

포토보이스를 이용한 한국 일상생활에서의 사고 위험요인 분석

김성희¹ · 김신정² · 최선엽³ · 조해련⁴ · 강소라⁵¹중앙대학교 적십자 간호대학, 교수, ²한림대학교 간호대학, 교수, ³동국대학교 WISE 캠퍼스 간호대학, 조교수, ⁴원광대학교 간호학과, 교수, ⁵원광대학교 간호학과, 조교수

Analysis of Accident-risk Factors in Daily Life in South Korea using Photovoice

Sunghee, Kim¹ · Shin-Jeong, Kim² · Sun-Yeob, Choi³ · Hyeryun, Cho⁴ · So-Ra, Kang⁵¹Professor, Red Cross College of Nursing, Chung-Ang University²Professor, School of Nursing, Hallym University, Chuncheon, Korea³Assistant professor, Department of Nursing, Dongguk University-WISE, Gyeongju, Korea⁴Professor, Department of Nursing, WonKwang University, Iksan, Korea⁵Assistant Professor, Department of Nursing, WonKwang University, Iksan, Korea

Purpose : As the environment changes, the number of accidents posing threats to human life and safety is increasing. Identifying risk factors is crucial for accident prevention. By identifying and analyzing accident risk-factors, the goal is to mitigate them and establish a safer environment, thus preventing accidents through policy development.

Methods : This study analyzed the risk factors encountered in everyday life in South Korea using the photovoice method. Seven participants participated in the study. The researchers captured photographs, engaged in discussions to select them, and discussed their opinions and experiences.

Results : At the end of the discussions, five themes emerged: "Negligence of the management system," "Not installed Safety-assurance devices," "Violation of safety rules," "Engaging in risky behaviors," and "Potential accident risks." The study's significance lies in the utilization of photovoice to analyze the various risks that can occur in everyday life. By exploring different types of incidents and issue, this study sought to understand various aspects of safety and the findings can be used to enhance safety measures and explore policy improvements.

Conclusion : The findings offer valuable insights for enhancing safety through education and prevention strategies. Additionally, it highlights the pressing need for proactive measures to address systemic shortcomings and promote a culture of safety awareness.

Keywords: Accident, Photovoice, Qualitative, Risk

핵심어: 사고, 포토보이스, 질적, 위험

Corresponding author
Shin-Jeong, Kim
School of Nursing, Hallym
University
1 HallymDaeHakGil, Chuncheon,
Korea
Tel: +82-010-8338-2056
E-mail: ksj@hallym.ac.kr

Received: 2024.12.03.

Revised: 2024.12.16.

Accepted: 2024.12.17.

Introduction

An "accident" can be defined as an unpredictable event that cannot be foreseen, is not planned, and may leads to loss or injury due to unintended and unobserved causes¹. Despite advancements, the evolving environment has led to an increase in accidents posing threats to human life and safety. These accidents, ranging from minor falls to severe incidents like fire, poisoning, or crime, profoundly

impact individuals, families, and society at large². Furthermore, as society develops, various additional accident risks arise owing to the increasing elderly people³, accompanying technological development⁴, and safety threats due to the language skills of foreigners in a multicultural society in South Korea⁵. Therefore, there is a need to accurately identify accident risk factors that cause accidents in the advanced world.

Accidents resulting in injuries can drastically

diminish the quality of daily life and even lead to fatal outcomes. In Korea, the number of accidents that occurred in 2022 reached 269,409 and the number of casualties reached 299,742⁶. Traffic accidents rank first, and among the various accident fatalities, the fatal accident rate due to traffic accidents reached 68.7%⁶. Additionally, accidents impose a substantial financial burden on society, encompassing costs for emergency room treatment, long-term care and rehabilitation, compensation, and property damage⁷. Accidents cause psychological trauma to victims in addition to physical damage⁸. It also have significant consequences for victims and can even affect the mental health of their families⁹.

It's not surprising that most accidents are preventable, often attributed to human factors. Causes of accidents typically fall into three categories: human, mechanical, and environmental factors. Studies suggest that 88% of accidents stem from unsafe human behavior¹⁰. Accidents result from multiple factors, not just human behavior, necessitating proactive measures like education, safety protocols, and technological advancements for prevention. Organizations such as day care centers, companies, and schools have safety principals and are providing comprehensive accident prevention education and training to the personnel for enhancing safety awareness. Additionally, national-level policies and campaigns in Korea are established aimed to prevent accidents¹¹.

Photovoice, initially termed "photo novella," is a community-based participatory action research method that has surged in popularity since its inception by Wang and Burris in the early 1990s¹². Participants capture images of scenes from their lives and engage in in-depth discussions about the social issues depicted in these photos. This process helps them to gain life-related knowledge and develop critical thinking skills, enabling them to perceive the world from diverse perspectives. Photovoice considered a form of participatory action research¹³. It utilizes visual images, such as photographs, to help individuals interpret themselves, objects, events, and the world around them. This approach facilitates

changes in policies and individuals' perspectives. Moreover, it empowers participants, who are community members directly involved, to explore and discuss the meaning of the photographs, allowing them to voice their concerns and foster critical awareness of issues within themselves and their community¹⁴.

