

## Nursing First Aid to Emergency Events in Agricultural Areas: Literature Review

Enggal Hadi Kurniyawan<sup>1</sup>, Titik Sandiva Yustiana<sup>1</sup>, Putri Shofiyyah Firdaus<sup>1</sup>, Salsabhila Nasywa Ramadhanti<sup>1</sup>, Alfid Tri Afandi<sup>1</sup>, Dicky Endrian Kurniawan<sup>1</sup>, Kholid Rosyidi Muhammad Nur<sup>1</sup>

<sup>1</sup> Faculty of Nursing, Universitas Jember, Indonesia

Correspondence should be addressed to:  
Enggal Hadi Kurniyawan  
[enggalhadi.psik@unej.ac.id](mailto:enggalhadi.psik@unej.ac.id)

### Abstract:

Being a farmer who works directly in the environment certainly has many risks at work, one of which is the occurrence of unwanted events that can threaten the health of farmers. Some problems are classified as emergencies and must be handled immediately to avoid fatalities. One example is the occurrence of snake bite emergencies in farmers. This study aims to determine some emergencies in agricultural areas and how to provide first aid. The method used in this study was a literature review of articles from article search engines such as PubMed, Google Scholar, and Science Direct analyzed using the PRISMA technique by including articles published in the last five years. The results found that emergencies that often occur in agricultural areas include venomous snake bites, pesticide poisoning, contracting dengue fever from mosquitoes, and rat bites that cause rat-bite fever. First aid methods that can be performed on someone whom a snake has bitten are by calming the victim, immobilizing the victim's entire body by laying him in the recovery position and immobilizing the affected body part using either a sling, splint, or pressure bandage immobilization (PBI) method. Nurses have a role in educating and counseling farmers on how to first aid someone who experiences snake bites, rat bites that cause rat bite fever, and drowning in fishermen.

### Article info:

Submitted:  
18-08-2023  
Revised:  
05-10-2023  
Accepted:  
06-10-2023

### Keywords:

Agronursing; emergency; first aid

DOI: <https://doi.org/10.53713/htechj.v1i5.100>

This work is licensed under CC BY-SA License.



## INTRODUCTION

Agronursing is the management of nursing management and nursing care within the scope of agriculture, plantations, fisheries, animal husbandry, or agro-industry. Agronursing focuses on occupational health and safety nursing, promotion, and prevention of diseases due to agriculture, plantations, fisheries, and livestock, as well as agro-industry and rehabilitation for agro-industry actors to create a conducive work environment. Agronursing focuses on clients (individuals, families, groups, and communities) who are holistic (biopsychosocial-spiritual) and comprehensive (promotive, preventive, curative, and rehabilitative) (Kurniyawan et al., 2023).

Indonesia is a country known as an agricultural country or a developing country. The agricultural sector in Indonesia is crucial for the national economy, considering that most of Indonesia's population lives in rural areas with a livelihood as farmers. As an agricultural country, land is a vital resource for farmers in Indonesia in carrying out agricultural activities. Being a farmer certainly has many risks, ranging from low selling prices, high fertilizer prices, and even high work safety risks. Farmers are at risk of being exposed to pesticides and even poisoning. Farmers are

also at risk of snake bites when working in agricultural areas (Susanto et al., 2016). Farmers have to work long hours and are at risk of industrial accidents and illnesses such as pesticide poisoning, cardiovascular disease, and psychological stress disorders (Kurniyawan et al., 2023).

Human life is inseparable from the environment, including animals. Many venomous and poisonous animals live around humans and can attack and bite humans. Venomous and poisonous animal bites can cause death. Data from BPOM (2019), the most significant cause of death from poisoning in Indonesia in 2019 was caused by animal bites (47.34%), drinks (13.19%), drugs (9.92%), food (7.63%), and chemistry (7.01%). One of the cases of venomous and poisonous animal bites that are handled is a snake bite (Dafa & Suyanto, 2021).

