Kasetsart Journal of Social Sciences 39 (2018) 98–104

Contents lists available at ScienceDirect

Kasetsart Journal of Social Sciences

journal homepage: http://www.elsevier.com/locate/kjss

Using participatory action research for injury prevention in child development centers, Suratthani province

Naturthai Suwantip, Banchong Witthayawirasak*

Faculty of Environmental Management, Prince of Songkla University, Songkhla 90112, Thailand

ARTICLE INFO

Article history:
Received 8 April 2016
Received in revised form 3 October 2016
Accepted 16 October 2016
Available online 9 January 2018

Keywords:
child development center,
injury prevention,
participatory action research

ABSTRACT

This study investigated the effects of using participatory action research (PAR) in the prevention of injury to children in 14 child development centers (CDCs) under local administrative organizations in one district in Suratthani province, Thailand. In total, 98 stakeholder representatives participated in the study, consisting of 7 managers or representatives of the CDCs, 14 caregivers, 7 local health officials and 70 children's parents. They participated in all stages of the study—problem identification, setting the objectives and goals of the study, planning the study, development of research tools, data collection, risk analysis, risk management, monitoring, evaluation, and revision. The physical environments that were in non-compliance with safety standards were identified after a walk-through survey with the participants using an approved checklist. The number of injuries to children was collected before and after the risk management. The participants' knowledge and awareness of child injury prevention were collected using questionnaires. Optimal solutions for injury prevention were obtained through several focus group discussions between the participants within each CDC and among the CDCs. Active participation of the stakeholders resulted in significantly more knowledge and awareness relating to child injury prevention. The environments of CDCs in compliance with safety standards were significantly increased. The number of injuries to the children decreased. The participatory action model in this research was developed through collaboration between the 14 CDCs. The executives of local administrative organizations and local health officials can take the model used in this study and apply it to injury prevention in other CDCs which have a similar environment across the province.

Introduction

Injury is a leading cause of illness, disability, and death among children worldwide. Everyday around the world, there are children of families negatively affected by injuries or accidents that could have been prevented (World Health Organization [WHO], 2008). Among preschool children aged 5 years and under, accidents can result in injury at any time because of their heightened interest in the environment around them. Children's behavior can make them more prone to various types of injuries because they lack awareness of the dangers and cannot yet take care of themselves. Trauma cases for preschoolers were most often associated with the environment in their home or place where the children lived (Craig et al., 2010; Keall, Baker, Howden, & Cunningham, 2008), mischievous behavior (Ordannana, Caspi, & Moffitt, 2008) and caregivers'level of

* Corresponding author.
E-mail address: banjong.v@gmail.com (B. Witthayawirasak).
Peer review under responsibility of Kasetsart University.

https://doi.org/10.1016/j.kjss.2017.12.003

awareness of the risks to the child, as well as their attention to care (Morrongiello & Schell, 2010).

In Thailand, preschool children injury remains a major problem. Data from 33 National Injury Surveillance Hospital Networks showed that children between the ages of one and four suffered from accidental drowning, accidental falls, and exposure to inanimate mechanical forces, in addition to exposure to animate mechanical forces and exposure to unspecified venomous animals or plants (Bureau of Epidemiology, 2012). In Thailand, many children between the ages of three and five are in the care of child development centers (CDCs), which are affiliated with local administrative organizations. Fourteen CDCs in one district in Suratthani province were examined in this research study. All of them suffered from the flood crisis in late 2011, resulting in damage to their physical structures. This damage was still visible during the period of this study. As such, risk of injury from the physical environment still existed. Despite there being security requirements, these requirements were not substantially enforced. There was no collaboration safety management among the CDCs. There was also a lack of participation by stakeholders in finding appropriate solutions for injury prevention in preschoolers (Suwantip, 2012).

The involvement of stakeholders in the child injury prevention program helped identify the injury risk factors, leading to appropriate risk management (Goodman & Joyner, 2010; Siller, Hijar, & Mora, 2011). These findings led to the application of participatory action research (PAR) for child injury prevention in CDCs in this study. PAR is a combination of action research and participatory research. It provides an opportunity for stakeholders from all parties to be involved in all stages of the research (Kemmis, McTaggart, & Retallick, 2004). The purpose of this study was to investigate the effects of using PAR for the prevention of child injury in a group of CDCs. The knowledge and awareness level of participants, changing environmental conditions for compliance with safety standards and the number of injuries to the children in the CDCs were assessed to determine the effectiveness of this application.

