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Direction of FIRE Response in Super Tall Buildings

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Abstract

Not long ago, a fire in high-rise buildings in London, England, killed 58 people and caused enormous damage, which is the worst fire incident in the UK since World War II. In Korea, high-rise buildings and super tall buildings have a tendency to continue to increase, but they are more vulnerable to fire response. Therefore, it is necessary to discuss prevention and countermeasures against super tall buildings in the future.

As such, super tall buildings have been increasing more and more, but super tall buildings have not been able to cope with the fire countermeasures. Thus, this article examines the fire vulnerability of super tall buildings and the difficulty of fire suppression of super tall buildings, and suggests ways to prevent and quickly cope with fire in super tall buildings in the future. Super tall buildings are more vulnerable to fire. Of course, super tall buildings are strictly regulated with firefighting facilities such as sprinklers, evacuation facilities, and firewalls rather than general buildings. However, if fire breaks out due to the failure of fire suppression in the early stage of the fire, the firefighting authority is more vulnerable to fire because the firefighting must be accompanied by considerable difficulty. In particular, firefighting and rescue operations using helicopters are also difficult to access due to the rapidly changing currents around high-rise buildings. And as a result, firefighters must enter the super tall buildings themselves to quell the fire, which is not easy. Therefore super tall buildings fires are more vulnerable. Therefore, in case of fire in super tall buildings, fire suppression is very difficult, so more attention should be paid to fire prevention. Super tall buildings in many countries overseas, the emphasis is on expanding fire protection and fire evacuation facilities by applying very strict regulations. In Korea, it is also necessary to strengthen regulations for fire-fighting facilities such as fire detectors and sprinklers for each building, and to strengthen the inspection in advance. The introduction of mid-sized to large-sized helicopters that can extinguish the fire of super tall buildings seems to be urgent. In addition, it is necessary to strengthen the initial fire detection system. In addition, it would be a good way to reduce the damage by conducting evacuation drills in advance for residents.

[Keywords] *Fire Response, Super Tall Buildings, Fire Suppression, Fire Vulnerability, Republic of Korea*

1. Introduction

Not long ago, a fire broke out in high-rise buildings in London, killing 58 people and causing enormous damage. This is the worst fire incident ever occurred in the United Kingdom after World War II[1].

In Korea, high-rise buildings and super tall buildings tend to continue to increase, but are more vulnerable to fire response. Therefore, it is fundamentally necessary to discuss

the prevention and countermeasures for super tall buildings in the future.

Especially, super tall buildings in Busan are the most popular in Korea. Over 50 floors are called super tall, and 30 to 49 floors are called semi-super tall buildings. Busan has the largest number of super tall buildings in more than 50 floors, there are 344 super tall buildings over 30 floors and 49 floors, which is 14% of the nation[2].

In the mean time, the fire in the Busan Haeundae Marine City apartment complex in October 2010 was shocking enough to remind us of the disaster film "Tower". A fire broke out on the 4th floor of the 38-storey apartment building, where the golden-colored aluminum facade rushed to the roof, and Marine City, which was aiming for a futuristic residential complex, fell into great chaos. Nevertheless, since each floor firewall works relatively normally, the internal inflow of toxic gas has been blocked as much as possible, so it has not spread to large-scale disasters. As a result of this fire incident, fire safety standards for high-rise buildings have been significantly strengthened. However, there are still large and small fire accidents. In Seoul, 863 fires occurred in high-rise buildings during the past three years from 2013 to 2015, and 6 people were injured by the fire and damaged 450 million won in assets[3].

As such, super tall buildings have been increasing more and more, but the issues of super tall buildings that have not been able to cope with the fire countermeasures emerge. This article examines the fire vulnerability of super tall buildings and the difficulty of fire suppression of super tall buildings, and suggests ways to prevent and quickly cope with fire in super tall buildings in the future.

2. Fire Vulnerability of Super Tall Buildings

Super tall buildings are more vulnerable to fire. In fact, super tall buildings strictly regulate disaster prevention systems such as sprinklers, firewalls, and evacuation facilities rather than general buildings, but if the initial self-extinguishment of a fire fails, it will be more vulnerable since the fire authorities will have to face considerable difficulties. In particular, extinguishment and rescue operations using helicopters are also difficult to access due to the rapidly changing currents around high-rise buildings. As a result, firefighters must directly enter the super tall buildings to extinguish the fire, which is not easy. So the fire of super tall buildings is more vulnerable[4].

Actually, to look at firefighting drills conducted by firefighters of Busan Fire Department a few years ago(2013), it took 22 minutes for a firefighter to carry a 20kg equipment(air box, etc.) and walk to the stairs to reach the 67th floor fire site. And, as he climbed fast, the oxygen that could hold for 50 minutes showed up in 10 minutes. As a result, even if the firefighter succeeded in entering such a situation, the oxygen in the reservoir was insufficient, and it became a situation where it was possible to work on the fire extinguishment only about 10 minutes. As such, fire suppression of super tall buildings should be considered very difficult for firefighting.

