The Impact of Web-Based Education on Nurses' Preparedness for Fire Disasters in Hospitals

[1]Nyayu Nina Putri Calisanie*, [2]Ramdani Ramdani, [3]Ressa Mela Shintyana
[1,3]Sekolah Tinggi Ilmu Keperawatan Ppni Jawa Barat Bandung
[2]RSUD Slamet, Garut

OPEN ACCESS
Proceeding STIKep PPNI Jawa Barat

Website :
https://proceedings.stikep-ppnijabar.ac.id/index.php/psj

Volume 1 (1), 139-147

Article info
Received : December 28, 2024
Revised : April 22, 2025
Accepted : May 02, 2025
Published : May 19, 2025

Corresponding author
Nyayu Nina Putri Calisanie*
Sekolah Tinggi Ilmu Keperawatan PPNI Jawa Barat, Bandung, Indonesia
Jl. Muhammad No 34 Bandung, Indonesia
Email: nina.calisanie@gmail.com

Citation
Calisanie, N. N. P., Ramdani, & Shintyana, R. M. (2025). The impact of web-based education on nurses' preparedness for fire disasters in hospitals. *Proceeding STIKep PPNI Jawa Barat*, 1(1), 139-147

Abstract
Objective: This study investigates the effectiveness of web-based education in enhancing nurses' readiness and response capabilities for managing fire-related emergencies within hospital settings.
Method: The research employed a quasi-experimental design with a pre-test and post-test control group structure. A total of 100 participants were selected through convenience sampling. Data collection involved a preparedness questionnaire, which demonstrated strong internal consistency with a Cronbach's Alpha of 0.828. Paired t-tests were used to analyze the data, aiming to evaluate changes in nurses' preparedness levels before and after the web-based educational intervention.
Results: The findings demonstrated that web-based education had a significant positive effect on nurses' preparedness for hospital fire emergencies. Analysis using the paired t-test showed a statistically significant improvement within the intervention group ($p = 0.001$). Additionally, the independent t-test comparing post-test scores between the intervention and control groups also yielded a significant result ($p = 0.001$), indicating a measurable difference attributable to the educational intervention.
Conclusion: Web-based education significantly enhances nurses' preparedness in effectively responding to fire emergencies within hospital settings, highlighting its value as a practical and accessible training method for emergency readiness.

Keywords: Fire Disaster, Education, Preparedness, Nursing, Hospital safety, Disaster management

INTRODUCTION

A hospital is a healthcare facility that provides a wide range of services, including emergency care, nursing care, and care for non-patients (JDIH BPK RI, 2009). Hospitals are high-risk environments where patients, visitors, and staff are constantly exposed to potential health and safety hazards. Effective occupational safety and health (K3RS) programs are crucial to managing these risks and ensuring that hospital conditions remain healthy, safe, and secure. Beyond the health risks associated with diseases, hospitals also face additional dangers that can compromise safety, such as accidents involving explosions, fires, injuries, and exposure to radiation, hazardous chemicals, and anesthetic gases (Firmansyah, 2022).

A fire is an unwanted event involving fuel, oxygen, and heat, which can lead to property damage, injuries, and fatalities. According to the National Fire Protection Association, fires are oxidation events that can endanger lives and

property. They can cause material losses, disrupt business activities, harm the environment, and threaten human health and mental well-being. Fires are an inherent risk in human civilization (Kurniawati, 2013).

Hospital fires are particularly hazardous, leading to significant casualties and damage. Between 2012 and 2014, 1,100 fire incidents were reported in hospitals. A devastating fire in South Korea in 2018 claimed 41 lives. Umar's research (2020) revealed similar incidents in Indonesia, with fires occurring in seven cities and districts between June and October 2020. In September 2023, a fire at Murni Teguh Kuta Hospital in Bali caused Rp. 15 million in material losses (Suadyana, 2023). A fire at Kiwari Bandung Regional Hospital in West Java on February 1, 2023, was reportedly caused by an air sterilizer (Erianti & Sri Darnoto, 2023). Another fire occurred at Dr. Slamet Garut Regional Hospital on October 1, 2023, though the cause remains unknown (Utami, 2024). According to the National Disaster Management Agency (BNPB), 978 fire incidents were recorded in residential areas, in addition to one fire at a hospital in Indonesia. While most fires occur in residential areas, hospitals—often located in densely populated areas—remain highly vulnerable to such disasters (BNPD, 2016).