Literature Review

PAR is research resulting from a combination of participatory and action research, which offers opportunities for stakeholders from all parties who take part in all phases of the study such as planning, defining problems, identifying solutions, practice, and assessment practices (Kemmis & McTaggart, 2006). PAR turns stakeholders from being a research population to becoming participants in the study. They are able to understand and improve the performance of their involvement (Baum, MacDougall, & Smith, 2006). PAR focuses on the implementation process continuously through the cooperation of the participants for both data collection and data analysis. This study will focus on the nature of relationships, communications, and heritage opinions, as well as any feelings that exist between the researchers and stakeholders involved in the decision process. PAR allows researchers to work with the community in a way that leads to action for change (Baum et al., 2006).

Research studies reflecting the results of the process contribute to the prevention of diseases and injuries among children. For example, Saraung, Durongritichai, and Kompayak (2014) studied health development partners to prevent injuries among preschool children. The group of participants included parents or guardians, nurses, staff who work in the division of public health, village health volunteers, police, community leaders, volunteers, teachers, students, and student leaders. The process under study has constantly raised the issue of injury as a common goal. All parties see the benefit and importance of the issue. Emphasizing that stakeholders fix the problem themselves through brainstorming activities regarding the role of each party found that more injuries were prevented after developing a successful partnership to promote healthy behaviors. Buawsuwan (2008) studied the involvement of the school community in enhancing the safety of children. This was analyzed together with the study participants involved with the safety of children in various fields to determine the cause of the problem and an action plan. The process addresses the problem immediately. In addition, a study by Freudenthal et al. (2006) used the participatory process to create environments in order to prevent disease in school children and community members. In the research process, participants define the problems together. They reflect on any problems and hold discussions in order to find solutions appropriate to the local context. The results from applying participatory processes contribute to better connections between schools and communities. The participation can lead to the enhanced development of educational programs for children.

Methods

Participants

This research was conducted at 14 CDCs under local administrative organizations in one district in Suratthani province, southern Thailand. The participants were part of the stakeholders from the injuries of the children in 14 CDCs. The population of this study was the stakeholders, totaling 889 people consisting of 7 managers, 29 caregivers, 7 local health officials who are responsible for health promotion in the CDCs, and 846 children's parents. The 14 CDCs that participated in this study served seven sub-districts in the same health network. Some of the managers of the CDCs and local health officials were responsible for more than one CDC within the same sub-district. Managers of different CDCs could be the same person. Some local health officials were also responsible for more than one CDC located in the same area.

These CDCs voluntarily agreed to participate in the study. At each CDC, a group of stakeholder representatives was involved in all stages of the research, including a manager or representative, a caregiver, a local health official, and five representatives from the children's parents, together with the researchers. The study included 98 participants of the CDCs. The managers or representatives,

Table 1
Population and participants

Participants	Number of population	Number of samples/ participants
Manager	7	7
Caregiver	29	14
Local health official	7	7
Parents	846	70
Total	889	98

caregivers, and local health officials were selected by specific sampling. The meeting results of all the caregivers from the 14 CDCs, where each CDC sent one caregiver representative, were summarized. To select the parent representatives, the criteria for selection of the parents were: 1) ability to participate in all activities throughout the study, 2) received votes of confidence from the children's parents, 3) ability to transfer knowledge and skills for the implementation of child injury prevention, and 4) possess good interpersonal relationship with others in the community. The population and participant statistics for this study are shown in Table 1.

Participatory Process

In this study, participants were involved from the beginning of the study, that is in all stages consisting of problem identification, setting the goals for the study, planning the study, development of research tools, data collection, risk analysis, risk management, monitoring, evaluation, and revision. The research was carried out from July 2012 to June 2014. The stakeholders' participatory process is shown in Figure 1.