3. Difficulty of Fire Suppression in Super Tall Buildings

Fire extinguishing of super tall buildings uses high ladder vehicles to extinguish fire. There are 435 ladder vehicles owned by national fire departments. Of these, only two refractor ladder vehicles(70m) are capable of extinguishing more than the 25th floor(72m) apartments, and one vehicle in Seoul and Busan respectively. Of all the ladder vehicles, 160 ladder vehicles are for 55m, which is the largest number and accessible only to the 20th floor of the apartment building[5]. As such, equipment that can directly extinguish more than 25 floors is insufficient as two in the whole country. Especially, in case of Busan, the number of super tall buildings with more than 50 floors is the largest in the nation with 28 buildings, and the number of super tall buildings with 30 floors to 49 floors is 344 buildings, which in conclusion demonstrates that high ladder vehicles have limitations in fire suppression.

Also, firefighting helicopters must be used to extinguish the fire, but it is also inconceivable. In Busan, there are two small helicopters, which are also old helicopters, which have limited water capacity. And in high-rise buildings, helicopters are vulnerable to rising winds in the sky, such as the wind, so it is a situation that rescue works cannot be properly conducted. That is to say, in Busan, there are two BK-117 models, small helicopters for rescue, but the first unit introduced

in 1992 was one of the 26 firefighting helicopters nationwide, the oldest, and the second unit was introduced in 1997, which was also an old helicopter. First of all, small helicopters are lacking in freshwater capacity to hold water, and because they are small, they are more susceptible to winds, making it difficult to approach or land on super tall buildings.

In the case of fire in super tall buildings, there is a limit to fire suppression with high ladder vehicles or firefighting helicopters.

4. Fire Response Direction of Super Tall Buildings

In the case of a fire in a super tall building, because there are many difficulties in suppressing the fire, more attention should be paid to fire prevention. Super tall buildings in many other countries abroad, the focus is on expanding fire protection and evacuation facilities by applying very stringent disaster safety regulations. For example, Dubai's Burj Khalifa (height 828m, 160 floors), the tallest building in the world, has an evacuation safe zone on all four floors including 42nd floor, 75th floor, 111th floor and 138th floor. The evacuation area, which can accommodate approximately 3,500 people, is finished with special fireproof materials and designed to accept only outside air, so that even if there was a fire inside the building, it is possible to shut the door and escape in it for two hours. Likewise, in Japan, super tall buildings are supposed to be equipped with super-fast sprinklers. So the water comes out quickly so that the initial automatic extinguishment of the fire is possible. Thus, in Korea, it is necessary to strengthen regulations on firefighting facilities such as fire detectors and sprinklers for each building, and to strengthen inspection in advance[6].

The introduction of mid- to large-sized new helicopters capable of extinguishing the fire of super tall buildings seems to be needed as soon as possible and it is necessary to strengthen the initial fire detection system. Also, it would be a good way to reduce the damage by conducting evacuation drills in advance for residents.

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Post-Traumatic Stress Disorder NURSE in Republic of KOREA

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Abstract

This study was attempted to identify what traumatic event the ward nurses experience and what experience of PTSD by that is before development of program to manage the PTSD in nurses.

The mental shock left in the people after suffering from the shock or disaster such as war, natural disaster, violence, etc. refers to trauma and the mental and physical symptoms appeared after the trauma are collectively referred to as post-traumatic stress disorder.

The horrible event is the cause. However, its reaction may be varied how to accept the event.

The symptoms may appear after the shock or after several days or years depending on the individual. In case of acute disorder, the prognosis is relatively good but in case of chronic disorder, as the aftereffect is serious, only 30% of the patients can recover, 40% show mild symptoms and rest cannot return to society with the moderate symptoms. The symptoms can be divided mainly into the hypersensitivity reaction, experiencing the shock again, emotional avoidance or paralysis. The patient having hypersensitivity shows the symptom of being always anxious, being on the alert about surrounding and not sleeping well.

The treatment is generally made with counselling and medication at the same time. Generally, the psychotherapy is proceeded in the form of personal interview or group interview and maintained for 6 to 12 weeks. The family friends and sometimes even the colleagues are participated to help understanding of patient. According to the type of trauma, the cognitive behavioral therapy, which make them face with their fear, are used.

Sertraline (drug name: Zoloft) and paroxetine (drug name: Paxil), etc, the antidepressant, are prescribed. Other anti-psychotropic medicines are prescribed with the sleep aids. Sharing the experience with those who experienced the similar event such as veteran group helps alleviating the symptoms.

Of course, it can be healed through the medicine or psychological therapeutic approach by the expert to overcome the current difficulties but as the saying that the origin of all diseases is the mind, the will of him/herself is essential. Although the research and therapeutic technique on the PTSD may be insufficient, it is deemed to be observed having more interests in the modern age that various events occur very much.

The development of intervention program is required to prevent and manage the symptom of PTSD in nurses and the medical checkup on the mental health problem should be included in the regular health checkup.

[Keywords] Disaster, Post-Traumatic Stress Disorder, Nurse, Republic of Korea

1. Introduction

The sudden and unexpected event related to the job may cause the psychological stress beyond the effective personal responsive capability. It can lead to the psychological

trauma, which refers to the shock on the unexpected event causing the psychological, physical and behavioral problems including the acute stress disorder[1].