This study aimed to identify and analyze cognitive risk factors present in everyday life using photovoice method. By analyzing accident risk-factors, the goal is to mitigate them and establish a safer environment, thus preventing accidents through policy development. The exploration of accident risk-factors in daily life may anticipated to serve not only as a diagnostic tool for understanding accident occurrences but also to offer potential alternatives and inform policy decisions.

Methods

1. Study Design

This study employed the photovoice method as a qualitative research approach, allowing participants to engage in in-depth exploration and analysis.

Photovoice is a research method in which participants directly capture photographs related the research topic, and using these images as a medium, delve deeply into their experiences, stories, values, and thoughts^{15,16}. Emphasizing self-expression, communication, and self-reflection, the photovoice describes current situations and presents opinions and perspectives using photographs. Photovoice enables the expression of important issues from the perspective of participants' visual and verbal language¹⁴. It has also been used to assess subjective experiences.

2. Inclusion criteria and recruitment

The study targeted seven adults aged 20-50 with a specific interest in accident prevention. The participants were selected through a recruitment notice, and those who were interested in the topic and could take photographs related to the topic were selected through a purposeful sampling method. Data were collected in April 2024. This selection aligns with Latz's^{15,16} recommendation that photovoice research,

is best suited for purposive sampling rather than random sampling. Latz¹⁵ argues that focus group discussions offer advantages in generating data through group interactions, which individual interviews may not capture effectively. Additionally, this study adhered to the suggestion by Hannay et al.¹⁷ that focus groups should ideally consist of six to ten participants. Unlike other qualitative studies, the reason the number of participants was set from the beginning is that if the number of participants is too small, it is difficult to derive problems, and if the number of participants is too large, the concentration of group discussions and interviews based on photographs decreases. This rationale guided the methodology used in this study.

3. Research process

The research process is summarized in Table 1.

Workshops were held every two weeks to enable participants to capture and interpret photos. Prior to each workshop, researchers reviewed all materials posted on the online platform, conducted pre-interviews with participants, and discussed the photo-taking process, selection reasons, emotions, and concerns.

During the workshops, students shared their photos and the associated meanings related to each subtopic, engaging in open discussions and providing feedback. Photovoice methodology encourages active listening and participation in dialogues, fostering critical conversations and self-reflection on pertinent

issues¹⁸. Participants recognized the existence of diverse perspectives and thoughts regarding the same photo, cultivating a sense of critical awareness regarding various topics that prompt contemplation in daily life. All participants shared stories during the workshops were recorded with consent and transcribed by a research assistant.

Following the photovoice workshop, additional data regarding personal experiences and unshared perceptions were gathered through in-depth interviews with participants. Subsequently, the researchers evaluated and refined the categorized themes and subthemes through discussions and consensus-building within the research team.

4. Ethical consideration

Data collection commenced after obtaining approval from the Institutional Review Board (HIRB-2024-001) in 2024. During participant recruitment, ensuring they were well-informed about the study's objectives and methods. Written informed consent was obtained from all participants before their enrollment in the study. After that, entire photovoice process were provided including various roles and responsibilities, as well as the advantages and potential risks and burdens associated with participation¹⁹. Emphasis should also be placed on the ethical aspects of the research, stressing the need for separate documentation and consent for photographs²⁰.

Consent forms were obtained, specifying the

Table 1. The research process

Step	Process	Contents
I	Orientation	- Sharing of the research purpose - Introduction of researchers and participants and participant roles - Explanation of the photovoice methodology - Instructions on how to take photos and required number of photos - Writing the research participation consent form and addressing ethical issues
II	Workshop (2 times)	- Presentation and sharing of photos and their meanings - Feedback on presentations from other participants - Selection of photos
III	Group interview	- Recording and transcription of group interview data - Categorization of photo themes and subthemes - Sharing reflections on the process
IV	Photo and meaning analysis	Researcher discussion and consensus-building

anonymous use of participants' photographs and text data solely for research purposes. Guidelines were established for photographing, emphasizing the avoidance of revealing personal information. Consent and permission were sought for necessary photos, with an emphasis on shading identifiable features when required. In addition, the participants were informed that they could withdraw from the study at any point after submitting the research consent form and that they had the right to discard their submitted materials upon withdrawal.

5. Data analysis

Data analysis was conducted using photographs submitted by the participants, interviews, and researcher notes. The analysis followed Braun and Clarke's²¹ thematic analysis method consisting of six stages.

