Abstract

This study was performed in order to practically help children and provide basic data for developing program for effective preventive education against safety accidents by seeking strategy that can prevent accident through checking with current condition of safety accidents of children of our country.

Safety accidents are the important factors for globally causing deaths and disorders of children and juveniles and safety accidents in our country lately become serious problems that threaten the right to life of children. 1,200 children of our country annually die of traffic accident and about 2,954,000 children visit hospitals for treatment due to accidents and loss incurred by safety accident amounts 2 trillion Won. In United States, 20,600,000 children meet with accidents each year, and loss is assumed to be 3,470,000,000 dollars of cost consumed every year coming from safety accidents of children. In this light, children’s safety accident is a serious problem that threatens children’s health and existence and is a task of policy that should be paid attention to for protecting children’s right, and in addition, as social loss of cost as well as unhappiness of individual child and family is bigger than that of adults, priority order needs to be put way of countermeasures for preventing children’s safety accidents.

Human factor related to arising of children’s accident are classified into variable factors of demographic background, that is, age, gender, condition of family, economic level[10] and individual variable factors including psychological factors like characteristic of personal character, psychological condition or social relationship and educational factors like shortage of knowledge on accidents or neglectful behavior and factors(age, academic career, parents’ knowledge on safety, practice of safety, etc.) from parents who take care of children.

According to data collected from Consumer Injury Surveillance System(CISS) of Woori Won, number of children’s safety accidents under 14 years 20,732 in 2011, 22,907 in 2012 and 24, 312 in 2013, which shows continuous increase every year and the ratio that occupies more than 1 third of total danger information.

In order to prevent various kinds of safety accidents threatening our lives and to affirmatively fixate culture of safety and health for our society, all people should be equipped with correct attitude toward safety, and especially, habituating and acting out are very important through systematically educating basic knowledge and values and attitudes. Therefore, related factors for accident occurrence should be removed with prior prediction of possible occurrence of accident, and condition should be minimized from deterioration at occurrence of accident.

[Keywords] Crisis, Republic of Korea, Safety Accidents, Safety Education, Traffic Safety
1. Introduction

With development of medical technology and enhancement of living environment, while deaths of illness are obviously reduced, deaths of unexpected accidents are continuously increasing every year[1]. Convention on the Right of Child selected by U.N. in 1989 clarifies principles for protecting children and guaranteeing intrinsic right of children[2]. Out of general principles of Convention on Right of Children, those principles of subsistence, protection and development should be kept most closely in the life of children. Safety accidents are the important factors for globally causing deaths and disorders of children and juveniles[3] and safety accidents in our country lately become serious problems that threaten the right to life of children. 1,200 children of our country annually die of traffic accident and about 2,954,00 children visit hospitals for treatment due to accidents[4], and loss incurred by safety accident amounts 2 trillion Won. In United States, 20,600,000 children meet with accidents each year, and loss is assumed to be 3,470,000,000 dollars of cost consumed every year coming from safety accidents of children[5]. In this light, children’s safety accident is a serious problem that threaten children's health and existence[6] and is a task of policy that should be paid attention to for protecting children’s right, and in addition, as social loss of cost as well as unhappiness of individual child and family is bigger than that of adults, priority order needs to be put for prevention of accident[7].

First ranker of cause of child’s death under 14 is accident which occupies 29% of total cause of death, and especially children of 5-10 years pertaining to elementary school children showed higher ratio of deaths of safety accident that that under 5 years[8]. In addition, number of child victims under 14 years dying of safety accidents is decreasing, but number of children who get injured or wounded appears to be increasing every year, which imminently needs way of countermeasures for preventing children’s safety accidents[9]. Human factor related to arising of children’s accident are classified into variable factors of demographic background, that is, age, gender, condition of family, economic level[10] and individual variable factors including psychological factors like characteristic of personal character, psychological condition or social relationship and educational factors like shortage of knowledge on accidents or neglectful behavior[11] and factors(age, academic career, parents’ knowledge on safety, practice of safety, etc.) from parents who take care of children[12].