Problem Identification

The first step comprised four sub-steps: 1) an assessment of the knowledge and awareness of child injury prevention of all CDC participants; 2) self-evaluation of CDCs, with participants conducting a preliminary risk self-assessment for CDCs using a risk-based survey checklist; 3) collection of information from participants and other children's parents related to past child injury causes in each CDC, as well as counseling with the researcher and meeting the parents at each CDC. Most parents commented about the risk of injury to children in the past, which defined the problems at the centers; and 4) a meeting between those involved in the 14 CDCs using information from each CDC, such as self-evaluation and mean scores of stakeholders' knowledge and awareness for prevention of child injury. Past child injury causes were fed into the group discussion to define the problems in the CDCs.

Setting Goals for the Study and Planning the Study

This step consisted of two sub-stages: 1) a meeting of all participants from all of the CDCs to set the goals, concepts, and outlines for the study; and 2) a definition of the study based on a detailed, step by step plan, including the necessary participants' activities, a time schedule for each step, the number of tools to be used, and the study budget.

Development of the Research Tools

In the third step, the participants from all of the CDCs collaborated on a design for a new walk-through survey checklist suitable for the study goals and the context of the CDCs to be studied. In addition, a form for reporting injuries was developed to be used by all the CDCs prior to the implementation of risk management according to the guidelines.

Data Collection and Risk Analysis

In this step, information was collected for the 6 months from mid-September 2012 to mid-March 2013 about hazards in the physical environment that were not in compliance with safety standards that were identified from the walk-through survey of each CDC, and on the number of injuries to children. The hazards found at each CDC were discussed in a focus group. The possibility and severity of each hazard was analyzed and plotted in a risk matrix.

Risk Management

The fifth step was risk management for injury prevention. The participants at each CDC met to discuss amongst themselves how to prevent incidents from occurring at their responsible CDC. A joint meeting of the participants from all CDCs was held to summarize the risks of child injury and the number of injuries to the children from the CDCs over the previous 6 months. The risks were discussed among the participants as well as how to prevent them from happening in the future. An expert was invited to share information on the guidelines for child injury prevention in CDCs. The guidelines were discussed by the participants and adopted for use by all of the CDCs under the existing circumstances. The eight activities of risk

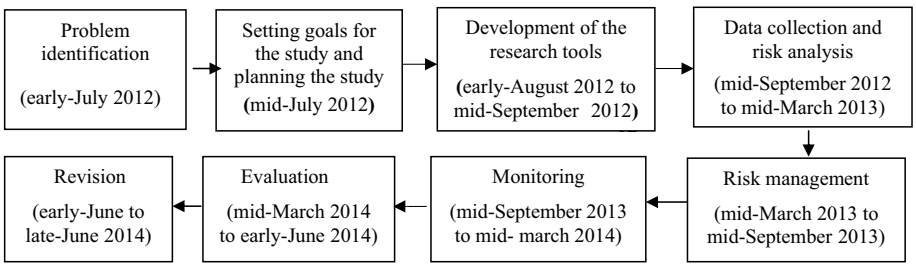

Figure 1 Participation process for stakeholders

Table 2
Activities of the risk management in the child development centers

Activity	Activity detail
1. Good housekeeping	• All stakeholders were encouraged to join the activities such as keep all areas dry and clean, promote hygienic habits, disposal of damaged devices, place things in a tidy condition, clear bricks, rocks slivers, and stumps in the playground and corridors, keep electrical equipment out of reach.
2. Safety accessories	• The creation of new or updated buildings was not possible due to a limited budget. The risk management approach focused on safety accessories such as polygonals, columns, edges, cabinet locks, mats, floor fenders, bathroom slip mats, grab-bars in bathrooms, equipment or vessels in closed spaces, water barriers, and containers of water out of the reach of children.
3. Traffic safety	• Educate children's parents and launch campaigns on accident prevention • Regulate one-way traffic at transfer areas or anywhere foot traffic is frequent
4. Playground/toy safety	• Sort toys following safety standards, repair damaged equipment, improve compliance with standards • Set safety criteria for future toy and playground equipment purchases
5. Eliminate presence of animals	• Destruction of hazardous habitat, such as fencing, mowing or pruning, removal of garbage, bricks
6. Training on injury prevention	• First aid, fire evacuation, and rescue procedure training for caregivers and parents • Make parents aware of the importance of teaching their children about avoiding dangerous things
7. Launch a campaign	• Promote safety practices and inform guidelines for injury prevention
8. Surveillance activities	• Prepare survey data about the risk of injury to be sent to the relevant authorities • Conduct surveillance systems and risk analysis continuously. A common requirement for caregivers for exploration of risk every week. • Record-keeping and injury flowchart practices when there is risk of injury • Summary of the risk of injury to children to be presented at the first meeting each month

management were conducted (Table 2). All stakeholders at each CDC were encouraged to join the activities. Other children's parents also participated in some activities of the risk management. It took 6 months for the completion of all the risk management activities, from mid-March 2013 to mid-September 2013.