Emergencies are sudden events that require immediate action, which may be caused by natural events, disputes, or events caused by humans. Emergency help can save lives, prevent more severe injuries, speed up recovery, and maintain and revive unconscious persons. First aid is not only needed in natural disasters, but this technique can also help people who have suffered from an accident or trauma (Maria et al., 2021).

First aid immediately assists people with illnesses, injuries/accidents requiring primary medical treatment. The perpetrator in first aid is the person who first arrives at the scene and can be trained in primary medical treatment. The purpose of first aid is to save the patient's life, prevent disability, and provide comfort and support in the healing process (Rini et al., 2019). This study aims to determine some emergencies in agricultural areas and how to provide first aid.

## METHOD

The literature search process in this literature review uses three databases, namely Google Scholar, PubMed, and Science Direct, with a publication year range of 2019-2023. The literature search was carried out using several keywords, such as emergency, agriculture, farmer, and nursing, using the Boolean operator (AND and OR) method. Searching for articles begins with identifying keywords that have been found. At the identification stage, 5,400 articles match the keywords. The next step is to do a screening by selecting the title of the article and the year of publication that fits the research criteria. At the screening stage, 1,840 articles met the assessment criteria. Afterward, articles were filtered according to the inclusion and exclusion research criteria. Three hundred sixty-five articles are suitable with inclusion and exclusion research criteria. The next stage is filtering articles against abstracts to focus articles on research criteria. At this stage, 25 articles met the research criteria. Then, from the 25 articles that have been selected, re-selection of language, research design, outcome, and several other criteria have been determined. Finally, ten articles were determined that matched the research criteria and could proceed to the analysis stage.

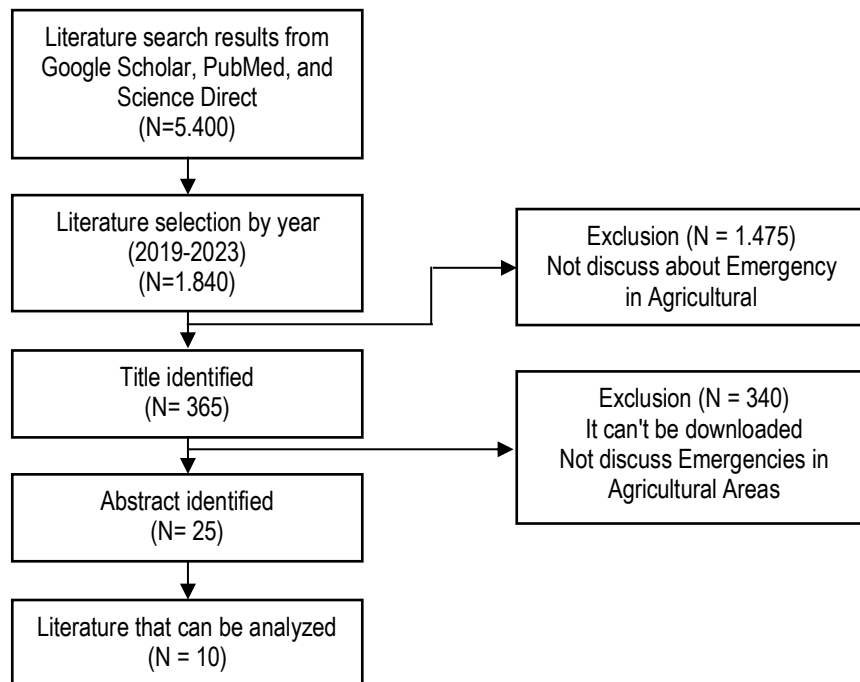


Figure 1. Flow Diagram of Analysis Literature Based on PRISMA (2009)

## RESULT

After searching for articles using article search engines, namely Google Scholar, PubMed, and Science Direct, 5,400 articles were found that matched the keywords. Then, a feasibility assessment was carried out using the PRISMA technique, and ten articles were taken for literature analysis. Ten articles were published from 2019-2023. 4 were in Indonesian, and six were in English. One article discusses the Dangers of Rat Bite Fever. 1 article discusses Organophosphate Poisoning Emergencies, and eight articles discuss Snake Bite Emergencies