The definition of trauma is expanded to include the psychological trauma including the

daily life events such as the matters beyond the routine experience referring to natural disaster or war, serious traffic accident, death of important person, diagnosis of critical diseases[2]. For the psychological trauma, not only the objective event itself that the individual experience[3] but also the subjective experience and cognition of individual that experiences and interprets the event with more wider concept, which means the mental impact or psychological reaction that the individual experiences subjectively on that event is very important[4], which means that the reaction and the process of adapting it is varied by individual and diverse physiological, psychological symptom and mental and social change may be represented[5]. Although the impact of the experiencing the psychological trauma event is very great and diverse, when the research on the intensive care nurse's experience of the psychological trauma and the impact by the trauma has begun is merely within 10 years[6][7].

PTSD refers to showing the disorder symptoms different from the normal person after experiencing the trauma event, the sudden and external shock. In the early stage when the diagnosis was used, the research on PTSD suffered after experiencing the trauma such as accident, violence and disaster had been made but through the researches later, it was known that not only the event causing the extreme stress but also the less serious and repeated events can cause PTSD[8].

The symptom of PTSD in the nurses often appears in the nurses working at the intensive care unit or emergency room and diverse researches on that have been made[9]. In case of the nurses in intensive care unit, the high PTSD risk group is 18.2% and out of the traumatic events that the nurses in the intensive care unit, the type of traumatic event having highest frequency and the most shocking is nursing the patients showing abnormal behavior (yelling, making disturbance, sexual behavior, delirium, etc.)[10]. In case of nurses in emergency room, the high PTSD risk group was 20.4% and the traumatic events that they experience represented as nursing the patients received the physical violence and abuse by others, the patients having serious

physical damage by the traffic accident, the patients having physical damage by the machine, etc[11].

When the symptom of PTSD aggravates, the patients may feel hard to divide the job and personal life, become less patience, raise the anger, feel horror on the job and fall into depression, helplessness, etc[12].

The PTSD in nurses not only has negative impact on the physical and mental health of the nurse, but also has negative impact on fulfilling the good quality nursing and after all, leads to the increase of turnover and the reduction of nursing productivity affecting human resources management of hospital.

As examined above, the research has been made that the degree of PTSD symptoms in the nurses is serious and the PTSD in the nurses of special units are serious than the ward nurses but the specific research on the traumatic events suffered by ward nurses and the degree of PTSD symptoms is not sufficient. Therefore, this study was attempted to identify what traumatic event the ward nurses experience and what experience of PTSD by that is before development of program to manage the PTSD in nurses.

2. Background

2.1. Definition of PTSD

The mental shock left in the people after suffering from the shock or disaster such as war, natural disaster, violence, etc. refers to trauma and the mental and physical symptoms appeared after the trauma are collectively referred to as post-traumatic stress disorder. Originally, the trauma means the wound from exterior but in the abnormal psychology and psycho-pathology, it indicates the psychological and mental wounds and it has been used as mental disorder officially from 1982. it is also referred to as PTSD.

2.2. Factors causing PTSD

The horrible event is the cause. However, its reaction may be varied how to accept the event. That is, the subjective meaning of the event plays the important role. The factors

such as the character or adaptability, etc. of that person who suffers the event is the cause rather than the event itself. If the stress may occur in the person who has a problem in character or is sensitive or easily anxious or has less adaptability, these symptoms may appear easily or become chronic. In addition, when one has great stress in childhood, this disorder can appear when the stress occurs later. Biologically, there is a report that the functional disorder such as neurotransmitter, hormone, etc. related to the stress is the cause.

2.3. Indication of PTSD

The symptoms may appear after the shock or after several days or years depending on the individual. In case of acute disorder, the prognosis is relatively good but in case of chronic disorder, as the aftereffect is serious, only 30% of the patients can recover, 40% show mild symptoms and rest cannot return to society with the moderate symptoms. The symptoms can be divided mainly into the hypersensitivity reaction, experiencing the shock again, emotional avoidance or paralysis. The patient having hypersensitivity shows the symptom of being always anxious, being on the alert about surrounding and not sleeping well

2.4. Preceding research

The post-traumatic stress disorder refers to the disorder occurred after experiencing the severe traumatic event APA[13]. When exposed to the traumatic event, most of people recall the event repeatedly or suffer from a nightmare, want to avoid the event, show sensitive reaction, suffer difficulties to maintain normal interpersonal relationship, and cause the obstacles in social function[14]. After experiencing the traumatic event, the thought, image, sense, etc. related to the accident are continuously ruminated or appear in the form of nightmare or they may feel serious psychological pain or physical reaction on the clue associated with the event, reduce the interests and participation in the social activities, feel the emotional flattening as if the plan for future is shortened[15]. In addition, the awareness that the autonomic nerves such as insomnia, concentration difficulties, hypersensitiveness, etc. are increased

appears[16]. Cho Geum-Jin researched the PTSD and influence factors from 198 nurses in intensive care unit in Busan, Ulsan and Gyeongnam. In the results of research, the high PTSD risk group occupied 18.2% and experienced the symptom of PTSD in order of 0.90 points in hyperarousal, 0.58 points of re-experience, 0.54 points of avoidance in 3-point scale. The factors having impact on PTSD were type of character, flexibility, experience of traumatic event, type of intensive care unit, job satisfaction, etc. That is, the PTSD symptoms were high when having type D character, which has negative emotion and inhibits the sociality, having low flexibility and lots of experience of traumatic event, working at cardiovascular system and emergency and intensive care unit and unsatisfied with the job[6].