Monitoring

The participants conducted a second round of walk-through surveys for each CDC after the completion of risk environment management. The number of injuries to the children was collected for the 6 months subsequent to the completion of risk management (from mid-September 2013 until mid-March 2014).

Evaluation

After monitoring, the evaluation of the change before and after the study was assessed. Information needed for the evaluation included the number of physical environments in compliance with safety standards found in the CDC, and the number of injuries to the children during the 6 months subsequent to the completion of risk management.

Revision

In the last step, the successes and failures of risk management were determined. The causes of the failures were scrutinized. Key factors of the successes and failures were identified and shared in a meeting of all CDCs' participants. The child injury prevention plan for all CDCs was adjusted to gain optimal success. This newly updated plan was used to launch a new round of child injury prevention in the CDCs.

Research Instruments and Data Collection

Various tools were employed for data collection—questionnaires on knowledge and awareness of child injury prevention in CDCs, a risk-based checklist for surveying physical environments, and reports of the number of injuries. The questionnaires were examined by three experts. Thirty questionnaires were evaluated elsewhere. Correlation coefficients (r) of .81 and .83 were obtained for the knowledge and awareness sections, respectively. The checklist for surveying the physical environment, both inside and outside the building, was examined by three experts and compared to the standard criteria. In addition, a reporting form to record the number of injuries was developed.

The physical environments that were in non-compliance with safety standards were identified after a walk-through survey with participants using an approved checklist. Exploration of risk areas was performed separately in each CDC before and after the risk management. The number of injuries to the children was collected twice, from mid-September 2012 to mid-March 2013 and from mid-September 2013 to mid-March 2014. The data were collected by caregivers at each CDC and rechecked every 2 weeks by the children's parents. In addition, participants were asked to complete the questionnaire on knowledge and awareness of injury prevention before and after the intervention with PAR.

Data Analysis

The research analysis was in two parts involving quantitative and qualitative data. Analyses of quantitative data comprised the questionnaires, risk-based checklist, and the report of the number of injuries. Sample statistics were presented as the mean and standard deviation. Comparisons of the stakeholders' knowledge and awareness of child injury prevention in the CDCs before and after the intervention with PAR, comparisons of the environments in compliance with the safety standards for CDCs, and the number of injuries to the children in the 14 CDCs before and after the risk management were tested using Student's

paired *t*-test. In addition, analysis of qualitative data collected from a brainstorming session of the participants at each CDC and among the CDCs was done using content analysis. The risk analysis at each CDC and among the CDCs was based on information obtained from focus group discussions.

Results and Discussion

This study used the process of PAR as an approach for the prevention of child injury in CDCs. The stakeholders were not only the subjects of the study, but participated directly as researchers who took part in every step of the study—problem identification, setting objectives and goals of the study, planning for the study, development of research tools, data collection, risk analysis, risk management, monitoring and evaluation, and revision of the study. The participatory process helped all stakeholders to actively search for more information and gain more understanding of the causes of child injury as well as how to prevent future problems. They shared their knowledge, ideas, and experiences related to problem-solving, which were more practical given the context of the area, the available resources, and budget. As a result, risk management could be accomplished well. PAR forged good relationships among the participants of all 14 CDCs. The participatory process improved knowledge and awareness in the stakeholders through the mutual sharing of opinions and experiences. The CDCs managed risk by following the guidelines unanimously approved by the stakeholders, leading to a decline in the number of injuries to the children. The continuous learning, practicing, and evaluation of child injury prevention led to continuous cycles of activities, which reflected an active and long-lasting operation.

