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Safe or not?: Critical Review of Current Safety Practices in Korean Child Care Centers

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Abstract: Young children spend significnat amount of time in child care centers. The Korean government has established the Child Care Center Accreditation Program (CCCAP) to promote a higher safety standards. The CCCAP has various indexes and regulations for preventing fire hazards in child care centers. However, there are not many studies being conducted to examine the actual practices of safety and on fire hazards in child care centers. The aim of this research is to assess the risks associated with safety practices in child care centers. In particular, the research tried to extract the appropriate knowledge for the safety practices on fire hazards in child care centers. For this research, a total of 20 child care centers were investigated to examine the safety practices in gas and electricity usage. In addition to that, interviews were conducted with principals or head teachers to extract the requirements of the safety needs for the purpose of preventing fire hazards in child care centers. Findings of this study can be used to improve the safety indexes in the CCCAP.

Key words: Child care center, safety regulations, fire prevention practices, Child Care Center Accreditation Program (CCCAP), indexes, Korea

INTRODUCTION

As the number of working mothers are increasing along with the low birth rate in Korea, the role of child care facilities are getting more important in Korea. There are two types of child care facilities in Korea: child care centers and kindergartens. Child care centers cover a large portion of child care facilities in Korea since the Nurturing for Infant and Toddler Law was enacted in 1991. Currently, child care centers are governed by the Ministry of Public Health and Welfare whereas kindergartens are administrated by the Ministry of Education in Korea.

Although, both facilities deal with children's education, the target age groups are different. While the age group for child care centers is from age 1-12 years old, the kindergartens is targeted from 3-5 years old (Jae, 2015). Also, child care centers operate longer hours than kindergartens. Often, many child care centers operate full day and in some cases, they can open until 10 pm upon the pre-arranged requests. By 2014, a total number of young children who go to child care centers reached 1.496.671 (Anonymous, 2014). With these operating conditions and various age groups, child care centers are vulnerable to various hazards. Fire hazards are the most common occurring disaster in child care centers. According to the statistics from the Ministry of Public Health and Welfare, 136 cases of fire happened at child care centers in 2014 (Anonymous, 2014).

The aim of this research is to assess the risks associated with the safety practices in child care centers. In particular, this research tries to extract the appropriate knowledge for the safety practices on fire hazards in child care centers. For this research, a total of 20 child care centers were examined and interviews with head teachers or principals were conducted. In order to assess the current risks and issues on safety practices on fire hazards, three experts including an electrician, a gas engineer and a firefighter also, participated as members of the research team. Finally, the investigation results were listed and then, the implications were discussed.

Overview of CCCAP and fire hazards in child care centers in Korea: As of December 2014, there are 43,742 child care centers in Korea (Anonymous, 2014). The number of child care centers dramatically increased after the then government changed their establishment policy

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in 2012. In order to open child care centers before 2012, the government's permission was required with proper qualifications. However, after 2012, when qualifications were met, child care centers were able to start their business simply after reporting to the government. This change made child care centers easier to open. As a result, a total number of child care centers rapidly reached to over 40.000 within a few years.

Today, there are 5 different types of child care centers by a founding entity in Korea: National or Public Child Care Centers, Child Care Centers of Social Welfare Corporations, Child Care Centers of Corporations, organizations, etc., Workplace Child Care Centers, Home-based Child Care Centers, Cooperative Child Care Centers and finally, Private Child Care Centers. Among them, home-based child care centers currently covers over 50% of the total number of child care centers in Korea.

With these backgrounds, infants, toddlers and children spend more time in child care centers and various risks surrounding child care centers have increased (Lee, 2001).

Therefore, the then Korean government invented Child Care Center Accreditation Program (CCCAP) for existing child care centers in 2006 in order to examine various areas regarding safety. The CCCAP is a voluntary program. However, 95% of existing child care centers are now participating as it provides the positive impressions to perspective parents (Hwang *et al*., 2013). Based on the statistics provided by the Ministry of Public Health and Welfare, 73.9% of child care facilities in Korea maintained their certificates of the CCCAP (Hwang *et al*., 2013).

Currently, the CCCAP is composed of six indexes: nursery environment, operational management, curriculums, interaction between teachers and children, health and nutrition and finally, safety and security. Especially, the index of safety is comprised of the following four sub-indexes: indoor and outdoor safety environment, fire evacuation drills, safety education and finally, safe transportation from child care centers to houses. For instance, the 4 sub-indexes include toys, dangerous materials, safety management for nursery areas, outdoor facilities and infant and toddler taking-over process.

As stated previously, the current safety indexes are mainly focused on fire hazard. In fact, fire is the most common hazard in child care facilities. There are various causes for a fire in child care centers but the main three causes of the fire in child care centers are short-circuit, gas leak and human errors (Lee and Kim, 2003).