Psychological factors like characteristics of individual child’s character and friend relationship was important variable factors [13]. Safety education and level of safety knowledge which are educational factors among humane factors of children are also important factors affecting on arising of safety accidents, and level of safety education appeared to have significant effect on arising of children’s accidents[14], and lower level of awareness of traffic safety affecting on arising of safety accidents, awareness of traffic safety was indicated to be an dangerous factor affecting arising of safety accidents[15].

According to studies of[16][17], children who do not practice accident prevention appeared to experience more accidents than those who do. On the other hand, gender as a demographic factor out of humane factors of children was an important factor for affecting arising of children’s accidents[15]. In most studies, male children have higher rate of accident occurrence than female children[14].

At school, as system of 5 days class per week made increase of play time, danger of safety accidents is increasing. With increase of social activity of females and with children having increased time for spending alone on street, play yard, etc., safety accidents are increasing with emergent treatment delayed. At home, shortage of safety education and lack of systematic safety education at preschool meet with shortage of rapid countermeasures against accidents. A series of safety accidents occurred recently, that is, sinking of passenger vessel Sewol, collapse of Marina Resorts, bumping accident of Seoul subway trains, etc. are the accidents showing safety
insensitivity of society and dissatisfied measures against safety accidents. While change of Korean society attained brilliant compressed high growth, its other side contains negative aspect like “increase of diversified and complex danger”. Children is the future who will lead our society, but loss of children due to traffic accidents will cause great damages on the society as well as on individual children and families. It is accompanied by great social cost including loss of labor due to caring children by parents and cost for the disorders of children.

Nevertheless, safety measures taken so far in our country has characteristics of posterior measures rather than prevention of safety accident, and ideas of safety measures are consecutively come out of many sectors, but matter of responsibility is not clear enough at the practical occurrence of accident Low national awareness of conformity with law and generalized safety behavior of non-compliance make overall society neglect safety.

Every time of big safety accidents, new safety plan comes out, but evaluation of its effectiveness is also in the reality of not being satisfying. In order to make more effective strategy for children’s safety, ways of safety management should be prepared based on ground.

2. Theoretical Background

2.1. Reality and current condition of safety accidents

According to data collected from Consumer Injury Surveillance System(CISS) of Woori Won, number of children’s safety accidents under 14 years 20,732 in 2011, 22,907 in 2012 and 24,312 in 2013, which shows continuous increase every year and the ratio that occupies more than 1 third of total danger information.

Table1. Current condition on reality of safety accidents.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Year 2011</th>
<th>Year 2012</th>
<th>Year 2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of accidents</td>
<td>20,732</td>
<td>22,907</td>
<td>24,312</td>
<td>67,951</td>
</tr>
<tr>
<td>Total number</td>
<td>54,724</td>
<td>61,498</td>
<td>65,405</td>
<td>181,627</td>
</tr>
<tr>
<td>Ratio(%)</td>
<td>37.9</td>
<td>37.2</td>
<td>37.2</td>
<td>37.4</td>
</tr>
</tbody>
</table>

As for places of occurrence of accidents, ‘home’ occupied highest ratio, and especially, number of accidents at “home” of last year was 16,564(68.1%), which shows continuous increase of ratio out of total places of occurrence. Annual increase of number of safety accidents at home which is relatively regarded to be safe space brings necessity of improving indoor environment that can cause safety accident and strengthening of parental management of goods which have highest possibility of causing occurrence of safety accidents. Safety accidents occurring at “leisure and cultural play facility” are also increasing from 1,457 cases(7.0%) in 2011 to 2,022(8.3%) in 2013.

Table 2. Current condition by places of accident occurrence. Unit: number (%)

<table>
<thead>
<tr>
<th>Classification</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home</td>
<td>12,926</td>
<td>15,055</td>
<td>16,564</td>
<td>44,454</td>
</tr>
<tr>
<td></td>
<td>(62.3)</td>
<td>(65.7)</td>
<td>(68.1)</td>
<td>(65.6)</td>
</tr>
<tr>
<td>Educational facility</td>
<td>1,662</td>
<td>1,800</td>
<td>1,801</td>
<td>5,263</td>
</tr>
<tr>
<td></td>
<td>(8.0)</td>
<td>(7.9)</td>
<td>(7.4)</td>
<td>(7.7)</td>
</tr>
<tr>
<td>Leisure and cultural play facility</td>
<td>1,457</td>
<td>1,610</td>
<td>2,022</td>
<td>5,089</td>
</tr>
<tr>
<td></td>
<td>(7.0)</td>
<td>(7.0)</td>
<td>(8.3)</td>
<td>(7.5)</td>
</tr>
</tbody>
</table>
Table 3. Current condition by parts of injury.  