Participants' Knowledge and Awareness for Child Injury Prevention

The mean scores of participants' knowledge and awareness before and after the PAR were statistically significant ($p < .01$) as shown in Table 3. The significant increases of knowledge and awareness for child injury prevention among the stakeholders were the result of their participation in various activities. The education of child injury prevention was expanded to include all stakeholders. They gained knowledge through both active and passive learning. Knowledge of child injury prevention was provided partly by experts invited to the meetings, which covered the issues of safety standards, risk of child injury, and risk management. Knowledge was presented in meetings similar to face-to-face education. The participants learned how to carry out activities in each stage of activity at the CDCs, such as the use of brochures and posters for public campaigning. The participants gained the skills to manage injury risk themselves. Everyone realized the importance and necessity of preventive measures in the CDCs and that it was the responsibility of all people involved with the CDCs. Therefore, all participants had increased knowledge, awareness, and involvement in all phases of the study.

Table 4
Mean scores of the child development center environments in compliance with safety standards before and after the risk management

($n = 14$)

Physical environment in compliance with safety standards	Full score	Mean	SD	df	t	*p*
Before	43	27.21	2.86	13	−14.312	.000
After	43	38.71	2.16			

$p < .05$

Physical Environmental in Compliance with Safety Standards

After the risk management activities were launched, the physical environments in the CDCs were modified in accordance with safety standards. The mean scores of the environments in compliance with safety standards were significantly increased ($p < .01$) as shown in Table 4. This success resulted from the application of the PAR in the child injury prevention program. Through this approach, the participants worked collaboratively to find solutions and take action on their own to solve problems immediately. This offered a better chance of success because it gave the opportunity for the children's parents and caregivers to engage in decision-making to solve problems in the CDCs, which in turn helped to stimulate child injury prevention. Community awareness is considered the main factor that contributed to the development of guidelines for child injury prevention (Pant, Towner, Pilkington, Ellis, & Manandhar, 2014). The involvement of stakeholders helped identify the risk factors and manage risks appropriately.

Focus group discussions were used in the process for probing the causes of child injury. This was another factor that helped child injury prevention in formulating the strategy for risk management in the CDCs. The focus group discussions were divided into two steps where relevant: 1) small focus group discussion in each CDC; and 2) larger

Table 3
Mean scores of stakeholders' knowledge and awareness for prevention of child injury before and after intervention with participatory action research

($n = 98$)

	Full score	Before		After		df	t	*p*
		Mean	SD	Mean	SD			
Knowledge	20	12.89	4.18	18.94	1.22	97	−17.083	.000
Awareness	50	38.95	4.69	48.40	2.52	97	−17.348	.000

$p < .05$

focus group discussion inclusive of the 14 CDCs. The participants met to brainstorm and create guidelines for child injury risk management. Defining risk management activities took into consideration various information, such as risk environments that were in non-compliance with safety standards, standard guidelines for child injury prevention given by experts, ideas and suggestions from stakeholders, available budget, and the context of each CDC. For example, the physical structures of more than half of the CDC buildings were not originally built for use as a CDC. The buildings were generally a part of a school, hospital or community hall. As a result, the buildings' pillars, windows, doors, and bathroom fixtures were of sizes and appearance inappropriate for child development. Some examples of non-compliance environment with before and after study are shown in Figure 2. However, the construction of new buildings or renovation of existing buildings was not possible due to limited budgeting. Therefore, risk management focused on the installation of safety accessories that required minimal cost, but achieved accident or injury prevention effectively, significantly reducing child injury. The focus group discussions led to the formation of good relationships among the participants and a strong social impetus to drive the participants to continue working toward their goal. The focus group discussion can be a key strategy for promoting health and preventing illness in children (Taveras, Lapelle, Gupta, & Finkelstein, 2006).

Table 5
Number of injuries to the children in 14 child development centers before and after the risk management

($n = 14$)

	Mean	SD	df	t	p
Before	3.07	1.38	13	4.49	.001
After	1.07	0.99	13		

$p < .05$

Another factor that contributed to better accident prevention in the CDCs was the promotion of education and awareness concerning child injuries and possible prevention. Knowledge was provided through both formal and informal communications on the issues of existing risk and proper management toward safety and environmental standards. Awareness is another equally important factor, especially when injuries are preventable. Participants must be aware that injury prevention is the responsibility of everyone for mutual benefit. This helps promote the practice of child injury prevention as a continuous action.