Table 1. Result of Literature Review

No	Autor and journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
1.	Author : Billa, F. A. S., Kusumarini, S., Lestari, P. D., Annadhifa, C. L., & Zuhria, F. P. Journal Identity : Media Tropika: Jurnal Pengabdian Masyarakat, 2(13), 13–23	An Overview of Farmer Group's Awareness of The Dangers of Rat Bite Fever and The First Aid Procedure	The purpose of this activity is to determine the level of knowledge and understanding of the people of Pucakwangi, Babat, Lamongan villages before and before the socialization.	This activity was carried out in an exploratory qualitative manner on 20 family heads, members of the Pucakwangi Village Farmer Group.	An exploratory approach to explore more factors that are closely related to the application of first aid in the case of rats to 20 members of the Kelompok Tani Desa Pucakwangi which involves experience and them.	the survey results obtained that often meet with rats in the vicinity of the residence, as well as knowing the results of rat research. Basically all members of the Pucakwangi Village Farmer Group can be taught to start a new habit well, namely the practice of cleaning the home environment and being able to become a doctor themselves or family members if an injury occurs due to rats. Based on the results of the evaluation, the success rate of socialization on the dangers of rats and efforts to prevent RBF and first aid is 90%
2.	Author : Winarti, & Plasay, M. Journal Identity : Pasapua Health Journal, 5(1), 1–5.	Managemen t of Emergency Prehospital Nursing Care Mr. T with Organophosphate Poisoning in the Work Area of Public Safety Center (PSC) 119 Bantaeng Regency: Case Study	To provide an overview and authentic experience of prehospital emergency nursing care management with organophosphate intoxication in the work area of the Public Safety Center (PSC) 119 Bantaeng Regency.	One patient had organophosphate poisoning	used is a case study of prehospital emergency nursing care management with organophosphate intoxication by using a primary survey in providing treatment including Arway, Breathing, Circulation, Disability, and Exposure	Researchers see no gap between the theory and practice of patients with organophosphate intoxication. Recommendation: A public health service system that other regions should imitate in improving health services to the community.
3.	Author : Melli, P., Fikriyanti, & Halimuddin Journal Identity : JIM FKep Volume V No. 3 Tahun 2022, 24(2), 168.	Knowledge About Snake Bite Emergency Treatment Among Nurses	This study aimed to assess the knowledge about snakebite treatment among nurses in Aceh Barat Regency. This study was quantitative research with a descriptive design	total sample of 76 nurses from Cot Seumeureung Community Health Center and Drien Rampak Community Health Center	This study was quantitative research with a descriptive design	The results showed that 39 (51.3%) nurses had good knowledge about snakebite treatment. It is recommended that nurses be able to improve and seek updated information on the emergency treatment of snakebites to provide appropriate treatment for snakebite victims.

No	Autor and journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
4.	Author : Yunanto, R., Wantiyah, Nigitha Novia Permatasari, Siswoyo, & Setioputro, B. Journal Identity : Jurnal Kesehatan dr. Soebandi, 10(1), 53–61.	Self-Awareness Of Farmers In Snakebite Managemen t In Pant District, Jember Regency	The self-awareness measurements against poisonous snake bites still need to be identified.	The sample in this study was 100 farmers in 4 villages in the Pant Subdistrict of Jember.	This was a quantitative descriptive research design with a survey approach	The results showed that farmers in Pant Jember, believed that most snakes in their area were non- venomous, although they still did not know enough about all types of snake species. The farmers also preferred modern treatment methods for snakebite treatment (76%)
5.	Author : Namami, I. Y., Wantiyah, & Yunanto, R. A. Journal Identity : Pustaka Kesehatan, 10(3), 139–145	The Relationship Between Self-Efficacy with Farmer Skill in Performing First Aid on Snake Bites in Pant District, Jember Regency	The purpose of this study was to analyze the relationship between self- efficacy and farmer skills in performing snakebite first aid in Pant District, Jember Regency.	The sample in this study was 100 farmers.	The research design used correlation with a cross-sectional approach. The 100 selected respondents, using the cluster sampling technique, fill out the GSE (General Self- Efficacy) questionnaire and the first aid SOP observation sheet. Data were analyzed using Spearman rank.	The results showed that the respondents' self- efficacy values had a median value of 26 while the median value of respondents' skills was 16. The result of this bivariate analysis showed that there was no significant relationship between self-efficacy and farmer skills with the Spearman correlation value of 0.235 ( $p > 0.000$ )
6.	Author : Yunanto, R. A., Wantiyah, & Afandi, Y. A. Journal Identity : Nursing and Health Sciences Journal (NHSJ), 1(3), 184–192	Description of Snakebite's Prevention Efforts towards Farmers in Panti Sub- District	This study aimed to describe the efforts to prevent snakebite on farmers in the Panti sub- district	This research was conducted on farmers in Panti with a sample of 100 respondents using a cluster sampling technique	The research design is a descriptive quantitative method with a survey research design.	The results of this study showed respondents have known tree crevices, earthen holes, piles of wood, garbage, and twigs that are at risk of becoming snake habitats, use boots and trousers while working, maximize lighting using a lamp or flashlight, regularly mow grass and shrubs, clean up scattered leaves, and rest on higher ground when at home or in the fields.