Nurses play a vital role in disaster management, encompassing the pre-disaster, disaster, and post-disaster response phases. Adequate preparedness significantly reduces the impact of disasters, making it essential for nurses to be well-trained in disaster response. Competent nurses contribute to effective crisis management, which in turn reduces mortality rates and improves patient outcomes. Nurse preparedness is critical in successful disaster management, especially during hospital fires. Continuous education and training are necessary to enhance nurses' ability to respond to such emergencies, ensuring they possess the knowledge and skills required to manage catastrophic events (Choirrini & Lestari, 2019).

Education is a process that involves transmitting messages and instilling beliefs to individuals, groups, and communities to raise awareness, knowledge, understanding, and motivation to adopt recommended behaviors, ultimately fostering healthy living practices (Jelita et al., 2020). Educational media design includes cognitive elements such as knowledge acquisition, comprehension, application, analysis, synthesis, and evaluation (Potter, 2009). Education methods can be categorized based on communication techniques, sensory reception, and audiovisual methods. These include counseling, media dissemination, auditory and visual techniques, and audiovisual methods that combine sound and images (Indrayani & Syafar, 2020). Web-Based Education (Web Edu) is a digital platform offering various educational content, such as articles, videos, and tutorials, which enhances learning efficiency and clarifies learning objectives (Meiliyanthi et al., 2022).

Unprepared nurses during disasters can result in severe consequences, including casualties, injuries, disabilities, and fatalities. Disasters can paralyze healthcare services, increase morbidity and mortality rates, and damage health infrastructure (Sitorus et al., 2019). A literature review conducted by R. Ramdani et al. (2020) found that most nurses are not adequately prepared for disaster response, highlighting the need for policymakers to promote disaster preparedness training for hospital nurses. Similarly, research by Nurlaeli (2023) emphasized the importance of training nurses to enhance their disaster preparedness. A study in Saudi Arabia also revealed that nurses were unprepared for disaster situations (Al Thobaity et al., 2017). One effective way to improve fire disaster preparedness is through web-based education (Web Edu), especially within hospital settings. Fire disasters can have significant consequences, and their impact is often more severe in places with lower levels of disaster preparedness (Dyah et al., 2022). A lack of disaster preparedness education affects nurses' behavior, leading to inadequate preparedness. Since education plays a crucial role in motivating nurses to adopt appropriate disaster response behaviors, providing education to enhance their preparedness is essential. This would ensure

that nurses are better equipped to handle disasters effectively and minimize the negative outcomes of such events.

METHODS

Study Design

This study employed a quantitative research approach using a quasi-experimental design, specifically a pre-test-post-test with a control group design. This design enables the measurement of changes in preparedness levels before and after the intervention, comparing the results between the intervention group and the control group. The intervention group received a Web-Based Education program, while the control group did not receive this intervention.

Sample

The study population included 601 nurses employed at Bandung City Hospital, with a total of 100 nurses selected to participate. The sampling technique used was convenience sampling, where participants were chosen based on their accessibility and willingness to participate.

Instrument

The study used a disaster preparedness questionnaire to assess nurses' preparedness. The questionnaire, adapted from the Denosa (2020) tool, included 10 items that evaluated participants' behavioral readiness to respond to fire disasters.

Data Collection Procedure

The pre-test was administered to both groups before the intervention to assess their initial disaster preparedness. Following the Web-Based Education intervention for the intervention group, both groups completed a post-test to evaluate any changes in their preparedness levels.

Intervention

The intervention consisted of Web-Based Education sessions aimed at improving disaster preparedness among nurses. The content included fire disaster risk assessment, effective disaster response strategies, and emergency evacuation and safety protocols. These sessions were delivered over two weeks through an interactive online platform, tailored to address the specific needs and challenges of hospital settings.