Han Jung-Won[17] researched with the 250 emergency room nurses working in the 3 university hospital and 7 general hospitals having more than 300 beds in Gyeongbuk region. In the results of research, the high PTSD risk group was 20.4% and the persons who had many cases experienced the traumatic event and working with shift had high post-traumatic stress, the post-traumatic stress showed the positive correlation as a variable having significant impact of the job stress and showed the positive correlation as the variable having significant impact on the turnover intention

2.5. Treatment of PTSD

The treatment is generally made with counselling and medication at the same time. Generally, the psychotherapy is proceeded in the form of personal interview or group interview and maintained for 6 to 12 weeks. The family friends and sometimes even the colleagues are participated to help understanding of patient. According to the type of trauma, the cognitive behavioral therapy, which make them face with their fear, are used.

Sertraline(drug name: Zoloft) and paroxetine(drug name: Paxil), etc, the antidepressant, are prescribed. Other anti-psychotropic medicines are prescribed with the sleep aids.

Sharing the experience with those who experienced the similar event such as veteran group helps alleviating the symptoms.

3. Conclusion

This study was attempted to find out the PTSD in nurses and treatment.

Using the PTSD as official name of mental disorder was from 1982 as mentioned above. Out of the traumatic events experienced by nurses, the verbal violence is the most followed by physical threat, physical violence and sexual violence and after being exposed to these violences, the negative results were caused such as considering the turnover by receiving physical and psychological shock, feeling skepticism on the role of nurse and existence, shrinkage of human relationship, confusion of identity of nursing occupation. The anxiety is felt only with the experience that presented at the site although one is not committed any crime and abnormal physical indications such as respiratory disturbance, cold sweat, etc are shown. To treat it, it seems that having the attitude to accepting and overcome by oneself is the most important rather than emphasizing that condition is abnormal. Of course, it can be healed through the medicine or psychological therapeutic approach by the expert to overcome the current difficulties but as the saying that the origin of all diseases is the mind, the will of him/herself is essential. Although the research and therapeutic technique on the PTSD may be insufficient, it is deemed to be observed having more interests in the modern age that various events occur very much.

The development of intervention program is required to prevent and manage the symptom of PTSD in nurses and the medical checkup on the mental health problem should be included in the regular health checkup.

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Improvement of INFECTION Control System in KOREA

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Abstract

In our country, Ji Seok-young conducted vaccination in December, 1879, which was the first time to cure smallpox that was the most dreadful infectious disease. Although there is a decrease in the total quantity of infectious diseases, their relative value become larger, instead. VDP was eradicated, and it's possible to prevent and suppress water-borne and food-borne infectious diseases and diseases through parasite infections. However, there are new types of diseases that are considered as great social issues, including imported infectious diseases, zoonoses and other infectious diseases which cannot be controlled by antibiotics, which are sexually transmitted and hard to observe, and which occur through vector-borne infection, community-acquired infection or healthcare-acquired infection. And the third is taking prompt measures for the sake of patients who fail to prevent themselves from the disease. They should be equipped with an infectious disease surveillance system, provide regular education and encourage more people to be vaccinated instead of merely depending on Korea Centers for Disease Control & Prevention. As for the third principle, it cannot curb the spread of the disease and thereby results in doing much damage when proper early measures aren't taken. To prevent it in advance, more intensive, diverse education and careful management are required.

[Keywords] *Infection Disease, MERS, SARS, Management, Public Health*

1. Introduction

Infectious diseases are diseases caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi; the diseases can be spread, directly or indirectly, from one person to another[1].

In 1918, many people who numbered between 25 and 50 million lost their lives due to the Spanish influenza pandemic, which also was one of the causes to put the First World War to an end. In 1928, Pasteur's discovery of penicillin made a great contribution to the advance in modern medicine and pharmacy, and that was of great help for the treatment of infectious diseases such as smallpox, measles, malaria, cholera and bacillary dysentery

as well. In our country, Ji Seok-young conducted vaccination in December, 1879, which was the first time to cure smallpox that was the most dreadful infectious disease[2]. In 1945, the Central Epidemic Prevention Center was established, and it started to keep legal infectious diseases under surveillance in 1954. In 1963, the National Institute of Health was established. In recent years, SARS spread in 2002, and then Korea Centers for Disease Control & Prevention were established in 2004[3].

Although there is a decrease in the total quantity of infectious diseases, their relative value become larger, instead. VDP was eradicated, and it's possible to prevent and suppress water-borne and food-borne infectious

diseases and diseases through parasite infections. However, there are new types of diseases that are considered as great social issues, including imported infectious diseases, zoonoses and other infectious diseases which cannot be controlled by antibiotics, which are sexually transmitted and hard to observe, and which occur through vector-borne infection, community-acquired infection or healthcare-acquired infection[4].

2. The Recent Trend in the Occurrence of Infectious Diseases

According to the data released by the infectious disease surveillance department in Korea Centers for Disease Control & Prevention of the Ministry of Health and Welfare, there is a tendency that infectious diseases have been on the wane since 2009, but the occurrence of the diseases is at a standstill due to the appearance of variant infectious diseases.