First, the process involved becoming familiar with the data by repetitively reading the photos submitted by the participants on social media, along with their accompanying descriptions and transcripts. Second, initial coding was performed by highlighting key concepts that were prominently present throughout the entire transcript. Third, themes were generated based on the collected codes, and the gathered photos were organized into sub-themes. During this process, any content unrelated to the research topic that arose while the participants explained their photos in the interviews was excluded from data analysis. Fourth, codes corresponding to the subthemes were coded with overarching themes, and any discrepancies between the overall and partial readings were reviewed. Finally, the reviewed themes were defined, named, and clarified. Sixth, representative photos and participant-written interview sentences that effectively conveyed each theme were selected and summarized. To enhance the validity of the analysis and interpretation of the research findings, member checking was conducted with the participants for the extracted cases related to the subthemes. Additionally, individuals with extensive qualitative research experience were consulted for advice and reviewed the thematic analysis interpretation process, and final decisions were made.

Results

1. Study participants

Table 2 presents the participants' general characteristics. The participants in the study included seven individuals, comprising three males (aged 58, 28, and 23 years) with job types such as one company employee, one unemployed, and one university student, and four females (aged 46, 26, 24, and 22 years) with job types including one housewife, one nurse, and two university students. The mean age was 32.3 (SD=25.5) years.

Table 2. General characteristics of participants

No.	Gender	Age	Type of job
1	Male	58	Office worker
2	Male	28	Unemployed
3	Male	23	University student
4	Female	46	Housewife
5	Female	26	Nurse
6	Female	24	University student
7	Female	22	University student

2. Photovoice Themes

Five themes and 16 subthemes were derived in this study (Table 3).

Table 3. Themes and subthemes of photovoice

Theme	Subtheme
Negligence of the management system	Deprioritized safety Inattentive administration Delays in administrative processing
Not installed Safety-assurance devices	No protection Lack of preventive measure for injury No warning
Violation of safety rules	Not wearing safety equipment Not following safety education Not following pet etiquette Complacency about the occurrence of accidents
Engaging in risky behaviors	Not paying attention to the environment Imitating dangerous behavior Seeking careless fun Going beyond the limits of self-control
Potential accident risks	Unexpected side effects Excessive trust in safety devices

1) Negligence of the management system

(1) Deprioritized safety

Late at night, with the traffic light off, a taxi approached without slowing down. Despite having the right of way, it didn't stop, forcing me to halt just in time. This incident stressed the need for caution, prompting me to pledge to be more careful in similar situations.

Malfunctioning traffic lights, often due to lax management, pose a safety risk, especially for pedestrians at crossings. Reduced visibility at night compounds the danger, as drivers may fail to see pedestrians and disregard their right of way. This situation heightens the risk of accidents, particularly when taxis and other vehicles don't slow down despite pedestrians being visible.



Fig. 1. Traffic light that is off

(2) Inattentive administration

Navigating a snow-covered staircase, I nearly slipped and fell backward. Ignoring the blocked path due to snow, I attempted a shortcut over a fence, risking a fall. The incident taught me the danger of hasty decisions driven by the desire to rush, emphasizing the need for caution in such situations.

Neglecting road maintenance, especially de-icing, raises safety issues, notably slip-and-fall accidents. Inadequate de-icing during severe cold and heavy snowfall increases the risk, especially in regions with sparse populations or infrequent snow. While major

accidents may not occur, this poses a significant concern for vulnerable groups like the elderly or disabled.



Fig. 2. Snowy stairs & roads

(3) Delays in administrative processing

While walking with my hands in my pockets or distracted by my phone, I had a near-miss when I almost tripped over a raised sidewalk block. Thankfully, I managed to step over it in time, avoiding a fall. However, the incident highlighted the potential danger, as a stumble could lead to a serious fall and even a concussion.

Ensuring safety in urban areas remains a top priority, especially regarding road facilities for pedestrians. Misaligned sidewalk blocks are a significant concern as they destabilize pedestrian environments, potentially causing slip-and-fall accidents. The lack of visual distinction exacerbates the problem, posing challenges for visually impaired individuals and restricting their mobility. Proper management and visually distinct sidewalk blocks are crucial to mitigate these risks and enhance pedestrian safety.



Fig. 3. Broken sidewalk

2) Not installed Safety-assistance devices

(1) No protection

Entering an elevator late at night can trigger anxiety if followed by someone, particularly without safety measures installation. Incidents frequently happen where surveillance is absent, facilitating criminal behavior. The lack of CCTV complicates legal processes, making it harder to identify and assist in incidents. Overall, the absence of CCTV undermines crime prevention, hampers investigations, reduces security, and jeopardizes the safety of both employees and customers.

Incidents often occur where surveillance is lacking, enabling criminal activity. Legal processes are hindered by the absence of CCTV, complicating recognition and assistance. This absence challenges in investigations, decreased security, and risks for both employees and customers.