Data Analysis

The collected data were analyzed using various statistical methods. A paired t-test was used to evaluate changes in preparedness scores within the intervention group by comparing pre-test and post-test results. An independent t-test was applied to compare the post-test preparedness scores between the intervention and control groups. A significance level of $p < 0.05$ was established, with results considered statistically significant if the p-value was below this threshold.

Ethical Consideration

This study adhered to ethical guidelines for research involving human participants. Ethical approval was obtained from the Institutional Review Board (IRB) at Bandung City Hospital. Before participation, all individuals were provided with information about the study's purpose, procedures, risks, and benefits. Written informed consent was obtained from each participant. To ensure privacy, participant information was kept confidential, and all data were anonymized. Participation was voluntary, and participants were free to withdraw from the study at any time without facing any penalties or consequences.

RESULTS

Characteristics of Respondent

The characteristics of the respondents include age, gender, work experience, and education. The results from both the control and intervention groups reflect the respondents' characteristics, with a total of 100 participants. The frequency distribution of these characteristics is presented in both numbers and percentages. In addition to the frequency distribution, the mean (average), standard deviation, and the minimum and maximum values of the respondents' ages are also provided for the age characteristic.

Table 1: Distribution of Demographic Data Based on Age, Gender, Work Experience, and Education

Characteristic	Intervention Group		Control Group	
	Mean ± SD	Min - Max	Mean ± SD	Min - Max
Age	26.56 ± 3.092	22-40	25.26 ± 1.712	23-31
Characteristic	**Total n (100)**		**Intervention Group**	**Control Group**
	Frequency	**Percentage %**	**(F%)**	**(F%)**
Gender				
Male	19	19.0%	7 (7.0%)	12 (12.0%)
Female	81	81.0%	43 (43.0%)	38 (38.0%)
Work Experience				
1-2 years	35	35.0%	10 (10.0%)	25 (25.0%)
3-4 years	47	47.0%	29 (29.0%)	18 (18.0%)
>4 years	18	18.0%	11 (11.0%)	7 (7.0%)
Education				
D3 Nursing	62	62.0%	30 (30.0%)	32 (32.0%)
Bachelor's Degree	3	3.0%	1 (1.0%)	2 (2.0%)
Registered Nurse (Ners)	35	35.0%	19 (19.0%)	16 (16.0%)

Note: The table shows the distribution of demographic characteristics, including age, gender, work experience, and education level, for both the intervention and control groups.

Based on Table 1, the most frequent age among respondents is 26 years, with a minimum age of 22 years and a maximum age of 40 years. The majority of the sample consists of females, comprising 81% of the participants. Most respondents have 3–4 years of work experience, accounting for 47% of the total, while the highest level of education attained by the majority is a D3 in Nursing, representing 62% of the sample.

Table 2 Nurses' Preparedness in Facing Fire Disasters in Hospitals

Group	Pre-Test	Post-Test
Intervention Group	Mean (SD)	17.88 ± 3.491
	Min-Max	11 – 25
Control Group	Mean (SD)	16.28 ± 2.665
	Min-Max	12 – 22

Based on Table 2, the average preparedness score in the pre-intervention phase was 17.88 for the intervention group and 16.28 for the control group. Following the intervention, the average preparedness score in the intervention group significantly increased to 32.90, while the control group showed a smaller increase to 17.52. These results indicate that the intervention group experienced a significant improvement in preparedness compared to the control group.

Table 3: Difference in Preparedness Between Pre-Test and Post-Test for Intervention and Control Groups

Group	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	95% CI	T	p-value
Intervention	17.88 ± 3.491	32.90 ± 5.491	-16.707 to 13.333	17.890	0.001
Control	16.28 ± 2.665	17.52 ± 1.951	-0.003 to 1.523	2.002	0.051

Based on Table 3, the dependent t-test analysis results for the pre-test and post-test average scores in the control group yielded a p-value of 0.051 with α = 0.05. Since the p-value is greater than 0.05, the null hypothesis (H0) is accepted, indicating no significant difference in preparedness between the pre-test and post-test scores in the control group. Conversely, the intervention group showed a p-value of 0.001 with α = 0.05. As the p-value is less than 0.05, the null hypothesis (H0) is rejected, indicating a significant difference in preparedness between the pre-test and post-test scores in the intervention group.