Imported infectious diseases are on the steady rise along with the increase in foreign tourists, and approximately 40 percent of the cases of imported infectious diseases appeared in Seoul in 2016[5].

3. The Types of Infectious Diseases by Ways of Spread

There has been a rapid spread of insect(mite)-borne diseases since March as the weather started to warm. In particular, SFTS is on the rapid rise, and there are other insect-borne diseases such as malaria, yellow fever, dengue fever, Japanese encephalitis, epidemic typhus and tsutsugamushi disease.

Contagious diseases that are caused by interpersonal contact are measles, rubella, epidemic parotitis, diphtheria, influenza and tuberculosis, etc. At present, vaccination against the diseases is mostly provided by the government from infancy and early childhood to manage the diseases[6].

Water-borne and food-borne diseases are bacillary dysentery, typhoid, food poisoning, enterohemorrhagic E. coli infections and

cholera, etc. Especially, the occurrence of cholera in 2016 in the region of Geoje created a big stir because it's known that it spread through seawater[7].

4. Systematic Infectious Disease Management

SARS(severe acute respiratory syndrome) and MERS(Middle East respiratory syndrome) exposed our country's weakness in the infectious disease management system. After a patient was diagnosed with MERS for the first time on May 20, 2015, there appeared 180 more patients during a short period of time. In total, 186 were infected with MERS, and 38 patients died. The fatality rate of MERS reached 20.4 percent in our country[8].

At that time, people had to be beset by fear and dread for more than seven months until the cessation of MERS was formally declared on December 23, 2015, because of inadequate early countermeasures, which were attributed to the centralized infectious disease management system and the complacency of medical institutions. To remedy the situation, continuing concern and efforts from national healthcare organs, medical institutions and individuals are all required[9].

To be specific, every local community should try to heighten the level of immunity. They should be equipped with an infectious disease surveillance system, provide regular education and encourage more people to be vaccinated instead of merely depending on Korea Centers for Disease Control & Prevention. Those who live in group should be informed about how to manage infectious diseases so that they can cope with it properly if they catch any infectious disease. In terms of the prevention of the reproduction of infection, a disease spreads if 50 percent of the population have immunity. If 75 percent are immune, the disease becomes endemic. If 90 percent or more have immunity, it disappears. So vaccination should be provided to enhance the level of immunity, and individuals should try to be immune as well[10].

In local community, public organizations such as public health centers should set up

the kind of system that can observe if the expected disease take place additionally at a specific time and at a specific place and that can manage the disease, and they should make an immediate report to the higher authorities about clinical characteristics, the results of experiment, the source and type of danger, the number of patients, death toll and conditions that affect the spread of the disease.

At present, the FMTP II for infectious diseases has been conducted every year in an effort to bolster the competency of the central government and local public health centers, but hands-on workers are overburdened at work, and it's difficult for them to take care of their work and receive education at the same time. Therefore local healthcare organizations should hire experts in infectious diseases and offer sustained education for them.

To promptly cope with the occurrence of any infectious disease, it seems necessary for local healthcare organizations to join forces with related institutions such as fire stations and police stations. "A smart quarantine information system" was established on April 20, 2017, by linking Korea Centers for Disease Control & Prevention and information acquired by roaming from abroad to ensure the successful prevention of and countermeasure for imported infectious diseases. This system is expected to make it possible to manage those who return after visiting a country polluted by an infectious disease in consideration of the incubation period[11].

There are three principles for infectious disease management. The first is blocking the spread of the disease(eliminating the reservoir, reducing infectivity, isolating the reservoir and environmental hygiene management). The second is strengthening immunity(various personal efforts for better immunity). And the third is taking prompt measures for the sake of patients who fail to prevent themselves from the disease. As for the third principle, it cannot curb the spread of the disease and thereby results in doing much damage when proper early measures aren't taken. To prevent it in advance, more intensive, diverse education and careful management are required.

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Consideration of Career-Adaptive RISK Management of the Handicapped in KOREA

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Abstract

The handicapped are in poorer health conditions than others in the world. In addition, they tend to have lower level of academic achievement and participation rate in economic activities and higher poverty rate. This is partially because the handicapped ends up experiencing the barrier in the service that most of people have been enjoying so far including health, education, transportation, and career adaptation as well as information.

Such difficulty tends to be more outstanding in neglected groups.

Issues in career adaptation among the handicapped in Korea have been dealt with in welfare among victims in the world just like western countries in the beginning. Hereupon, the handicapped employment policies have been established and operated in Korea for the first time for the handicapped with wound from Korean War. Afterwards, they have been developed into protective means, protective career employment, and competitive employment for the handicapped.

However, issues of career adaptation of the handicapped in Korea have been much concerned from pressure on protection of rights and interests of the handicapped in international society in the 1980s and effort from the handicapped. According to such trend, 'welfare act for mentally and physically handicapped people' has been enacted in Korea making the handicapped as subjects for legal rights and preparing for foundation for the development of the handicapped welfare. However, it has been systematically considered as to how to manage the risk in career adaptation among the handicapped in Korea with the necessity of research for how to adapt in career in the perspective of the handicapped and manage the risk of mal-adjustment.