Cont.....

Cont....

No	Autor and journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
7.	Author : Guthi, V. R., Arepalli, S., Toka, S., Kakamanu, L. B., & Kakamanu, L. S. Journal Identity : International Journal Of Community Medicine And Public Health, 6(6), 2615.	Study on Awareness Regarding Snake Bite Hazards among People Working in the Agriculture Sector and Health Education about Preventive and First Aid Measures	The present study aims to raise awareness about the hazards of snake bites and educate about preventive and first aid measures for snake bites.	The study population includes all the agriculture workers residing in the study area. The sample size calculated was 230	This study was a community- based longitudinal study conducted in 7 villages near Kurnool town.	In this study, 230 agriculture workers participated. Among them, 108 were males, and 122 were females. Most of the study population was in the group of 31-40 years (36.9%). Using a torch during the night was 68.7% it was increased significantly to 83% after health education; using footwear was only 30.4% and increased significantly to 100%; using stick was 76% and increased to 100% significantly
8.	Author : Yunanto, R., & Sulistyorini, L. Journal Identity : Jurnal Kesehatan dr. Soebandi, 9(2), 106–114	A Descriptive Study Of Snakebite Victims At Two Public Hospitals Of Jember.	To describe the snakebite cases in the agricultural area from two public hospitals of Jember.	The sample in this study used 162 medical record data	This was a cohort design with a retrospective approach. Two public hospitals in Jember were selected (dr. Soebandi and Kalisat hospital).	Most snakebite victims were male and were farmers, with a mean age of 40.95. Most victims were bitten in the legs/feet (53.7%). Most victims had mild envenomation (59.9%). Swelling (53,1%), local pain (32,1%), and dizziness (9,4%) were the most common symptoms after the snakebite.
9.	Author : Mansur, M. S., Vasava, M. P., Patel, M. C., Patel, M. K., Pande, M. S., Patel, M. M., Patel, M. H., Boghara, M. C., & Beth, M. Journal Identity : Research & Review: Management of Emergency and Trauma Nursing, 1(1), 1–5.	A Study To Assess The Knowledge Regarding First Aid Measures For Snake Bite Among Farmers In Selected Villages of Bardoli, Gujarat, to develop Instructional Protocol.	To assess the socio- demographic variables, to assess the knowledge level regarding first aid measures of snake bite among farmers, the association between pre- test knowledge score of farmers with selected socio- demographic variables, to develop a self- instructional module on first aid measures for snake bite.	The sample comprised of 60 farmers.	An evaluative research approach with an experimental design was used, and the study was conducted in the village of Bardoli Taluka. The sample was selected by using a convenient sampling technique. Data collection was done from 1st September year. Data was analyzed using Descriptive and Inferential statistics.	The results of the study showed that after the introduction of a self- instructional module, 29 farmers(65.90%) had excellent knowledge, 21 (47.72%) were in the good category, the average was 10 (22.72%), and none had poor knowledge.