In Korea, the 5 prevention regulations are enforced to child care centers, based on their size (footage). Therefore, the smaller sizes of child care centers are subjected to fewer applications of the current fire regulations. Much research has been done in the field of accidents and injuries for young children. However, to date, there has been little research on how child care centers implement fire prevention and what practical information and knowledge are needed for teachers particularly regarding the fire prevention practices.

With this background, this research examined small and mid-size child care centers operated by various founding entities. A total of twenty child care centers were selected and interviews were conducted. Further, gas, fire and electricity were recognized as vulnerable areas in child care centers and so, the three categories were explored in this research.

MATERIALS AND METHODS

Research design and data collection: This research employed a qualitative method (Yin, 2009). Data was collected from the twenty child care centers which are located in Seoul and Jeonlabu Province in Korea. The site visit in the twenty child care centers was conducted from November 10-28 in 2014. The profile of the child care centers for the investigation is listed at Table 1.

Before the site visit, the pre-appointment for the visit was made and the agreements of interviews were signed. For the nature of child care centers operating hours, the pre-appointment was essential for the study. The research team for the site visit consisted of a firefighter, a certified gas engineer, a certified electrician and two researchers. During the site visit, three experts of each area examined the safety conditions and practices and in the meantime, the researchers conducted semi-structured interviews with teachers or principals of child care centers. The

Table 1: Profile of the child care centers

Location	Types	Number of young children	Founded (years)
Seoul	Public	173	1995
Seoul	Public	52	1994
Seoul	Private	58	1996
Seoul	Private	81	2007
Seoul	Private	72	2001
Seoul	Public	79	1999
Seoul	Private	73	2002
Seoul	Private	85	1994
Seoul	Public	120	1997
Seoul	Public	255	1995
Jeonlabuk-do	Private	103	1998
Jeonlabuk-do	Private	129	2001
Jeonlabuk-do	Home-based	19	2006
Jeonlabuk-do	Home-based	20	1999
Jeonlabuk-do	Private	137	1997
Jeonlabuk-do	Private	114	1995
Jeonlabuk-do	Public	95	1998
Jeonlabuk-do	Corporation	79	1999
Jeonlabuk-do	Corporation	99	1996
Jeonlabuk-do	Home-based	13	2005

duration of the site visit is approximately 80~90 min, depending on the question and answer session after the examination.

As stated above, the interviews were conducted as a form of semi-structured interview. The list of the questions for interview is listed as:

- How often does your center conduct the fire safety training and education?
- What contents are used for the fire safety training for the stakeholders including parents, teachers and students?
- What knowledge and information are needed for your child care center to effectively prevent fire hazards?
- How does your center get the safety information including updated regulations on fire service acts?

RESULTS AND DISCUSSION

After visiting the twenty child care centers, the contents of the interview were recorded during the interviews and a cross-check was made to prevent the arbitrary interpretation. The results for the interview and the examination on the current status and safety practices of gas, fire prevention equipment and electricity usage were summarized. The current safety practices in child care centers were described and issues were discussed.

Simply "doing" culture in fire prevention practices: The investigation reveals that the safety practices mainly focus on preventing fire incidents. Due to the seriousness of fire incidents, making fire free environment in the child care center is constantly emphasized. Therefore, the Ministry of Public Health and Welfare in Korea published the childcare operations manual and distributed it through their website and the Child Care Support Center (CCSC) in the local governments. In the manual, the mandatory fire evacuation drill must be conducted once a month and this needs to be recorded in child care centers operational log book. The results of the investigation also show that fire evacuation drills were properly conducted in child care centers.

"We conduct a fire evacuation drill once a month as indicated in the manual. We also keep the information of the drill including date, route of the evacuation, time and results. Initially, children at the center were not familiar with the sound of the siren but sooner or later, they got used to it. Now even 2 year old boys can follow the evacuation procedures and we are proud of it, …, " "The head teacher of Child Care Center 17"

According to the Fire Prevention Law in Korea, large-size child care centers must have their fire prevention equipment, including fire extinguishers and fire incident receivers and this equipment must be inspected by certified professionals. The results of the inspection must be documented and be presented to local firefighters upon request. The research shows that large size child centers conduct the yearly fire inspection based on the fire prevention law. It turns out that child care centers often outsource the fire equipment inspection to the certified inspectors. Having the regular fire inspection surly contributes for making the fire free environment in child care center. However, child care centers do not know how to use the inspection results and how to apply the results to the current fire prevention plans.