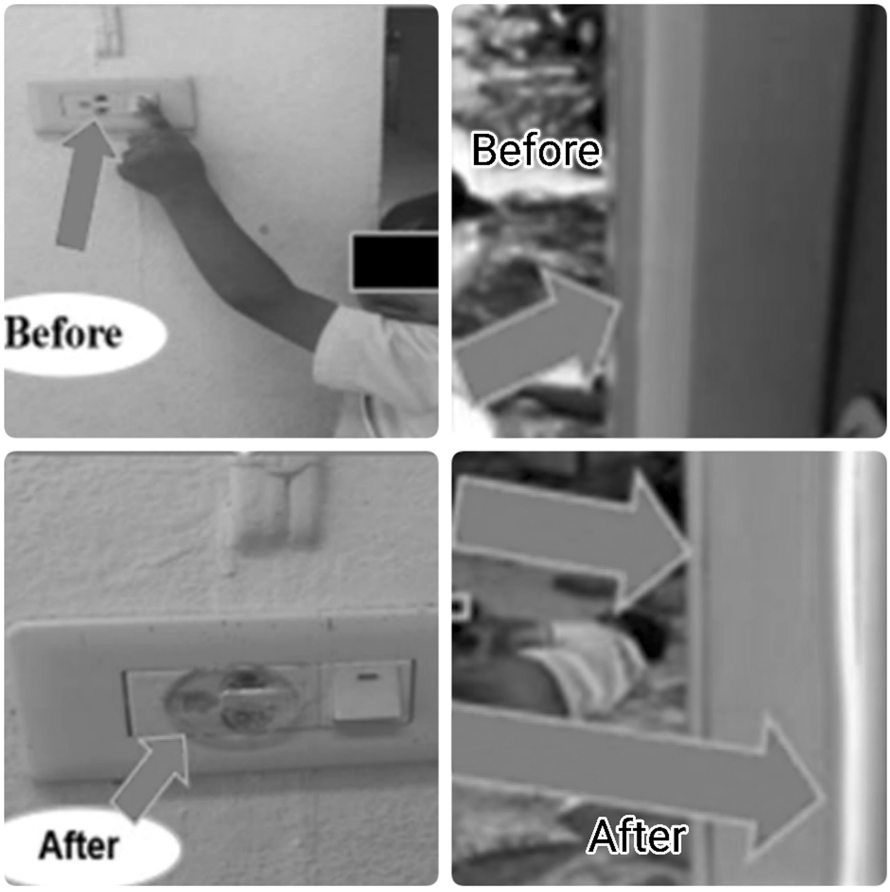

Figure 2 Pictures of non-compliance environment before and after the study

After the study, some environmental risks were not handled in accordance with standards due to the limited budget available. Since the CDCs were supported financially by the communities in which they were located, some expenses were submitted to get further support from the relevant authorities if they were too costly for the existing budget. Moreover, a number of the CDCs were temporarily located inside the building of another organization, as mentioned above, leading to difficulties in or the impossibility of renovating.

Number of Injuries to the Children

A comparison of the number of injuries to the children in the CDCs during the 6 months before and after risk management (Table 5) showed that the number of injuries to the children decreased significantly after the risk management ($p < .01$). The success stemmed from risk management of the CDCs, leading to improvements in the environment to meet safety standards. Environmental risk factors that might cause child injury were reduced. The result is consistent with the domino theory of Heinrich (1931). Several environmental risks are managed to meet all the standards so they will no longer be a cause of injury to children. Another success factor was safer practices, which included eight core activities. These activities were designed to improve the environment as well as child care practices. The practices of caregivers were previously found to be highly associated with trauma in children (Morrongiello & Schell, 2010). Poor caregiver practices usually came from too many children to look after per caregiver and a lack of proper training for caregivers in understanding child developmental tasks and the risk factors associated with occurrences of accidents.