Cont.....



Cont....

No	Autor and journal Identity	Journal Title	Objective	Population and Sample	Method	Summary of Result
10.	Author : Ramdan, M., Furqon, N., Fitriani, A., Rahmat, G., Madani, M., Ciamis, M., Banjar, K., Ramdan, M., & Furqon, N Journal Identity : Kolaborasi: Jurnal Pengabdian Kepada Masyarakat 2, 002, 160–174	Assistancy in Nursing Care of Medical Surgical Nursing for Patients with Integument System Problem (Snake Bite) in Anggrek Room, General Hospital of Banjar.	This assistance aims to provide a nursing plan to Mrs. O with a medical diagnosis of snake bite in the Anggrek room at Banjar Hospital in 2022.	One patient had a snakebite.	Assistance activities are carried out by providing nursing care through 5 stages of the nursing process: Assessment, Diagnosis, Nursing Intervention, Nursing Implementation, and Evaluation.	The results showed that the patient's main complaint was pain, and the diagnosis that appeared in the patient was acute pain, after being given nursing actions on January 5, the results showed that the patient said he had relaxed a little.

## DISCUSSION

Based on the first journal discussing how farmers' knowledge of the dangers of rat bites causes Rat Bite Fever and also first aid efforts before the research was carried out most residents needed help understanding how to deal with rat bites. Through the survey, the results showed that the majority often encountered rats around settlements, and the majority already knew the potential for diseases caused by rat bites and also knew that many residents had experienced rat bites.

In the study, it was explained that first aid when bitten by rats included controlling bleeding and, cleaning the wound with warm water, cleaning the area around the wound with soap. The bite wound is then covered with a clean, dry cloth or towel. Giving antibiotic ointment can be done before covering the wound with a plaster. The plaster should be replaced periodically, and the wound should be cleaned first. Penicillin is recommended as the first line of therapy, although tetracyclines may be used for patients with an allergy to  $\beta$ -lactam antibiotics. If left untreated, the disease can persist for weeks or months and has a reported mortality rate of 7 - 13%. After the counseling was carried out, 90% of the residents understanding of RBF prevention stated that they understood very well and the other 10% answered that they did not understand. This shows that there are still residents who are not fully aware of the correct prevention and handling of RBF (Billa et al., 2022).

The second journal focuses on nursing interventions that research 60-year-old men with complaints of organophosphate poisoning. The man was pronounced dead shortly after being evacuated to the hospital. This could be due to an acute cholinergic crisis when parasympathetic muscarinic activity increases. Excessive nicotinic stimulation at the neuromuscular junction causes rapid depolarization with muscle fasciculation followed by receptor blockade, resulting in weakness or paralysis. Paralysis may occur during the acute cholinergic syndrome or several days after the acute cholinergic syndrome. Paralysis can cause respiratory failure. This is a common cause of death in organophosphate poisoning (Winarti & Plasay, 2023).

The third journal discusses how nurses treat patients with snake bites in several ways, including telling the victim to remain calm. The victim must be immediately taken to the hospital in

a safe and comfortable condition, preventing muscle movement near the area as much as possible. Snake bites (can be done by immobilizing bandages) and position the bite area lower than the heart to reduce or minimize the spread of venom and increase systemic absorption of venom. Take a clean cloth soaked in water and gently clean the snake bite wound. There are 3 families of poisonous snakes, namely Hydrophidae, viperidae, and Elapidae. Snake venom can cause regional transformation, such as bleeding tissue swelling due to increased fluid content. Many can cause local changes but are localized to the bitten body (Ramdan et al., 2022). In the case of venomous snake bites, antivenom can be given to help neutralize snake venom. If the snake that bites is not venomous, antibiotic therapy and tetanus prevention can only be given according to indications (Melli et al., 2022).