"I didn't know that all the inspection information needs to be written the fire prevention plan in a certain form. Although, I took classes to be a fire prevention manager in my child care center, I really did not know that I have to integrate the inspection results to the fire prevention plan. Furthermore, I didn't know that I can get fine not doing so. If I know this earlier, I definitely do proper paperwork in advance, …, " "The head teacher of Child Care Center 1"

This investigation results show that the fire prevention practices are not conducted effectively and sufficiently. Rather, all investigated child care centers fell into inertia and repeated the same fire prevention practices over and over again. It is clear that simply "doing" culture should be ended in the child care center.

Insufficient knowledge on safety practices in gas facilities: All of the investigated child care centers have gas facilities to provide two or three meals to children every day. Providing food in child care centers is mandatory by child care centers regulation and propane gas and city gas are the common way to cook food. Gas safety is mainly handled by certified cooks in child care centers. In the practices of the gas handling, certified cooks are the ones who lock the gas valve to stop the flow of gas when they finish the work. Throughout the investigation, only one child care center among the examined child care centers uses a timer (Gas shut-off valve with a timer) which cuts the flow of gas after a certain time. According to the Korea Gas Corporation (KGC), a timer is highly recommended for public facilities including child care centers, restaurants and general households to prevent fire from gas leak. However, only one child care centers examined uses a timer and this make child care centers more vulnerable to fire hazard.

"I didn't know about a timer before. I heard about it, …, however I didn't think that I can actually use it in my facility. I don't know why, …, Maybe, it is not recommended by the Ministry of Public Health and Welfare. We mostly follow the guidelines from the ministry but there is no specific guideline for gas usage, especially, about using a timer, …, although, we use gas for cooking in the center, …, " "The head teacher of Child Care Center 10"

The interview shows that the current guideline for child care centers does not fully cover the safety practices for gas facilities. Since, all child care centers use gas to cook food, practicing the safe gas use is important. This can be achieved by educating the cooks who work at the kitchen. Moreover, implementing hardware, such as a timer, is a firm way to guarantee safe gas usage in child care centers.

Perfunctory and insufficient CCCP index: The child care center operations manual by the Ministry of Public Health and Welfare is wildly referred as a standard procedure for maintaining the safety of child care centers. However, this study discovered that this manual does not provide the sufficient information particularity on maintaining fire free environment for child care center. According to the investigation results, the fire evacuation drill is strongly encouraged from the manual and all the child care centers we visited stickily follow the frequency and contents from the manual. However, some teachers pointed out that various types of emergency management drills are needed for the child care center.

"We conduct the fire evacuation drill once a month and it has been done successfully. However, we are facing various types of emergencies. Especially the sudden incidents such are car accidents and other safety matters. We hope that we can do other types of drills, however, we do not know how to do. The manual from the Ministry of Public Health and Welfare is good but it does not say anything other types of emergencies except fire. We do not know much about gas use practices as well as the electricity use practices, …, " "The head teacher of the child care center 18"

"We usually follow the manual from the Ministry Public Health and Welfare. According to the manual, the fire evacuation exercise is mandatory therefore, we only practice this once a month. If there are various exercises and preparedness tasks that I can do for the safety of the center, I am willing to participate too, …, " "The head of the child care center10"

Therefore, this study suggests that the information and knowledge on usage of gas and electivity devices must be included in the child center operations manual. By doing so, the child care centers will give more attentions on main causes of the fire incidents in child care centers. Since this manual is the basis on the CCCAP, the safety indexes in the CCCAP need to be revised to include other types of criteria such as the maintenance of the electricity and gas as well as other types of safety issues.

The current CCCAP solely emphasizes the fire extinguishing equipment such as fire guidance light, sprinklers and automatic fire detection devices. The interview results show that many child care centers are willing to follow the instructions from the manual because it is important to maintain the CCCAP. Since, conducting the regular fire evacuation drill is the only requirement from the manual to certify the safety indexes in the CCCAP, this needs to be revised as shown from many interviews throughout the investigation.

Administrative blind spots: This study found out that there is a 'blind spot' exists in current fire administrative examination practices. The mid-size (from 31-100 children) child care centers, especially which located in the stand alone building is left out from the regular administrative fire prevention check-up process. Due to the limitation of the budget and personnel from the local fire stations, the yearly fire administrative examinations are conducted towards the large size of the child care centers due to the seriousness of the incident if occurs.

"The local fire station has limited personnel to conduct the yearly fire administrative check-up. We usually focused on visiting larger child care centers because the larger ones have more casualties when fire occurs. Of course, we want to cover small and mid-size child care centers in our area but we do not have much slack with the current capacity, …, " "Subject Matter Expert: firefighter 1"

This is inevitable that the fire stations in local government do not have enough personnel to cover the small and mid-size child care centers in the area. Unfortunately, this investigation reveals that the small and medium size child care centers seem to have the most problematic conditions on electricity as they often expand or fix their facilities without the certified engineers. Further, some of the child care centers do not have a proper electricity system. We found out that when the child care center expanded the building and extended the existing electricity lines, some child care centers used non certified electrician due to their budget. This trend is more obvious when the child care center is in the aged detached buildings.