Table 4: Difference in Preparedness Between Pre-Test and Post-Test Across Groups

Group	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	95% CI	T	p-value
Intervention	17.88 ± 3.491	32.90 ± 5.863	-0.633 to 1.833	0.966	0.337
Control	16.28 ± 1.951	17.52 ± 2.665	14.646 to 18.114	18.744	0.001

Based on Table 4, the differences in average preparedness scores between the pre-test and post-test for the control and intervention groups are presented. The pre-test average score for the intervention group was 17.88, while the control group scored 16.28. With a p-value of 0.337 and α = 0.05, H0 is accepted, indicating no significant difference in preparedness between the intervention and control groups at the pre-test stage. However, the post-test average score for the intervention group was 32.90, compared to 17.52 for the control group. With a p-value of 0.001 and α = 0.05, H0 is rejected, indicating a significant difference in preparedness between the two groups at the post-test stage. The T-test results demonstrate that Web-Based Education (Web Edu) significantly improves nurses' preparedness in handling fire disasters in hospitals. This conclusion is supported by the significant difference in post-test scores for the intervention group (p = 0.001), leading to the acceptance of Ha and the rejection of H0.

DISCUSSION

Nurse Demographic Data

The research findings revealed several key characteristics among the respondents. Most participants were 26 years old, with 20 from the intervention group and 14 from the control group, making up 34% of the total sample. At this age, individuals are in the phase of adulthood, which the Ministry of Health of Indonesia (2009) defines as between 26 and 35 years old. This stage is marked by intellectual development, where cognitive abilities, decision-making skills, and maturity are significantly enhanced. Jannah et al. (2021) emphasized that adulthood is an optimal period for effectively disseminating information. This is consistent with the findings of Jesita and Wahyuni (2023), who reported that 58% of their respondents were aged 26-35. Based on these findings, it can be assumed that individuals within this age group possess heightened preparedness for fire

disasters due to their advanced cognitive and emotional development.

The gender analysis showed that the majority of respondents were female, accounting for 81 out of the 100 participants. According to the BNPB (2019), women are more vulnerable in disaster situations, being 14 times more likely to experience adverse impacts than men. This heightened vulnerability may stem from their instinct to protect others during emergencies, such as fires. This finding aligns with the research of Jesita and Wahyuni (2023), where 73% of the respondents were female. It is reasonable to assume that this vulnerability fosters a greater awareness and preparedness among women when facing fire disasters.

In terms of work experience, nearly half of the respondents (47%) had been employed for 3-4 years. Length of employment is a crucial factor in disaster preparedness, as employees with more experience tend to be better adapted to their work environments and more emotionally stable. This stability allows them to recognize workplace risks and hazards effectively, as noted by R. T. Ramdani (2022). Similarly, Putra (2021) found that longer work experience correlates positively with disaster preparedness and response. This is further supported by Jesita (2023), who observed that 26% of respondents had over three years of work experience. These findings suggest that the longer an individual works within an institution, the better prepared they are to handle potential disasters.

Regarding educational background, 62% of respondents had a diploma in nursing, reflecting a foundational level of professional training. Education plays a pivotal role in shaping an individual's ability to learn and apply new knowledge. Notoatmodjo (2010) highlighted that higher education enhances a person's capacity to receive, process, and utilize information effectively. This aligns with the findings of Kinanti et al. (2023), who demonstrated a significant correlation between education level and fire disaster preparedness. Their study found that individuals with higher education levels exhibited a 73% preparedness rate, with a p-value of 0.000. These results underscore the importance of education in enhancing nurses' preparedness for disasters, as it equips them with the necessary knowledge and skills to respond effectively to emergencies.