Conclusion and Recommendation

The study confirmed that the participatory process, through a network, was crucial for successful and sustainable injury prevention in all of the participating CDCs. This research was a collaboration between 14 CDCs. The stakeholders were involved in all stages of the research process, resulting in a significant improvement in their knowledge and awareness of child injury prevention through sharing information and opinions. Such collaboration led to a better understanding of their mission and activities. The stakeholders managed risk together, resulting in a significant decrease in the incidences of child injury. The continued work of the stakeholders within each CDC and among the CDCs together helped drive the activities toward a sustainable program. This program includes activities such as operating surveillance systems and continuous risk analysis, record-keeping and injury flowchart practices where there is risk of injury, planning environment risk management in compliance with safety standards, and a summarizing the risk of injury to children presented at each CDC's monthly meeting and communicated to all the CDCs. The local administrative organizations and local health officials should take the participatory action model and apply it to the operation of other CDCs with a similar environment across the province. The development of a health partnership in each CDC for preschool children injury prevention should be further researched.

Conflict of Interest

There is no conflict of interest.

Acknowledgments

This study was financially supported by the Graduate School, Prince of Songkla University, Hat Yai campus, Songkhla, Thailand.

References

Baum, F., MacDougall, C., & Smith, D. (2006). Participatory action research. *Journal of Epidemiology Community Health, 60*, 854–867.

Buawsuwan, P. (2008). *School and community participation in promoting child safety*. Retrieved from pirun.ku.ac.th/~feduplb/Readings/SchoolComCollaboration.doc. [In Thai]

Bureau of Epidemiology. (2012). *Annual epidemiological surveillance report*. Nonthaburi, Thailand: Department of Disease Control Epidemiological Surveillance Report, Ministry of Public Health. [In Thai]

Craig, E., Simpson, J., Park, J., Adam, J., McDonald, G., Reddington, A., et al. (2010). *Preventing home based injuries in preschool aged children: An overview of the evidence*. Otago, New Zealand: University of Otago.

Freudenthal, S., Ahlberg, B. M., Mtweve, S., Nyindo, P., Poggensee, G., & Krantz, I. (2006). School-based prevention of schistosomiasis: Initiating a participatory action research project in northern Tanzania. *Acta Tropica, 100*(1–2), 79–87.

Goodman, S., & Joyner, D. (2010). *Childhood injury prevention 2010 parent/caregiver focus group results*. Richmond, VA: Virginia Department of Health.

Heinrich, H. W. (1931). *Industrial accident prevention: A scientific approach*. New York, NY: McGraw-Hill.

Keall, M. D., Baker, M., Howden-Chapman, P., & Cunningham, M. (2008). Association between the number of home injury hazards and home injury. *Accident Analysis & Prevention, 40*(3), 887–893.

Kemmis, S., & McTaggart, R. (2006). Participatory action research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.

Kemmis, S., McTaggart, R., & Retallick, J. (2004). *The action research planner* (2nd ed.). Karachi, Pakistan: Aga Khan University Institute for Educational Development.

Morrongiello, B. A., & Schell, S. L. (2010). Child injury: The role of supervision in prevention. *American Journal of Lifestyle Medicine, 4*(1), 65–74.

Ordannana, J. R., Caspi, A., & Moffitt, T. E. (2008). Unintentional injuries in a twin study of preschool children: Environmental, not genetic, risk factors. *Journal of Pediatric Psychology, 33*(2), 185–194.

Pant, P. R., Towner, E., Pilkington, P., Ellis, M., & Manandhar, D. (2014). Community perceptions of unintentional child injuries in Makwanpur district of Nepal: A qualitative study. *BMC Public Health, 14*(1), 476.

Saraung, Y., Durongritichai, V., & Kompayak, J. (2014). The development of health partnership for injury prevention of school-aged children in community. *Journal of Public Health Nursing, 28*(2), 1–2. [In Thai]

Siller, S. T., Hijar, M., & Mora, G. (2011). Prioritisation of road traffic injury intervention: Results of a participative research with stakeholders in Mexico. *International Journal of Injury Control and Safety Promotion, 18*(3), 219–225.

Suwantip, N. (2012). *The results of the risk assessment on child development centers* (Research Report). Surratthani, Thailand: Surratthani Provincial Public Health Office. [In Thai]

Taveras, E., Lapelle, N., Gupta, R. S., & Finkelstein, J. A. (2006). Planning for health promotion in low-income preschool child care settings: Focus groups of parents and child care providers. *Ambulatory Pediatrics, 6*(6), 342–346.

World Health Organization (WHO). (2008). *World report on child injury prevention*. Geneva, Switzerland: Author.