<table>
<thead>
<tr>
<th>Parts of injury</th>
<th>Under 1 year</th>
<th>1~3 years</th>
<th>4~6 years</th>
<th>7~14 years</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>face/eye/ear/mouth/nose</td>
<td>1,202 (21.0)</td>
<td>12,403 (36.8)</td>
<td>4,518 (31.0)</td>
<td>3,292 (23.5)</td>
<td>21,415 (31.5)</td>
</tr>
<tr>
<td>head</td>
<td>2,477 (43.4)</td>
<td>10,907 (32.4)</td>
<td>4,389 (30.1)</td>
<td>2,997 (21.4)</td>
<td>20,770 (30.6)</td>
</tr>
<tr>
<td>Hand/finger/wrist</td>
<td>580 (10.2)</td>
<td>3,888 (11.5)</td>
<td>1,459 (10.0)</td>
<td>2,015 (14.4)</td>
<td>7,942 (11.7)</td>
</tr>
<tr>
<td>Leg/knee/foot</td>
<td>94 (1.6)</td>
<td>1,340 (4.0)</td>
<td>992 (6.8)</td>
<td>1,615 (11.6)</td>
<td>4,041 (5.9)</td>
</tr>
<tr>
<td>Neck/shoulder</td>
<td>208 (3.6)</td>
<td>1,084 (3.2)</td>
<td>721 (4.9)</td>
<td>938 (6.7)</td>
<td>2,951 (4.3)</td>
</tr>
<tr>
<td>Internal organs</td>
<td>390 (6.8)</td>
<td>1,226 (3.6)</td>
<td>591 (4.1)</td>
<td>641 (4.6)</td>
<td>2,848 (4.2)</td>
</tr>
<tr>
<td>Arm/elbow</td>
<td>51 (0.9)</td>
<td>799 (2.4)</td>
<td>786 (5.4)</td>
<td>901 (6.4)</td>
<td>2,537 (3.7)</td>
</tr>
<tr>
<td>tooth</td>
<td>21 (0.4)</td>
<td>278 (0.8)</td>
<td>184 (1.3)</td>
<td>253 (1.8)</td>
<td>736 (1.1)</td>
</tr>
<tr>
<td>genital organs</td>
<td>2 (0.0)</td>
<td>123 (0.4)</td>
<td>153 (1.0)</td>
<td>144 (1.0)</td>
<td>422 (0.6)</td>
</tr>
<tr>
<td>waist/pelvis</td>
<td>7 (0.1)</td>
<td>80 (0.2)</td>
<td>91 (0.6)</td>
<td>194 (1.4)</td>
<td>372 (0.5)</td>
</tr>
<tr>
<td>Chest/back</td>
<td>23 (0.4)</td>
<td>87 (0.3)</td>
<td>100 (0.7)</td>
<td>126 (0.9)</td>
<td>336 (0.5)</td>
</tr>
<tr>
<td>belly</td>
<td>3 (0.1)</td>
<td>50 (0.1)</td>
<td>66 (0.5)</td>
<td>75 (0.5)</td>
<td>194 (0.3)</td>
</tr>
</tbody>
</table>

Note: 1) Traffic facility: all of road/facility included  
2) Others: Nature, residential facility, public facility, agro/fishery/livestock facility, industrial district, industrial and construction district including unclear places of occurrence as a result of observing parts of body that get hurt, injury of “face/eye/ear/mouth/nose” and “head” occupied around 60% of total. For infants below 1 year, case of accidents on “head” part was 2,477(43.4%) which showed most frequently occurring parts. Children of toddler period of 1-3 years and infancy of 4-6 years were respectively 12,403 cases(36.8%) and 4,518(31.8%) that get injured on “face/eye/ear/mouth/nose”. Children of schooling period of 7-14 years showed injury on “face/eye/ear/mouth/nose” have 3,292 cases, 2,015 cases on “hand/finger/wrist” parts. This may appear to have diversified aspects of injuries at occurrence with wide scope of activity compared with other age groups.
### 3. Conclusion