Description of Nurses' Preparedness in Facing Fire Disasters

The study's findings on nurse preparedness highlighted significant improvements in the intervention group's ability to handle fire disasters in hospitals. Based on Table 2, the mean preparedness scores increased in both groups; however, the change was substantially more pronounced in the intervention group. The control group's scores rose modestly from a pre-test mean of 16.28 to a post-test mean of 17.52, while the intervention group's scores increased dramatically from 17.88 to 32.90 after the educational intervention. This considerable improvement in the intervention group can be attributed to the web-based education program on fire disaster preparedness, which provided participants with structured and accessible learning resources. Over seven days, the intervention group engaged with videos, modules, and other resources designed to enhance their understanding of fire disaster preparedness. The educational content covered essential aspects such as prevention strategies, patient evacuation procedures, and post-fire actions, ensuring a comprehensive approach to disaster management in hospital settings.

The results suggest that, prior to the intervention, nurses lacked adequate preparedness for handling fire disasters. One key factor contributing to this gap was the insufficient information and training available to nurses on this critical issue. Potter (2009) emphasized the role of cognitive learning in shaping individuals' attitudes and behaviors, particularly through the acquisition of knowledge. This principle underpins the importance of equipping nurses with the necessary knowledge to effectively respond to fire emergencies, which includes understanding evacuation protocols and minimizing risks to patient safety. The post-test data indicated a marked improvement in the intervention

group's knowledge and readiness to manage fire disasters. Most respondents in this group demonstrated an enhanced understanding of fire disaster preparedness, reflecting the efficacy of the web-based education program. These findings suggest that web-based education is an effective method for improving nurses' preparedness for fire disasters in hospitals. The researcher concludes that incorporating such educational interventions into hospital training programs can significantly bolster nurses' capabilities to respond to fire emergencies, ultimately enhancing patient safety and organizational resilience.

Differences in Nurse Preparedness Scores in Facing Fire Disasters in the Intervention Group and Control Group

Based on Table 4, the results of the paired t-test show that in the intervention group, the p-value was 0.001, which is less than 0.05. This indicates that web-based education significantly influenced the nurses' preparedness before and after the intervention. The post-test mean score was 32.90, which falls into the "good" preparedness category (32-40). This result is consistent with the findings of Jesita & Wahyuni, (2023) who also reported an increase in knowledge about disaster response, with pre-test scores of 75% and post-test scores of 90%. In the analysis of both the control and intervention groups, the pre-test preparedness scores were similar, indicating that preparedness was still not optimal before the intervention. However, the intervention group showed a significant increase in preparedness scores compared to the control group, which did not receive the same treatment. The web-based education was provided to the intervention group after the pre-test, with respondents given 7 days to study the content. The preparedness levels were categorized into four groups: "good" (32-40), "adequate" (26-31), "insufficient" (18-25), and "very insufficient" (10-17). While the control group also experienced an increase in preparedness, the improvement was not as significant as in the intervention group. This is because the control group did not receive the web-based education intervention but had previously received some information about fire preparedness during employee orientation. The significant improvement in preparedness scores in the intervention group indicates that web-based education has a positive effect on enhancing nurses' preparedness for fire disasters in hospitals. Therefore, it can be concluded that the web-based education intervention method is effective in increasing nurses' preparedness, as shown by the significant improvement in scores from pre-test to post-test.

CONCLUSIONS

Based on the research conducted at Bandung City Hospital, the study examined the influence of web-based education on nurses' preparedness for fire disasters in hospitals and yielded several key conclusions. First, an analysis of the nurses' demographic characteristics showed an average age of 26 years, with the majority of participants being female. Most respondents had over three years of work experience, and the highest educational attainment for the majority was a D3 Nursing diploma. These characteristics provided a foundation for understanding the preparedness levels observed.

Second, the study demonstrated that nurses in the intervention group experienced a significant improvement in their preparedness. Their average pre-test score of 17.88, indicative of insufficient preparedness, rose dramatically to 32.90 after completing the web-based education program, placing them in the "good" preparedness category. This underscores the intervention's effectiveness in enhancing their readiness to face fire disasters.