1)Most of causes for the disability are not from personal factors but from traffic accidents, industrial disaster, war, disease, and environmental issues. Due to many of the handicapped in ages that are available with economic activities, employment of the handicapped is the important issue. In other words, it is required to recognize this as an issue for the entire society and make people recognize how no one is free from disability. It is required to come up with the belief for how employment and adjustment of the handicapped at work are not to be entirely taken care of by family members but also important obligations to be solved by the government and society at some degree.

2)It is required to maximize the utilization of human resources overcoming the crisis of career adaptation of the handicapped, improving their life quality from productive participation, and contributing to expand the national output.

3)Besides the income, career adaptation must be able to improve recognition on human dignity and social integration, bring about personal and social profit, and completely developing talents and capacity of the handicapped with enhanced human dignity and social integration.

4)Due to the improvement of health and medical rehabilitation service for maintaining and extending the life and increased cases of chronic disease, the emergence of disability is in increasing rate for the next tens of years. It is also required to systemize and regularly implement education for the crisis in career adaptation according to the level of the handicapped and have them react in case of the crisis of career adaptation.

Hereupon, this study is expected to understand the risk management of career adaptation of the handicapped in Korea, learn how to cope with them, and protect them from the risk.

1. Introduction

Issues of career adaptation of the handicapped in Korea have been much concerned from pressure on protection of rights and interests of the handicapped in international society in the 1980s and effort from the handicapped[1]. According to such trend, 'welfare act for mentally and physically handicapped people' has been enacted in Korea making the handicapped as subjects for legal rights and preparing for foundation for the development of the handicapped welfare. However, there have not been many researches in how to overcome the risk management of maladjustment. Hereupon, this study is intended to systematically consider as to how to manage the risk in career adaptation among the handicapped in Korea[2].

In order to achieve the higher level and long lasting development in huge scale as the gist of new millennium development goal in 2015, it is required to reinforce the capacity of the handicapped, provide high quality education and appropriate job for the handicapped, and remove the obstacles that prevent the handicapped from voicing out their opinions to participate in society[3]. Hereupon, effort has been exerted to improve the life of the handicapped in the global disability report suggested by WHO and to develop innovative policies and programs to promote the agreement for rights of the handicapped from UN[4]. This has promoted the understanding of the handicapped to the level of human rights in Korea and placed high priority in them. However, the handicapped is in poor conditions in terms of employment. For example, loss of opportunity for education, training, and financial support has become the reason for them to be excluded in the employment, and this has become characteristics of recognition from employers or work place against the disability and the handicapped[5]. This has become maladjustment of the handicapped in career and made them exposed to the crisis of career maladjustment.

Education and training are important in high quality job and career adaptation. However, young handicapped people tend not to have an opportunity for accessing to regular education and adjusting to the career. Therefore, gap in the education level between the handicapped and others has become more serious issue. In the perspective of the handicapped, environmental factors that make it difficult to physically access to the choice of career are still existent. Therefore, more studies on the factors that influence on risk management of career adaptation are required.

2. Characteristics of Employment of the Handicapped

According to the investigation of employment of the handicapped, 79.8% of subjects in the test turned out to be unemployed or housewives in case of female handicapped people. Hereupon, most of the handicapped turned out not to participate in the economic activities. According to the types of career of employed handicapped people, there are simple labor work, service areas, and sales. This represents that the handicapped became mostly employed in simple labor work, service areas, and sales field. According to the percentage of types of jobs except for the unemployed and housewives, simple labor work constituted 40.7% followed by 18.5% for service areas, and 14.1% for sales. Therefore, 73.3% of the handicapped turned out to be employed in aforementioned three fields[6].

Compared to them, the handicapped in more stable positions such as specialties, technicians, public workers, and high-rank employees or managers constituted only 15.5%. Therefore, it shows how most of the handicapped is in economically unstable conditions.

There is fewer number of the handicapped than others and also of female handicapped people than male handicapped people who

participates in economic activities. Compared to how participation rate of regular women in economic activity was 50.1%, the one for handicapped women turned out to be 25.5%. In addition, participation rate of handicapped men in economic activity turned out to be 48.8%. Hereupon, the participation rate of handicapped women was about half of the one of handicapped men. According to the proportion of employed handicapped people compared to the entire population, handicapped men who were employed among the population of age of 15 or above turned out to be 43.5%. However, the proportion of handicapped women who were employed turned out to be 20.2%. Hence, employment rate of the handicapped is much lower than others without disability. Especially, the participation rate of handicapped women in economic activity was very low[7].

3. Employment and Adjustment of the Handicapped

According to the types of employment form of the handicapped, the proportion of unpaid family members and self-employed people turned out to be the highest. However, as for employment form, the proportion of regular employees and self-employed people turned out to be high. They turned out to be in the order of unpaid family members (24.1%), self-employed people (22.5%), day-to-day workers (21.7%), and temporary laborers (11.7%). The proportion of regular employees was the highest as 41.5% followed by self-employed people (25.4%), day-to-day workers (16.2%), and temporary laborers (12.3%).

Misunderstanding of work capacity of the handicapped tends to bring about the crisis of career adjustment of the handicapped[8]. There is misbelief as to how the handicapped are less productive compared to others without disability as well as ignorance and biased thought on adjustment of the work for promoting employment. Such misunderstanding has been widely diffused to the handicapped and their family members as well as employers without disability[9].