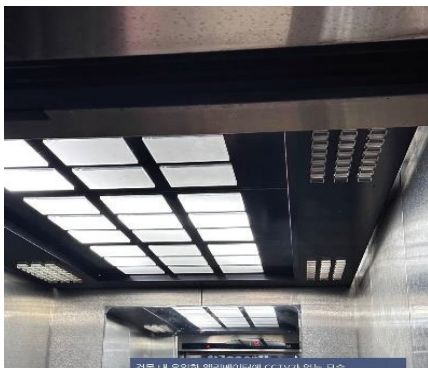


Fig. 4. Elevator without CCTV

(2) Lack of preventive measure for injury

While shopping with a friend, we pushed the cart onto the escalator. However, it seemed unstable and started sliding towards me. Thankfully, it quickly locked in place before any accident occurred. Reflecting on the incident, I realized the potential danger if it hadn't locked properly.

An unsecured cart on an escalator poses several risks, including potential shocks to users and disruptions to escalator movements. Users standing too close or failing to maintain a safe distance may exacerbate accidents and contribute to escalator malfunctions. If the cart causes the escalator to stop suddenly, other users may stumble and fall, leading

to significant accidents.

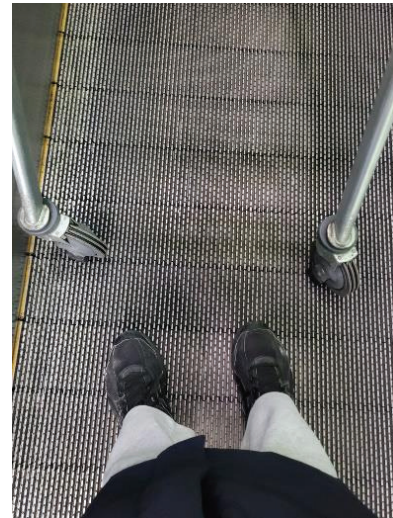


Fig. 5. Unsecured shopping cart

(3) No warning

I have often witnessed children getting excited when they see real cranes or dump trucks, especially if they have toy versions of these construction vehicles. However, I noticed that construction was taking place without any surrounding fences.

Construction project such as building apartments, typically install barriers for safety. However, in challenging terrains like hillsides, safety fences might be absent. During late hours, construction sites with no onsite staff remain exposed, with only cranes present. This lack of safety measures poses risks such as falls or collisions especially, if a child approaches out of curiosity.



Fig. 6. Absence of danger sign

3) Violation of safety rules

(1) Not wearing safety equipment

I've seen many instances of kids who appear to be quite young riding scooters together or speeding dangerously. It seems like various safety features are needed for safe scooter riding, but as of now, there doesn't seem to be a clear solution in place.

The rise in kick scooter usage has brought convenience but also safety concerns. Accidents, often due to users neglecting safety gear such as helmets, are frequent. Adequate safety education is crucial wearing equipments for protection of safe kick scooter use. The lack of awareness leads to increased safety incidents among users.

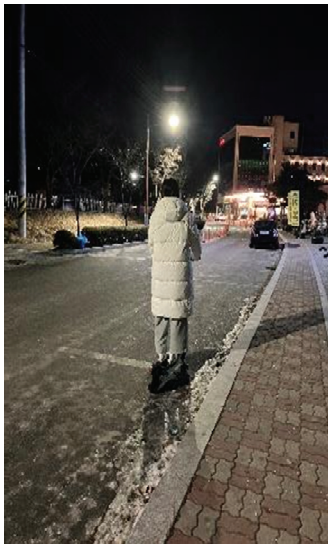


Fig. 7. Riding a kickboard without a helmet

(2) Not following safety education

I've encountered situations where kick scooters left on the street obstructed my path, leading to close calls where I nearly tripped over them. Despite calls for improvement, a concrete solution to this issue seems elusive.

Despite the development of designated parking areas for kickboards, many people remain unaware of them, leading to kickboards being randomly placed on sidewalks or roads. This practice often results in unexpected safety incidents for road and sidewalk users.



Fig. 8. Kickboard left on the pavement

(3) Not following pet etiquette

Some people find dogs cute and approachable, but due to a past close call, I find them frightening. There are frequent reports of people being bitten by dogs not wearing muzzles. Despite owners claiming their dogs don't bite, I'm uneasy unless they're leashed and muzzled for safety.

In Korea, it's a legal requirement to use muzzles and leashes on large dogs, yet many owners don't adhere to this rule. This lack of compliance has led to numerous accidents. The photo above depicts two large dogs walking on the street without muzzles or leashes. To prevent dog bite incidents, it's crucial for all dog owners, regardless of breed, to consistently use both a leash and a muzzle.