This study was performed in order to practically help children and provide basic data for developing program for effective preventive education against safety accidents by seeking strategy that can prevent accident through checking with current condition of safety accidents of children of our country. In order to prevent various kinds of safety accidents threatening our lives and to affirmatively fixate culture of safety and health for our society, all people should be equipped with correct attitude toward safety, and especially, habituating and acting out are very important through systematically educating basic knowledge and values and attitudes. Therefore, related factors for accident occurrence should be removed with prior prediction of possible occurrence of accident, and condition should be minimized from deterioration at occurrence of accident.

Safety management measures to minimize children’s accidents are as the followings.

#### 3.1. Strengthening safe behavior of infants through home visits

Safety education on new born babies at hospital should be provided to mothers using prenatal period. After birth of baby, information will be provided on method of safe nurture and emergent treatment at OG hospitals and maternity nursing facility. Safety accidents should be minimized using doctors, nurses and professional safety persons and damage should also be minimized at occurrence of accident.

#### 3.2. Strengthening counter-measure capability against danger by high grades of male children

Male children of high grade year are identified as very vulnerable group to various kinds of safety accidents. Male children of this age are in the age group that wants to try various kinds of dangerous instruments or places, and especially degree of danger is highest in junior high school students.

True education of safety is to be conducted on how to take counter-measures against dangerous situation and unexpected situation other than to prevent children from danger. In other words, it is to cultivate ability of strengthening capability against danger.

#### 3.3. Strengthening monitoring and supervising school bus

Result needs strategy of preventing vital traffic accidents. Looking into existing characteristics of traffic accidents, about half of children who were carried to emergency room of hospital due to traffic accidents while walking appeared to be those of 6-12 years that pertains to pre-school and school period. Sophisticated monitoring and managing is firstly necessary for school-related vehicles including those for nursery facility, pre-schools and tutoring academies which are the means of transportation used by children.

#### 3.4. Strengthening studies on injuries from fall

Traffic accidents and injuries from fall is a mechanism to be careful about injury of children in our country, and are the important factors for bearing illness due to damages occupying 70% of total burden. But, different from traffic accident, data on the cause of injury from fall does not exist at all. In order to set up a strategy for preventing safety accidents, background needs to be examined for continuous accumulation by mechanisms in-

<table>
<thead>
<tr>
<th>Overall body</th>
<th>15 (0.3)</th>
<th>51 (0.2)</th>
<th>27 (0.2)</th>
<th>38 (0.3)</th>
<th>131 (0.2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>others</td>
<td>638 (11.2)</td>
<td>1,356 (4.0)</td>
<td>509 (3.5)</td>
<td>753 (5.4)</td>
<td>3,256 (4.8)</td>
</tr>
<tr>
<td>Total</td>
<td>5,711 (100.0)</td>
<td>33,672 (100.0)</td>
<td>14,586 (100.0)</td>
<td>13,982 (100.0)</td>
<td>67,951 (100.0)</td>
</tr>
</tbody>
</table>

Note: Others unkown including nonapplicable.
cluding physical space, surrounding environment and condition where safety accidents occur and individual factor of children and guardians.

3.5. Enhancing guardian’s awareness of safety for preventing safety accident within home

Education is necessary in order to comprehend detailed environmental factors within home that may be dangerous to children for preventing damage within home and to improve and publicize these conditions and to take care of children with awareness of children’s safety. Especially, level of income of the household that children belong to or characteristics of parents (whether they are double incomer couple need to be intervened. as fatigue and health of raiser affect occurrence of children’s safety accidents.

3.6. Building up of infrastructure and networks

As Ministry of Health and Welfare taking charge of territory of safety and accidents for children can deal with all areas for intentional and unintentional injury covering two territories of health and welfare of children, it has objective and substantive suitability. Accordingly, it is desirable to set up a control tower in Ministry of Health and Welfare, which will take charge of leading role for children’s safety and damage prevention.

4. References

4.1. Journal articles


4.2. Books


4.4. Additional references

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