The results of this study are similar to a study conducted by Subaedi et al. (2018); the majority of respondents stated that if the bitten body must be immobilized, it is not recommended to cut the bite wound and give alcoholic beverages with the aim of relieving pain. These results are also supported by WHO guidelines (2016), which state that if a venomous snake bites someone, the first aid that must be done is to calm the victim, ensure a safe environment, reduce movement, provide a recovery position, do not give any fluids because there is a risk of choking, triggering a heartbeat. Immediately take the victim to the nearest hospital (R. Yunanto et al., 2022).

The rainy season is closely related to agricultural activities, such as farming. This activity will make contact between farmers and snakes even closer. Activities when farming are activities that can cause farmers to become victims of snake bites. The leading food for snakes, such as small reptiles and small mammals, also becomes more active during the rainy season so that snakes will be more active in preying. Most of the victims were bitten on the legs/feet. Legs/feet are the parts of the body most often bitten by venomous snakes (Yunanto & Sulistyorini, 2021).

Treatment of snakebite victims in Jember mainly uses one dose. The first dose of ASV is given immediately after the bite. After the first dose of ASV, the initial dose should be repeated 6 hours later. This option can be made if, within 1 hour, the blood still cannot be coagulated, spontaneous systemic bleeding continues, and there are signs of neurotoxicity. However, if the condition does not worsen after one hour, then 1st dose is sufficient as ASV therapy for the victim, and the victim can continue treatment at home (Yunanto & Sulistyorini, 2021).

As for efforts to prevent snake bites by farmers, this can be done by avoiding putting their hands into holes in the ground, piles of wood, and cracks in twigs (Guthi et al., 2019). This aligns with research by Dafa and Suyanto (2021), which states that snakes are commonly found in tree areas, yards, rice fields, and waterways (Yunanto et al., 2021).

In the study results, it is known that farmers have low self-efficacy and skills. Self-efficacy related to personality will act, such as handling first aid. Belief in the ability to organize actions in the face of threatening situations. In this case, it takes a strong sense of self-confidence to control events in the face of urgent situations, failures, and setbacks that have a significant impact, such as snakebite incidents in the agricultural work environment (Namami et al., 2022). The ninth journal study findings concluded that farmers have adequate knowledge of first aid measures for snake bites. Through self-learning modules, farmers have great potential to accelerate awareness about snakebite first aid measures (Mansur et al., 2019).

## CONCLUSION

Nursing first aid in emergencies in agricultural areas, such as snake bites, which can be done by immobilizing the part of the body that has been bitten, in the event of a rat bite, one which can be done by controlling bleeding and cleaning the wound with warm water, in the event of



drowning, one of them This can be done by rescuing the victim from the water and giving breathing assistance. Nurses can carry out as educators by providing farm workers with knowledge about dealing with emergency events in agricultural areas.

## ACKNOWLEDGEMENT

Thank you to all nursing students from the Faculty of Nursing Universitas Jember in the class of 2021.

