children, while for the child there will be age, gender, birth order, injury history and type of injury.

Section B: Child temperament

The child's temperament access aspects of the child's usual behaviour, including activity level, affective attributes, attachment styles and compliance. The questionnaire will have three sets of age-appropriate questions; Infant Behaviour Question-Revised Very Short Form (IBQ-R VSF) is for children aged 3 to 12 months, Early Childhood Behaviour Question Very Short Form (ECBQ VSF) is for aged 12 to 36 months and Child Behaviour Question is for children older than 36 months. The child's behavioural tendencies will be rated by the parent on a five-point scale, ranging from Never (value of 1) to Always (value of 7).

Section C: Parenting style

This 30-item questionnaire measures three different types of parenting; authoritarian, authoritative and permissive, using a five-point Likert scale ranging from strongly agree to strongly disagree.

Section D: Parent's perception

This section will have 47 items which consist of 10 items for perceived vulnerability, 10 items for perceived severity, 12 items for the perceived barrier, 6 items for the perceived benefit and 9 items for self-efficacy.

Section E: Perceived subjective norm

A five-point Likert scale ranging from "not at all" to "very much" will be used to see how seven individuals or

parties influence the respondent's decision on carrying out home injury prevention practice. These people are: 1) partner/boyfriend/husband, 2) close relative, 3) close friends, 4) neighbours, 5) nurse or doctor, 6) social worker and 7) religious leader.

Section F: Parent's attitude towards home injury prevention

There are 12 items in this section that look into parents' beliefs on injury preventability. Items are rated on a 5-point scale scored by the level of agreement or disagreement toward a given statement.

Section G: Parent's knowledge

There are 16 items measuring mothers' level of knowledge which includes knowledge related to hazards and injuries that could happen to children at home. Good knowledge is considered for those with a score of 70% based on Hassan (2017) and Ramdzan, Liew & Khoo (2014).

Section H: Home injury prevention practice

There are 21 items in this part of the questionnaire. A correctly answered question will be given one mark, while a wrongly answered will be given zero marks. Median cut-off points will be used to classify good and poor practices.

Section I. House hazards

This section has 27 common hazards at home that parents need to note as present (1 mark) or not (0 mark). The median will be used as a cut-off point to classify high and low risk. This section also covers environmental and external factors influencing parental injury prevention practices for their children.

Validity and Reliability

This questionnaire will be subjected to a reliability test, face validity and content validity. For reliability, the questionnaire was pre-test to ensure reliability before the final version is used.

Face validity will be acquired from participants during the research's initial pre-test phase. The questionnaire is translated into Bahasa Melayu, the researcher's national language. The researcher will tell the objective and aims of the study to the respondents before administering the questionnaires. If they agree to proceed with the test, the questionnaire will be given to parents. Parents will be asked about the questionnaire's simplicity, clarity and structure.

For content validity, every item in the questionnaire will be scrutinised for clarity, accuracy, language, and cultural relevance. The supervisory committee will assess the questionnaire's content validity to ensure that the instrument's items are relevant to the study's objectives, the wording of its points is easily understood, and accurately represent its content source. The supervisory committee are three subject matter experts (SMEs) from different fields to review the contents of the questionnaires. They consist of public health specialists, an injury specialist and a child psychiatrist from University Putra Malaysia. All recommended changes and modifications will be done as advised by them.

Ethical Approval and Consent

Ethical Consideration Ethical clearance was obtained from Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (Jawatankuasa Etika Universiti Untuk Penyelidikan Melibatkan Manusia / JKEUPM). Besides that, written informed consent from the respondents has obtained before the study.

Statistical Analysis

The Statistical Package for Social Sciences Software (IBM SPSS; Version 28) will be used to analyse the data by descriptive, inferential and multivariate analysis. Continuous data will be reported in mean with standard deviations, while categorical data will be represented in frequency and percentages. Two levels will be used for the dependent variable score (good and poor). The data will be analysed using the Chi-square test to find associations between variables. The level of statistical significance will be determined by a value of $p<0.05$. Variables with $p<0.25$ on bivariate analysis will be entered into the multiple logistic regression model to determine the significant predictors.

DISCUSSION

This study has benefits in many areas. First and foremost, respondents will benefit from the study. Low SES parents who respond may gain knowledge and awareness on child injury prevention. Then, they can save money on medication or hospitalisation if the home injury is prevented. Parents can also avoid absence from work. Parents can go to work `as usual to provide for their families as they do not need to give close attention to their injured children.

Moreover, the study will also benefit the researchers when the researchers recognise the current issue and the burden of unintentional home-based injury. They will thoroughly understand low SES parents' home-based injury prevention practices in Malaysia. All of the information may be useful for future studies on child injury and improvement in prevention practices, particularly among low-income families in this country. Furthermore, the research will benefit the community. It will assist the community in understanding the population with high risks of unintentional home-based injury, which is preventable and may suggest implementing injury prevention programs for all families.

Moreover, the study will benefit Malaysian organisations. The Ministry of Health, for example, can use this study to plan modules of injury prevention interventions or

develop health education interventions among B40 parents to reduce injury, mortality, and morbidity cases. The Ministry of Women, Family, and Community Development can use the information on B40 parents' barriers to planning interventions to help them carry out injury prevention practices at home.

This study is expected to find a significant association between the dependent and the independent variables as well as be able to explain why parents of children under five have poor home unintentional injury prevention practices. Additionally, we intend to identify the predictors of unintentional home injury prevention practice. It is hoped that the results of the study will clarify the challenges experienced by low SES parents of children under five in implementing preventive injury measures at home.

LIMITATION

The limitation is the cross-sectional design which reports data at one point of time and is unable to see any temporal relation between them. The majority of the data of this study are self-reported by the respondents which relies heavily on the respondent's honesty and feelings while answering the questionnaire. The hazard data will also be obtained from self-reported data rather than by direct observation by the researchers.

Another limitation is the lack of studies on unintentional childhood injury prevention at home, especially in Malaysia. The majority of previous studies concentrate more on injury rates than injury prevention. The number of published papers related to this issue is also outdated. In order to understand the reality of unintentional home injury prevention practice in Malaysia, it is critical to look at the problem from the perspective of the local context. There is also no recent data on home injury prevention regarding people with low socioeconomic status. The limited studies made it challenging to conduct the literature review and plan the current study. As the data will be collected online, it is difficult to recruit study participants via WhatsApp due to many cases of online fraud (scams). Some respondents may have concerns about scams. Moreover, the respondents' unfamiliarity with devices or the Internet may also be a problem when using online data collection techniques. Computer-illiterate parents may have problems answering the questionnaire.

Despite these limitations, the study adds new information to the field of public health that is valuable to many stakeholders to implement targeted intervention programs in the future.

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