Fig. 9. Dogs without leash

(4) Complacency about the occurrence of accidents

I know it's dangerous to plug in too many devices into a power strip. However, I have a lot of things to use, like phone chargers, laptop chargers, electric blankets, and fans, so I inevitably plug in many devices. Since plugging in many devices doesn't immediately cause a fire or anything, I think it's okay for a short period.

During a conference room meeting, the photograph above captures the chaotic use of power strips amidst the prevalence of electronic devices like laptops and tablets. While we may think accidents won't happen to us, untidy wires pose dangers during movement, and excessive electrical use can cause fires. Therefore, it's crucial to organize cords and exercise caution when using electricity, especially in this modern era heavily reliant on electronic devices.

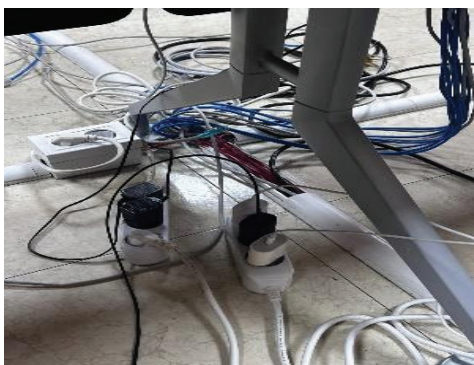


Fig. 10. Multitap with too many electronic wires

4) Engaging in risky behaviors

(1) Not paying attention to the environment

When I walk, I often find it boring unless I'm doing something else, like listening to music with earphones. It helps me block out noisy sounds and enjoy my favorite songs while walking. However, sometimes I can't hear approaching cars honking behind me, which can be dangerous. Despite this, I continue to wear my earphones, feeling safe as long as I'm on the sidewalk.

Wireless earphones have liberated individuals from cord constraints, enabling seamless engagement with music and media while multitasking. However, this multitasking can compromise situational awareness

and distract from potential dangers. Moreover, wearing earphones blocks auditory perception, hindering one's ability to cope with quickly to risks. Advanced features like noise cancellation further isolate users from their surroundings, increasing vulnerability to accidents such as car collisions or unexpected hazards while walking.

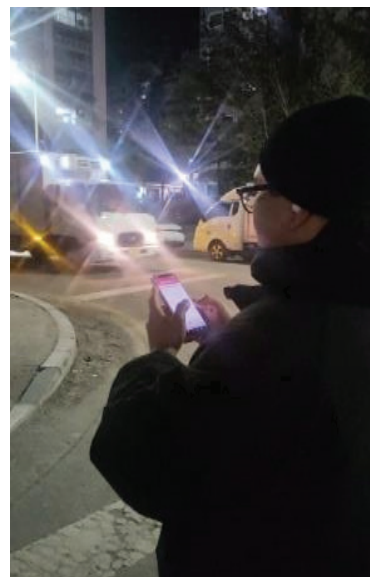


Fig. 11. Cell phone and earphones on the road

(2) Imitating dangerous behavior

I was shocked to find footprints on the frozen surface of an unfamiliar lake. Despite its appearance of being frozen, I couldn't guarantee the ice was solid. The idea that people had walked on it was unbelievable. Even in shallow areas, falling into the cold water on a freezing day could result in a serious accident. It's a concerning situation.

In winter, rivers freeze, creating snow-covered ice that can be hard to distinguish from the shore. Since rivers often run alongside walking paths without fences, people may be tempted to walk on the ice. However, if the ice is not consistently thick, it can crack, leading to a dangerous situation. Unlike lakes, rivers may have varying water levels, increasing the risk of falling through thin ice. Escaping through broken ice can be challenging, posing a drowning risk. It's vital to be cautious around frozen bodies of water to avoid accidents.



Fig. 12. Footprints across a frozen lake

(3) Seeking careless fun

When it snows, I often see children riding their plastic sleds in the apartment complex or on the roads. Watching them enjoy sledding down the slopes is fun, but seeing them speed down steep hills without anyone supervising looks too risky.

While this scene appears cheerful, it carries inherent risks. Sledding can lead to uncontrollable speeds, particularly on regular sidewalks or roads, where navigating sleds becomes challenging for children to control their speed. This increases the risk of collisions with people or obstacles. Furthermore, the lack of proper safety gear such as helmets exacerbates the severity of potential injuries and the overall risk of accidents.



Fig. 13. Sledding in the apartment driveway

(4) Going beyond the limits of self-control

While alcohol isn't beneficial for my health and can cloud my judgment, it's challenging to avoid in social situations with colleagues, seniors, and juniors. Despite not attributing courage to excessive drinking, it does affect my decision-making. However, social drinking can be enjoyable, and on difficult days, it

tends to uplift my mood somewhat.

The photo was captured at a recent end-of-semester gathering for a university club. It can be considered as an activity in which people drink and enjoy themselves to celebrate the end of the semester. Nonetheless, it crossed my mind that individuals who are unaware of their alcohol tolerance or students unaccustomed to strong drinks might be more susceptible to accidents among them. Consequently, it appears that possessing self-efficacy is crucial in managing alcohol consumption.