Some of the handicapped tend to have lower expectation on their ability to be employed and not to make an attempt for employment. As they are isolated from the society, the handicapped are limited to access to social network including friends or family members[10]. The biggest obstacle for the handicapped to open their business is insufficient opportunity to access to the fund. Considering how the handicapped mostly do not have security ability, there are many cases where they are exposed to difficult situations. Many of the potential loan providing institutions regard the handicapped as high-risk group. Hereupon, the handicapped are unable to fund for investment in the credit market[11].

When hiring the handicapped, they tend to be paid less than others without disability. One of the reasons for why the handicapped tended to hesitate in finding the appropriate career development depending on the severity of disability is that 'there is no appropriate type of job for them.' In order to develop the appropriate type of job for the handicapped, it is required to consider types and degree of disability, investigate their unique desire system, develop career for them, and relieve the limit in selection for the job. If preferring self-employed type, it is required to expand financial support for the handicapped to open their business more easily and develop the types of job specifically designed for the handicapped. In addition, it is required to come up with plans so that the handicapped can freely move to outside. Especially, it is recommended to prepare for widely used measures on the right of mobility for the handicapped and prepare for instruments[12]. For example, it is required to consider adopting transportation means for the handicapped while developing jobs for them if they find it difficult to commute due to severe disability. In addition, there is a need to come up with supplementary devices or financial support so that the handicapped can conveniently lead lives without burden. Helping the handicapped hired for financial support requires for experts to serve a role of instructors, consultants, psychologists, promoters, advisers, coaches, and friends. Vari-

ous consultation strategies, techniques, theoretical education, and human service training are required to be developed to successfully adopt aforementioned roles.

4. Conclusion

This study is intended to analyze the factors shown in the career adjustment among the handicapped in Korea and suggest the direction to overcome them. In order to overcome the risk of career adaptation among the handicapped, it is required to consider the types of employment and access with effective policies on them.

1) Many of the reasons for the disability are not from personal factors or genes but from traffic accidents, industrial disaster, war, disease, or environment issues. Due to many of the handicapped in the age where they are able to participate in economic activities, employment of the handicapped is important. In other words, it is required to recognize this as an issue of the entire society and have them identify how no one is free from disability. It is required to come up with the belief for how employment and adjustment of the handicapped at work are not to be entirely taken care of by family members but also important obligations to be solved by the government and society at some degree.

2) It is required to improve the quality of lives and contribute to expand the national output by maximizing the utilization of human resources and overcome the risk of career adaptation of the handicapped for productive participation in economic activities.

3) Besides the income, career adaptation must be able to improve recognition on human dignity and social integration, bring about personal and social profit, and completely developing talents and capacity of the handicapped with enhanced human dignity and social integration.

4) Due to the improvement of health and medical rehabilitation service for maintaining and extending the life and increased cases of chronic disease, the emergence of disability is in increasing rate for the next tens of years. It is also required to systemize and regularly

implement education for the crisis in career adaptation according to the level of the handicapped and have them react in case of the crisis of career adaptation.

Hereupon, this study is expected to understand the risk management of career adaptation of the handicapped in Korea, learn how to cope with them, and protect them from the risk.

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Relationship between Resilience and DISASTER Recovery

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Abstract

The purpose of this study is to provide the theoretical background of resilience and the theoretical foundation of the indexes for the factors affecting the resilience of applying the disaster stage and disaster recovery process. Designing an index of community resilience can be important basic materials for policymakers to determine policy priorities in terms of disaster-related policy development and geographical characteristics, as well as resilience levels. In the future, it will be possible to provide empirical evidence that policy suggestions can be made by deriving key factors affecting resilience and comparing trends.

[Keywords] *Disaster, Recovery, Resilience, Disaster Management, Community Disaster Resilience*

1. Introduction

It is becoming increasingly difficult for modern societies to predict risks and to deal with predictions of risks as they are difficult to predict and qualitatively with new risks, uncertainties and social vulnerabilities(Beck, 1997), and the interconnections between various international crises, which have been difficult to find before, have been strengthened, and they have developed into a dynamic and complex pattern, so that countermeasures are vague and there are limitations on the countermeasure resources.

In particular, if the prediction of the oncoming crisis is difficult and if the countermeasures against the crisis are also unknown, it is concluded that the recovery strategy is more effective than the preventive strategy[1]. It is necessary to consider the regional competence in a comprehensive way including the physical factors as well as the socioeconomic factors[2], and as the awareness of the crisis as a dynamic property within the social ecosystem is expanded, the concept of resilience is receiving attention.

Resilience is used with the meaning of restoring force and elasticity in terms of environment, ecology, engineering and sociology[3]. However, since there is no agreed term yet, this discussion refers to it as resilience, taking into account the characteristics of the disaster recovery phase.

This discussion began with questions about how resilience affects the recovery of disasters. The risk of a disaster depends on the resilience of the incident and the adaptive resilience after the impact of the incident, based on the resilience and inherent vulnerability of the space surrounding the social institutional environment and the system and phenomena of the natural world[4]. This study investigates the main factors of resilience related to disaster recovery in case of actual disaster, as a process for analyzing how resilience can be measured, and prepare the theoretical background of resilience, its application to disasters, and the theoretical foundation of the indexes that affect the resilience of the disaster recovery process.