## REFERENCES

- Billa, F. A. S., Kusumarini, S., Lestari, P. D., Annadhifa, C. L., & Zuhria, F. P. (2022). Gambaran Pengetahuan Kelompok Tani Terhadap Bahaya Gigitan Tikus Penyebab Rat Bite Fever Dan Upaya Pertolongan Pertama. *Media Tropika: Jurnal Pengabdian Masyarakat*, 2(13), 13–23. <http://ejurnal.undana.ac.id/index.php/mediatropika/article/view/6620>
- Dafa, M. H., & Suyanto, S. (2021). Kasus Gigitan Ular Berbisa di Indonesia. *Jurnal Pengabdian Masyarakat MIPA dan Pendidikan MIPA (JPMMP)*, 5(1), 47–52.
- Guthi, V. R., Arepalli, S., Toka, S., Kakamanu, L. B., & Kakamanu, L. S. (2019). Study on awareness regarding snake bite hazards among people working in agriculture sector and health education about preventive and first aid measures. *International Journal of Community Medicine And Public Health*, 6(6), 2615. <https://doi.org/10.18203/2394-6040.ijcmph20192333>
- Kurniyawan, E. H. et al., (2023). *Buku Ajar Agronursing Pendekatan Asuhan Keperawatan Pada Sektor Agroindustri*. KHD Production.
- Kurniyawan, E. H., Junanda, A. I., Putri H, H. M., Cayani, M. K. D., Afandi, A. T., Kurniawan, D. E., & Rosyidi Muhammad Nur, K. (2023). Ultraviolet Lights Effect on Farmer Health and Productivity: Literature Review. *Nursing and Health Sciences Journal (NHSJ)*, 3(1), 24-31. <https://doi.org/10.53713/nhs.v3i1.169>
- Maria, Y., Gonsalves, D. & Blasius, G. (2021). *Buku Ajar Keperawatan Gawat Darurat*. Media Sains Indonesia.
- Mansur, M. S., Vasava, M. P., Patel, M. C., Patel, M. K., Pande, M. S., Patel, M. M., Patel, M. H., Boghara, M. C., & Beth, M. (2019). A Study To Assess The Knowledge Regarding First Aid Measures For Snake Bite Among Farmers In Selected Villages of Bardoli, Gujarat, With A View To Develop Self Instructional Protocol. *Research & Review: Management of Emergency and Trauma Nursing*, 1(1), 1–5.
- Melli, P., Fikriyanti, & Halimuddin. (2022). Pengetahuan Perawat Tentang Penanganan Kegawatdaruratan Gigitan Ular (Snake Bite). *JIM FKep*, V(3), 168.
- Namami, I. Y., Wantiyah, & Yunanto, R. A. (2022). Hubungan Efikasi Diri dengan Keterampilan Petani dalam melakukan Pertolongan Pertama Gigitan Ular di Kecamatan Panti Kabupaten Jember The relationship between Self-Efficacy with Farmer Skill in Performing First Aid on Snake bites in Panti District, Jember. *Pustaka Kesehatan*, 10(3), 139–145.
- Ramdan, M., Furqon, N., Fitriani, A., Rahmat, G., Madani, M., Ciamis, M., Banjar, K., Ramdan, M., & Furqon, N. (2022). Assistancy in Nursing Care of Medical Surgical Nursing for Patients with Integument System Problem (Snake Bite) in Anggrek Room, General Hospital of Banjar. *Kolaborasi: Jurnal Pengabdian Kepada Masyarakat* 2, 002, 160–174.
- Rini, I. S., Suharsono, T., Ulya, I. & Fathoni, M. (2019). *Pertolongan Pertama Gawat Darurat*. Universitas Brawijaya Press.
- Susanto, T., Purwandari, R., & Wuryaningsih, E. W. (2016). Model Perawatan Kesehatan Keselamatan Kerja Berbasis Agricultural Nursing: Studi Analisis Masalah Kesehatan Petani. *Jurnal NERS*, 11(1), 45. <https://doi.org/10.20473/jn.v11i12016.45-50>

- Winarti, & Plasay, M. (2023). Manajemen Asuhan Keperawatan Prehospital Gawat Darurat Tn. T Dengan Keracunan Organofosfat Di Area Kerja Public Safety Center (PSC) 119 Kabupaten Bantaeng: Studi Kasus. *Pasapua Health Journal*, 5(1), 1–5.
- Yunanto, R. A., Wantiyah, & Afandi, Y. A. (2021). Description of Snakebite's Prevention Efforts Towards Farmers in Panti Sub-District. *Nursing and Health Sciences Journal (NHSJ)*, 1(3), 184–192. <https://doi.org/10.53713/nhs.v1i3.48>
- Yunanto, R., & Sulistyorini, L. (2021). Snakebite Cases in Agricultural Area of Jember: A Descriptive Study of Snakebite Victims at Two Public Hospitals of Jember. *Jurnal Kesehatan dr. Soebandi*, 9(2), 106–114. <https://doi.org/10.36858/jkds.v9i2.286>
- Yunanto, R., Wantiyah, Nigitha Novia Permatasari, Siswoyo, & Setioputro, B. (2022). Self-Awareness Of Farmers In Snakebite Management In Panti District, Jember Regency. *Jurnal Kesehatan dr. Soebandi*, 10(1), 53–61. <https://doi.org/10.36858/jkds.v10i1.340>