Fig. 14. Excessive drinking

5) Potential accident risks

(1) Unexpected side effects

Security bars installed on lower floors to enhance safety may cause negative events. Iron bars often regarded as security bars and installed on windows to prevent theft and external intrusion. In situations such as a fire outbreak, it can actually lead to danger by making escape outside impossible and preventing movement inside as counter-effects.

In cases of low ceiling height, it is perceived as a guarantee of safety, especially for young women. However, in case of emergencies such as fires or floods requiring evacuation, these bars can impede movement both from inside to outside and vice versa. Countermeasures targeting specific risks can inadvertently create additional hazards in various scenarios. It's vital to recognize that safety measures intended to protect people can pose significant risks under certain circumstances. Thus, comprehensive

planning and design considerations for safety facilities are essential to avoid unintended consequences.



Fig. 15. Crime prevention bars on lower floors

(2) Excessive trust in safety devices

I once got injured when a knife unexpectedly popped out while I was working part-time on a busy day. It was a bread knife, so I only suffered a small cut, and that was all it was. However, if it had been a sharper object like a chef's knife instead, a more serious accident could have occurred.

The original purpose of the dish storage in the picture is to maintain hygiene through proper drainage, as it features a perforated structure. However, considering the nature of kitchen utensils, which often include sharp objects such as knives and forks, sharp edges can protrude if proper storage is not used, as shown in the picture, leading to potential safety hazards. Balancing hygiene, convenience, and safety is crucial, and there is a need for appropriate solutions to ensure that all these aspects are considered.



Fig. 16. Utensil holder with knife out of place

Discussion

This research utilizes the photovoice methodology to assess safety concerns in Korea and the results revealed five main themes.

The first theme was “Negligence of the management system”. Safety accidents refer to all accidents that occur in daily life due to negligence or a lack of attention to safety^{22,23}. The relationship between lax management and accidents is complex, and involves various influencing factors. Management systems play a crucial role in safety. In this study highlights the inadequacy of safety management within the transportation. In Korea, the implementation of remaining time safety signals showed a 72% decrease in pedestrian satisfaction, and a 46% decrease in satisfaction with pedestrian red light crossing signals²⁴.

Over the past five years (2018-2022), 107 fatalities and 7,728 injuries were recorded owing to traffic accidents caused by “Black Ice” during the winter season²⁵. The fatality rate for accidents caused by road icing was 2.3 persons per 100 accidents, which is higher than the rate of 1.5 persons when the roads were not icy²⁶. To address negligence in the management system, implementing a real-time monitoring system using sensor technology and the Internet is crucial. This system can detect safety issues such as accidents, traffic congestion, and road icing. Regular inspections and maintenance will optimize safety conditions, enabling preventive measures. By incorporating these methods, safety can be enhanced, mitigating the impact of management system negligence and laying the groundwork for effective safety measures and policies.

The second theme was “Not installed Safety-assurance devices”. The absence or improper functioning of safety measures can lead to major accidents, posing risks of injury and even life-threatening situations in daily life²⁷. Additionally, the lack of safety measures heightens the risk of criminal activities. Dimly lit alleys without streetlights, places lacking CCTV surveillance, or quiet and secluded areas with few

people, may become potential crime scenes²⁸.

To prevent accidents due to the absence of safety devices, it's crucial to enhance regulations and rules at both national and local levels regarding safety device installation. Strict enforcement of these regulations is necessary for compliance and improved safety. Strengthening sanctions for noncompliance can incentivize companies and facility owners to install safety devices properly. In addition, continuous education and information should be provided to these entities on the importance and effectiveness of safety devices. Campaigns and educational programs can raise awareness and promote adoption of safety measures.

The third theme, "Violation of safety rules," encompasses instances of negligence regarding safety accidents. Non-compliance with safety rules refers to the failure to adhere to rules or guidelines related to safety in the working environment. Due to a lack of knowledge and awareness of safety, unintended accidents and risk exposure can arise in preventable situations²⁹. Consequently, it is essential to actively increase knowledge and awareness of safety to minimize the situations arising from it³⁰.

To address safety concerns stemming from violations of safety rules, it's vital to strengthen regulations related to personal mobility devices, enforcing laws on helmet usage, and prohibiting carrying more than one person on scooter. In the case of dog bites, educating dog owners on responsible pet ownership, reinforcing the use of leashes and collars, and extending the scope of the Animal Protection Act to cover all breeds are necessary steps for preventing dog bite incidents. To prevent fires related to multitap usage, periodic inspections and promptly addressing any damage or signs of overheating in multitap especially, during seasons when cooling and heating device usage increases. Regularly checking the total power consumption of devices connected to multitaps to avoid exceeding capacity is essential.