Lastly, the research highlighted a significant difference in preparedness between the intervention and control groups. While both groups started with similar pre-test scores, the intervention group's post-test scores were significantly higher. The p-value of 0.001 for both the pre- to post-test comparison within the intervention group and the post-test comparison between the intervention and control groups confirmed the statistical

significance of the findings. These results affirm that the web-based education program played a crucial role in improving disaster preparedness among nurses, making it a viable training method for enhancing hospital safety protocols.

Acknowledgment

We would like to express our gratitude to all the participants for their involvement in this study, as well as to STIKep PPNI Jawa Barat for funding support.

Conflict of interest

All authors declare no conflict of interest

REFERENCE

Al Thobaity, A., Plummer, V., & Williams, B. (2017). What are the most common domains of the core competencies of disaster nursing? A scoping review. *International Emergency Nursing*, *31*, 64–71. https://doi.org/10.1016/j.ienj.2016.10.003

Arrazy, S., Sunarsih, E., & Rahmiwati, A. (2014). Penerapan Sistem Manajemen Keselamatan Kebakaran di Rumah Sakit Dr. Sobirin Kabupaten Musi Rawas Tahun 2013. *Jurnal Ilmu Kesehatan Masyarakat*, *5*(2).

Bencana, B. N. P. (n.d.). Data kejadian bencana di Jawa Barat 2022. *BNPB. Retrieved from Https://Www.Bnpb.Go.Id*.

Bencana, B. N. P. (2016). Buku Risiko Bencana Indonesia (RBI). *Jakarta: BNPB Melalui Web Http://Bnpd. Go. Id*.

Choirrini, S., & Lestari, F. (2019). Analisis Kesiapsiagaan Manajemen Bencana Rumah Sakit di Kota Cilegon Tahun 2018. *Jurnal Dialog Penanggulangan Bencana*, *10*(2), 154–164.

Dyah, T., Dwi Martha, A., & Elisa, T. (2022). Kesiapsiagaan Masyarakat dalam Menghadapi Bencana Kebakaran di Kota Banjarmasin (Community Preparedness to Prevent Fire Disaster in the City of Banjarmasin). *Jurnal Keperawatan Suaka Insan*. https://repository.stikessuakainsan.ac.id/id/eprint/174

Erianti, A. I., & Sri Darnoto, S. K. M. (2023). *Hubungan Pengetahuan Dengan Keterampilan Satpam Dalam Pelaksanaan Tanggap Darurat Kebakaran Di RSUD Dr. Moewardi Surakarta*. Universitas Muhammadiyah Surakarta.

Firmansyah, M. H. (2022). Penerapan Manajemen Risiko Keselamatan Dan Kesehatan Kerja Di Rumah Sakit Islam Surabaya a. Yani. *Jurnal Kesehatan Masyarakat*, *10*(1), 12–19. https://doi.org/10.14710/jkm.v10i1.31550

Indrayani, T., & Syafar, M. (2020). *promosi kesehatan Untuk Bidan*. CV. AA. RIZKY.

Jannah, M., Kamsani, S. R., & Ariffin, N. M. (2021). Perkembangan usia dewasa: tugas dan hambatan pada korban konflik pasca damai. *Bunayya: Jurnal Pendidikan Anak*, *7*(2), 114–143. http://dx.doi.org/10.22373/bunayya.v7i2.10430

JDIH BPK RI. (2009). *Undang-Undang Republik Indonesia No.44 Tahun 2009 Tentang Rumah Sakit*.

Jelita, T. I., Hanum, N. A., & Wahyuni, S. (2020). Pengaruh Penyuluhan dengan Metode Pemutaran Video Animasi secara Virtual terhadap Tingkat Pengetahuan Menyikat Gigi Anak Kelas 5 SD. *Jurnal Kesehatan Gigi Dan Mulut (JKGM)*, *2*(2), 41–44.

Jesita, K. S. K. G., & Wahyuni, E. S. (2023). Gambaran Tingkat Pengetahuan Kesiapsiagaan Masyarakat Menghadapi Bencana Tanah Longsor di Jatiyoso Karanganyar. *SEHATMAS: Jurnal Ilmiah Kesehatan Masyarakat*, *2*(2), 395–403. https://doi.org/10.55123/sehatmas.v2i2.1753

Joan Herly Herwawan, R. C. S. A. (2019). *PENERAPAN SLEEP HYGIENE DAN SLEEP DIARY TERHADAP KUALITAS TIDUR ANAK USIA SEKOLAH* .