> "It's too expensive to contact the certified electricians for small jobs. We have a driver who has knowledge of electricity and he does the jobs for us, …," "The head of the child care center 4"

Moreover, the small and mid-size child care centers often use the incorrect voltage fuse for their electronic system. For example, the child care center 12 does not have the enough electronic capacity to run their air-conditioner system in summer and this causes the frequent shut-downs of the electricity in the child care center. Instead of improving the overall capacity of the electricity, the child care center changes the higher capacity of the electricity fuse. This practice is very dangerous as this can be a main cause of fatal fire incidents, yet, the teachers do not know the danger of this malpractice.

Although, these malpractices on electricity can be often found in the small and mid-size child care centers, they are excluded from the yearly fire administrative examination conducted by the local fire stations and the government. Therefore, the education on good practice of gas and electricity are needed particularly for the mid-size child care centers.

Limitations of current safety education practices: During the interviews, many teachers emphasized the importance of safety education for parents. As a part of the stakeholders of the child care center, the role of parents is important, however, current safety education is not actively conducted towards the parents. Only few child care centers hold a meeting to offer safety information to parents once a month. Other than that, rest of the child care centers only gives the information through irregular flyers. Apparently, Investigated child care centers want to provide educational sessions to parents yet they felt that they do not know the adequate and sufficient safety related contents. This study shows that many child care centers want to participate actively to safety education for parents, however, centers do not know the effective way and the suitable safety contents and materials for parents. It is mandatory that the all the child care center in Korea needs to educate the maintaining the safe environment to their staffs by the manual from the Ministry of Public Health and Welfare. The current safety education program for teachers is mainly focused on CPR and first aid. Other types of safety education content or instruction do not include in the manual at all. This study shows that the current education program for teachers is not enough to cover the various risks from the child care center. Further, teachers are willing to learn the not only for the emergency response procedures but also the effective emergency communications to the parents when the emergency occurs to the center.

With these circumstances, good practices and proper information and knowledge on various types of safety practices need to be included in the manual. With this information, stakeholders in the child care centers can be more educated and aware of the good safety practices including making the better safe environment.

Cultural influence on safety information: Throughout the investigation, we discovered that teachers in the child care centers were not familiar with the knowledge of electricity and gas facility maintenance. According to the statistics from the Ministry of Public Health in 2015, 14,447 are male teachers and 321,067 are female teachers. Since, the teachers in the child care centers are dominantly female, they are not familiar with these types of knowledge. This can be explained that gender roles are socially constructed in Korea. In detail, female only has limited opportunities to learn the knowledge of electronic devices and gas facilities in Korea as the gender roles are given from the high school by learning different curriculum. For example, boys learn wooden crafts and electronic circuits while, girls learn knitting and sewing. Due to these types of educational system, female does not have sufficient opportunities to learn the knowledge and information about gas and electricity.

Unfortunately, the large portion of the fire incidents occurred due to malpractices of gas facilities and electronic devices. Therefore, knowing the appropriate knowledge for maintaining fire free environment is important. However, the proper techniques on maintaining gas facilities and electronic devices are not provided to teachers in the child care center. Furthermore, there are not much of information resources on maintaining on electronic devices and gas facilities. Even the child care center operations manual from the Ministry of Public Health and Welfare does not include these types of information. Considering the most teachers in the child care centers are female, sufficient information, education and training need to be provided to the child care center to improve the safety condition in the child care center in Korea.

CONCLUSION

It is generally accepted that children are our future. Since young children spend lots of time in a child care center, keeping them in the safe environment is critical. As the number of child care centers dramatically increase in

Korea, they are getting vulnerable to various hazards. Young children, especially, infants and toddlers have a low response capability than adults under fire situations and therefore, the prevention of the fire (Hendricks, 2008) is one of the top priorities in child care centers.

In this study, 20 child care centers were examined and interviews with teachers and relevant people were conducted to assess the current status of the safety practices for fire prevention. The results show that safety education of the stakeholders in the child care center including teachers, parents and the children is urgently needed (Kwon and Park, 2010; Woo and Jee, 2017). In particular, knowledge and information to maintain the safe child care center including gas, 5 prevention equipment and electronic devices are critical to maintain a fire-free environment. A ddditionally, this research found out that the lack of understanding on the applicable fire regulations for child care centers is one of the critical hurdles to maintain safe and secure environments.

RECOMMENDATIONS

This research can be applied to enhance the current safety regulations towards child care centers in Korea. Lastly, these results can contribute to improving the current safety indexes in the CCCAP as well.

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