The fourth theme, "Engaging in risky behaviors," involves participating in activities or actions that

have the potential to cause adverse consequences or harm to oneself³¹. Risky personal behaviors often ignore safety measures and caution that lead to potential negative outcomes. Increased usage of earphones, despite acknowledged drawbacks like potential dangers while moving, difficulty responding quickly to risky situations, and decreased awareness of surroundings. A considerable number of accidents during walking involve distracted attention, with 61.7% of these incidents occurring while using mobile phones, including earphones³². It is advisable to avoid using earphones while walking or cycling to maintain awareness of traffic situations.

Individuals must recognize their actions and associated risks. Education plays a vital role in raising awareness of potential dangers and fostering self-awareness. Establishing and reinforcing safety habits promote a culture of safety. Although the government strengthens penalties for accidents caused by drinking every year, incidents related to alcohol continue to persist without a significant reduction. Therefore, greater efforts are needed to address the challenges associated with alcohol-related incidents. By addressing personal risky behaviors, individuals can contribute to creating a safer environment for themselves and others, emphasizing the importance of proactive safety measures and fostering a safety-conscious culture.

The final theme was "Potential accident risks". The introduction and operation of safety facilities play crucial roles in enhancing environmental stability and ensuring the safety of individuals³³. However, there are cases in which safety facilities unintentionally produce counter-effects. These counter-effects often arise from a lack of thorough consideration during the installation and operation of safety facilities or when certain variables are overlooked.

Regarding the safety facilities, one of example is the 2014 Pangyo Techno Valley Festival incident, where a ventilation outlet collapsed. Despite being designed as a sturdy iron drainage structure, the outlet provided a false sense of safety. When a large number of people gathered on it, the structure

collapsed, revealing the unintended consequences of relying solely on material strength for safety³⁴. However, when safety devices are overly restrictive or inconvenient, people may attempt to circumvent safety rules, leading to an increased accident risk. To prevent such counterproductive effects, the introduction of safety facilities should involve a comprehensive and systematic approach.

Limitations

This study explores various types of accidents that can occur in daily life using a specific methodology. However, achieving complete representativeness for common situations may be challenging. Therefore, caution is required when applying the research results to all situations. Additionally, this study may not comprehensively cover all accident types, and the exploration of specific types or situations may be incomplete.

Conclusion

This study was conducted to investigate factors threatening safety in everyday life in Korea. It explores various types of accidents and their issues by applying a photovoice research method. It is expected that it will not only provide a diagnostic function for the occurrence of various accidents in everyday life but also offer expansiveness in considering alternatives and policy connections. Additionally, the identification of various accident types revealed in this study can serve as useful guidelines for establishing directions for safety education.

Acknowledgment

This research was supported by the Hallym University (HRF-202401-004).

REFERENCES

- Hollnagel E. Barriers and accident prevention. Routledge. 2016.
- Lee OC. An analysis of the contents of safety education based on Korean Age-specific Safety Education Map (KASEM), *Chrisonomy* 2016;12(10):1-14. <http://doi.org/10.14251/crisonomy.2016.12.10.1>
- Oh BN, Han SW. The Effect of safety risk factor reduction through home modification on the level of functional disability in the elderly: Focusing on community care project. *The Journal of Korean Society of Community-Based Occupational Therapy* 2022;12(3):1-13.
- Hur YK, Lee SW, Yoo WS, Song TG. Empirical examination of determinants affecting safety incidents in building construction. *Journal of the Korea Institute of Building Construction* 2023;23(5):583-593.
- Park JS. A needs analysis for improving Korean communication skills in preparation for safety accidents and disasters. *Journal of Bangyo Language and Literature* 2021;57:215-249.
- Korea Ministry of Public Safety and Security. Accident Occurrence Status. Available at: <https://www.data.go.kr/data/15014225/fileData.do/>. Accessed July 10, 2024
- Yoo IS, Choi EM. A analytical research into social and economic costs for each type of accident, injury and intoxication. *Journal of the Korea Industrial Information Systems Research* 2015;20(3):71-79. <http://doi.org/10.9723/jksis.2015.20.3.071>
- Daddah D, Glulur Y, Alphonse Kpozehouen A, Dos Santos BH, Ouendo EM, Levkque A. Prevalence and risk factors of post-traumatic stress disorder in survivors of a cohort of road accident victims in Benin: Results of a 12-month cross-sectional study. *Journal of Multidisciplinary Healthcare* 2022;15:719-731. <https://doi.org/10.2147/JMDH.S358395>
- Wilcoxon LA, Meiser-Stedman R, Burgess A. Post-traumatic Stress Disorder in Parents Following Their Child's Single-Event Trauma: A Meta-Analysis of Prevalence Rates and Risk Factor Correlates. *Clinical child and family psychology review* 2021;24(4): 725-743. <https://doi.org/10.1007/s10567-021-00367-z>
- Shin DP, Gwak HS, Lee DE. "Modeling the Predictors of Safety Behavior in Construction Workers." *International Journal of Occupational Safety and Ergonomics* 2015;21(3):298-311. <https://doi.org/10.1080/10803548.2015.1085164>.
- Park HH. Analysis of Citizens' Perceptions of the Six Major Safety Education in the Life Cycle. *Korean Journal of Convergence Science* 2022;11(5):185-201. <https://doi.org/10.24826/KSCS.11.5.12>
- Liebenberg L. Thinking critically about photovoice: Achieving empowerment and social change. *International Journal of Qualitative Methods* 2018;17(1):1609406918757631.
- Bogdan RC, Biklen SK. Qualitative research for education: An introduction to theory and methods (5th ed). Boston, MA: Pearson. 2007.
- Wang CC. Youth participation in photovoice as a strategy for