Kemenkes. (2022). *LAPORAN TAHUNAN*.

Kurniawati, D. (2013). Taktis memahami keselamatan dan kesehatan kerja. *Surakarta: PT Aksara Sinergi Media*.

MEILIYANTHI, I. N. A., FIRDAUS, F., & PURNAMAWATI, P. (2022). Pentingnya Penerapan Pembelajaran Berbasis Web Pada Wawasan Pendidikan Kejuruan. *EDUTECH: Jurnal Inovasi Pendidikan Berbantuan Teknologi*, *2*(2), 150–157. https://doi.org/10.51878/edutech.v2i2.1207

Notoatmodjo, S. (2010). *Promosi Kesehatan, Teori & Aplikasi, Jakarta: Rineka Cipta. doi: 10.1108*. JMTM-03-2018-0075.

Nurlaeli, D. (2023). *Analisis Pengetahuan Tenaga Farmasi Terhadap Penggunaan Telefarmasi Dalam Pelayanan Kefarmasian Pasca Pandemi Covid-19 Di Apotek Kecamatan Tulis, Batang*. Universitas Islam Sultan Agung Semarang.

Potter, P. A. (2009). Fundamentals of nursing. *Mosby Elsevier*.

Putra, H. A. (2021). Analisis Aspek Fungsional Kesiapsiagaan Bencana di Rumah Sakit Umum Rajawali Citra 2021. *Surya Medika: Jurnal Ilmiah Ilmu Keperawatan Dan Ilmu Kesehatan Masyarakat*, *16*(2), 88–96. https://doi.org/10.32504/sm.v16i2.491

Ramdani, R. T. (2022). *Hubungan Pengetahuan, Masa Kerja, Dan Pelatihan Kebakaran Dengan Kesiapsiagaan Tanggap Darurat Kebakaran Pekerja Di Pt. Aneka Tambang Bogor*.

Ramdani, R., Trisyani, Y., & Emaliyawati, E. (2020). KESIAPSIAGAAN PERAWAT RUMAH SAKIT DALAM MENGHADAPI BENCANA: TINJAUAN SISTEMATIS. *Jurnal Keperawatan Komprehensif (Comprehensive Nursing Journal)*, *6*(2), 101–111. https://doi.org/10.33755/jkk.v6i2.169

Sitorus, E., Mahendra, D., & Batu, A. M. R. L. (2019). Buku materi pembelajaran manajemen gawat darurat dan bencana. In *program studi diploma tiga keperawatan fakultas vokasi universitas kristen indonesia jakarta*. PROGRAM STUDI DIPLOMA TIGA KEPERAWATAN FAKULTAS VOKASI UNIVERSITAS KRISTEN ….

Suadyana, D. (2023). Pengaruh Store Atmosphere Terhadap Keputusan Pembelian Pada Mini Marketmitra Utama Kecamatan Air Upas Kabupaten Ketapang. *E-Jurnal Equilibrium Manajemen*, *9*(1), 13–25.

Suwaryo, P. A. W., & Yuwono, P. (2017). Faktor-faktor yang mempengaruhi tingkat pengetahuan masyarakat dalam mitigasi bencana alam tanah longsor. *URECOL*, 305–314.

Umar, A. F. (2020). Kejadian Kasus Kebakaran di Rumah Sakit di Indonesia Tahun 2020 Sumber Melalui Media Online. *Jurnal Persada Husada Indonesia*, *7*(25), 23–30. https://doi.org/10.56014/jphi.v7i25.286

Utami, S. G. (2024). *Gambaran Tingkat Pengetahuan dan Sikap Petugas Rekam Medis dalam Menghadapi Bencana Kebakaran di RSUD dr. Slamet Garut*. POLITEKNIK KESEHATAN TASIKMALAYA.