2. Theoretical Background

2.1. Concept of resilience

Resilience is a concept first used in psychology and health science rather than in disaster areas, and it means absorbing when external shocks are given to a system, or recovering how quickly system changes due to shocks return to their previous normal state.

Cutter et al.(2008)[2] reported that the system includes the ability to cope with disasters, restore the system to its original condition, and follow-up processes to learn disaster countermeasures, as well as normal conditions. Kim et al.(2010)[3] defined urban physical and social factors as the ability to respond quickly to disasters and recover to a better state.

Investments to maintain and improve health in both human health and community resilience reduce the need for expensive treatment and recovery. Everyone knows that prevention is a cheaper way to treat after the onset of the disease. Investing in community resilience before such a disaster can help reduce monumental recovery and subsequent costs after a disaster. Avoiding destruction is easier than restoring a destroyed community, and it receives less trauma in the long run. These analogies can be extended to the idea that healthy communities can prepare, absorb, and recover from disasters, just as a healthy body can resist disease.

2.2. Resilience in the disaster recovery phase

Disaster recovery is an activity to recover from a disaster immediately after the disaster to the original state before the disaster. Specific activities belonging to the recovery phase include a survival support system, and the activities of the preparation and response stages may be different for each type of disaster, but the recovery process is considered to be the same. Therefore, recovery strategy requires individual leadership and ability to act, utilization of local government's available resources, financial support between central government and local governments, and support for disaster management activists and volunteers to recover.

Traditionally, restoration has been thought in terms of short-term and long-term measures. In the short term, it is classified as relief and rehabilitation, and in the long term, reconstruction. Although recovery is a distinct step in the life cycle of disaster management that is clearly distinct, it is affected by actions taken during prevention and mitigation, preparedness, and response steps. Therefore, the more the community is prepared for disaster, the more effort is put into mitigating disaster damage, the shorter the recovery period, and the less resources and effort to restore[5].

In general, disaster management is divided into stages such as prevention, preparation, response, and recovery. In addition, resilience is high when resilience of community disaster system is high, when resilience components(5Rs) such as durability, extravagance, rapidity, resource dependence, and adaptability are well established. After the occurrence of a disaster, the resilience may vary depending on the extent of response, recovery and post-recovery effort. The difference depends on how well the system has worked well, and the effort in the recovery phase can also have a significant effect on improving resilience[6]. On the other hand, adaptability can have a significant impact on the recovery phase or post recovery phase.

3. Framework of Resilience

Using the proposed model of Cutter et al. (2008)[2] to improve the disadvantages of existing vulnerability and resilience models and to provide a conceptual basis for establishing baselines for resilience measurements, it is possible to explain the effect of resilience on the long-term disaster recovery process.

The starting point of this model begins with a precondition for each place that occurs within and between social, natural and environmental systems. Prerequisites include both inherent vulnerability and intrinsic resilience. The extrinsic factors(environmental, social system and nature) and intrinsic factors (vulnerability and resilience) are presented separately at the regional level, and the extrinsic factors affect the intrinsic factors, but

their effects cannot be measured directly. It shows that resilience and vulnerability are not conflicting concepts, but overlap each other and not entirely mutually exclusive.

Vulnerability is a concept that emphasizes both the pre-event aspect considering susceptibility to disasters and the post-event aspect considering responsiveness. Thus vulnerability better matches the pre-event and post-event resilience concept of disaster. In particular, the sensitivity highlighted by vulnerability is closely related to hazard mitigation [7][8]. And responsiveness depends on post-event recovery, vulnerability consider hazard mitigation activity at the stage immediately before the impact and at the stage immediately after the impact. Adaptive capacity or adaptability is generally a sub-variable of vulnerability, acknowledging the inevitability of change and adapting through learning and self-organization to adapt to changed conditions [9]. However, more specifically, proactive adaptability and reactive adaptability can be categorized, and to effectively implement the resilience of local communities, it is necessary to consider the differences between them.

4. Conclusion and Suggestions for Future Research

To manage the basic dynamics that are resistant to disasters and to identify the factors that improve them, it is necessary to identify not only the conditions under which they are measured but also factors that adversely affect resilience and factors that inhibit effective responses [10]. The transition from conceptual framework to evaluation is challenged by the multifaceted nature of resilience, including physical, social, institutional, economic and ecological dimensions.

Communities are regarded as the entirety within which the social systems interact within a given geographic space. There are many different communities within a geographically defined space, and subgroups actually have various vulnerabilities and resiliences that can lead to an imbalance of recovery in disaster recovery. Therefore, the model for describing resilience should be designed

to capture such gaps by focusing on social systems, environmental conditions, and place and spatial interactions between natural systems.

Indeed, various factors that constitute disaster systems in the community should have high resilience. Therefore, designing the index of disaster resilience in the community can be an important basis for policy makers to decide policy priorities considering disaster-related policy development and regional characteristics as well as resilience level. Resilience indexes are generally the results of activities to promote resilience rather than the behaviors or activities that occur in the community. In the future, it will be possible to provide empirical evidence that policy suggestions can be made by drawing out key factors that affect resilience and comparing trends.

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