- community change. *Journal of Community Practice* 2006;14(1-2): 147-161.
15. Latz AO. Photovoice research in education and beyond: A practical guide from theory to exhibition. Taylor & Francis. 2017.
 16. Latz A. Reading in the mirror and advancing the proliferation of photovoice: A book review. *Reading*, 12, 8-2018.
 17. Hannay J, Dudley R, Milan S, Leibovitz PK. Combining photovoice and focus groups: Engaging Latina teens in community assessment. *American Journal of Preventive Medicine* 2013;44(3):S215-S224. <https://doi.org/10.1016/j.amepre.2012.11.011>
 18. Migliorini L, Rania N. A qualitative method to “make visible” the world of intercultural relationships: the photovoice in social psychology. *Qualitative Research in Psychology* 2017;14(2):131-145. <https://doi.org/10.1080/14780887.2016.1263698>
 19. Palibroda B, Krieg B, Murdock L, Havelock J. A practical guide to photovoice: Sharing pictures, telling stories and changing communities. Winnipeg, Manitoba: Prairie Women's Health Centre of Excellence. 2009.
 20. Latz A, Mulvihill. *Photovoice Research in Education and Beyond: A Practical Guide from Theory to Exhibition*. Routledge. 2017.
 21. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology* 2006;3(2):77-101. <https://doi.org/10.1191/1478088706qp0630a>
 22. Najafi Moghaddam Gilani V, Hosseinian SM, Ghasedi M, Nikookar M. Data-driven urban traffic accident analysis and prediction using logit and machine learning-based pattern recognition models. *Mathematical Problems in Engineering* 2021;1-11. <https://doi.org/10.1155/2021/9974219>
 23. Pereira E, Ahn S, Han S, Abourizk S. Finding causal paths between safety management system factors and accident precursors. *Journal of Management in Engineering* 2020;36(2):04019049.
 24. Seoul City Transportation Office. Installation of a traffic light that informs the remaining time until the red light. Available at: <https://news.seoul.go.kr/traffic/?p=510853/>. Accessed December 22, 2023
 25. Korea JoonAng Daily. Under-road heating a lifesaver in Seoul's hilly communities. Available at: <https://koreajoongangdaily.joins.com/news/2023-12-24/national/socialAffairs/Underroad-heating-a-lifesaver-in-Seoul-s-hilly-communities/1942752/>. Accessed December 24, 2023
 26. KoROAD. Korea Road Traffic Authority_Statistics on Traffic Accidents by Road Type and Weather Conditions. Available at: <https://www.data.go.kr/data/15070237/fileData.do/>. Accessed June 20, 2023
 27. Ammad S, Alaloul WS, Saad S, Qureshi AH. Personal protective equipment (PPE) usage in construction projects: A scientometric approach. *Journal of Building Engineering* 2021;35:02086. <https://doi.org/10.1016/j.jobe.2020.102086>
 28. Griffith C. The use of closed-circuit television (CCTV) surveillance video and crowdsourcing in criminal investigations. The Bill Blackwood Law Enforcement Management Institute of Texas. 2023.
 29. Volken S, Wong-Parodi G, Trutnevyte E. Public awareness and perception of environmental, health and safety risks to electricity generation: an explorative interview study in Switzerland. *Journal of Risk Research* 2019;22(4):432-447. <https://doi.org/10.1080/13669877.2017.1391320>
 30. World Health Organization. Global patient safety action plan 2021-2030: towards eliminating avoidable harm in health care. World Health Organization. 2021.
 31. Jessor R. Reply risk behavior in adolescence: A psychosocial framework for understanding and action. Routledge. 2014.
 32. Samsung Traffic Safety Research Institute. Available at: <http://sts.samsungfire.com/>. Accessed December 24, 2023
 33. Brauer RL. Safety and health for engineers. John Wiley & Sons. 2022.
 34. BBC News Many dead in collapse at South Korea 4Minute concert. Available at: <https://www.bbc.com/news/world-asia-29660885/>. Accessed October 20, 2023.

