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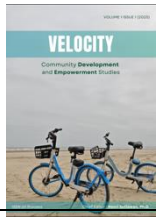

First Aid Education on Burn Injuries in Pekon Sukoharjo 3 Barat: A Community Empowerment Initiative

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Abstract

Introduction: Burns are one of the most common household injuries that require immediate first aid to prevent complications. Communities in rural areas often lack accurate knowledge and rely on traditional methods that may be harmful.

Objective: To improve community knowledge and response in performing first aid for burn injuries in Pekon Sukoharjo 3 Barat.

Method: A community-based intervention using lectures, demonstrations, and interactive sessions with 25 participants in Pekon Sukoharjo 3 Barat. Leaflets, videos, and PowerPoint were used as educational tools. Pre- and post-tests were applied to assess knowledge improvement.

Result: The intervention significantly increased community knowledge. For example, awareness that cold running water should be used as first aid rose from 64% to 84%. Similarly, understanding that applying butter to burns is harmful rose from 76% to 92%.

Conclusion: Health education programs using interactive media improved first aid knowledge and changed harmful traditional practices.

Community Implication: This initiative empowered local communities to respond correctly to burn incidents and laid the foundation for sustainable community-based emergency preparedness programs.

Keyword: First aid, burn injuries, community education, rural health, public health promotion

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Introduction

Burn injuries are among the most frequent types of household accidents in Indonesia, often resulting from direct exposure to fire, hot liquids, electricity, or chemicals. Despite the prevalence, first aid practices for burns in rural communities are still poorly understood. Many residents rely on traditional remedies, such as applying toothpaste, butter, or oil, which may worsen the injury and increase infection risks.

In Pekon Sukoharjo 3 Barat, community assessments revealed a lack of structured health education related to emergency burn care. Local health outreach programs focus primarily on maternal and child health, leaving gaps in broader emergency preparedness. Furthermore, limited access to reliable information—due to low internet penetration and lack of printed health education media—has contributed to persistent misconceptions.

This project was designed as a response to these identified problems. It aimed to introduce evidence-based knowledge through interactive community education sessions. Previous studies have shown that educational interventions can significantly improve knowledge and behavior in health emergencies (Amalia et al., 2021; Tomayahu & Setyaningrum, 2023). Our intervention is expected to provide the tools needed for better first-response actions, while also fostering a culture of proactive community-based health awareness.

Objective

To enhance the knowledge and practical skills of community members in providing first aid for burn injuries through structured educational interventions.

Method

Design and setting

This was a community-based educational intervention conducted in Pekon Sukoharjo 3 Barat, Pringsewu, Lampung, involving a sample of local residents.

Population and sampling

The population in this study consisted of community members residing in Pekon Sukoharjo 3 Barat who were actively involved in local health activities, such as Posyandu and community education forums. Inclusion criteria included adults aged 17 and above, able to read and understand instructions, and willing to participate in both the educational intervention and evaluation stages. Individuals who were unable to attend the entire session or had communication barriers were excluded to ensure consistency in the data collection process.

Sampling was conducted purposively, focusing on individuals who were likely to influence family or neighborhood health behavior, such as housewives, youth leaders, and community health cadres. A total of 25 participants were selected to represent a diverse mix of ages and community roles. This sample size was deemed appropriate for the scope of the program and sufficient for assessing preliminary impact through pre- and post-intervention comparisons.

Instrument and measurement

Knowledge assessment was conducted using a structured questionnaire containing 10 multiple-choice questions. Pre- and post-tests were administered to evaluate the

impact of the intervention. The questionnaire had been validated and tested for reliability in a prior study.

Data collection and analysis

Data collection was carried out in two stages: the pre-test and the post-test. The pre-test was administered prior to the educational intervention to assess the participants' baseline knowledge about burns and first aid treatment. The post-test was conducted immediately after the session to evaluate knowledge improvement. Both tests used the same structured questionnaire consisting of 10 multiple-choice questions. The items measured understanding of burn causes, severity classification, initial handling steps, and common misconceptions. The instrument was reviewed by two academic experts in community nursing to ensure content validity and clarity.

The collected data were analyzed using descriptive statistics. The number and percentage of correct answers in both the pre-test and post-test were calculated and compared to determine the effectiveness of the intervention. Results were presented in frequency distribution tables for each item, enabling identification of knowledge areas with the most significant changes. This analysis provided clear evidence of increased awareness and understanding among participants following the educational activity.

Result

Distribution of knowledge frequencies before first aid counseling on burns

No	Question	True Amount	Percentage
1.	Burns can be caused by contact with fire	20	80%
2.	Burns from hot liquids are called chemical burns	17	68%
3.	Electrical burns can only occur at home	15	60%
4.	Infection is one of the complications that can occur if burns are not treated immediately	18	72%
5.	Burns cannot cause loss of body fluids	16	64%
6.	Symptoms of hypothermia can occur as a result of severe burns	19	76%
7.	Applying butter to burns can speed up healing	19	76%
8	The burn area should be drained with running water for 5-7 minutes	16	64%
9.	Covering burns with a clean cloth is part of first aid	20	80%
10.	First aid for burns includes rinsing the wound area with running water	18	72%
TOTAL RESPONDEN		25	100%

Based on the table above in question 1, as many as 20 respondents (80%) knew that contact with fire was one of the causes of burns. A total of 17 respondents (68%) knew that hot liquids were not one of the causes of burns. As many as 15 respondents (60%) knew that electric burns can occur anywhere, not just at home. A total of 18 respondents (72%) knew that infection is one of the complications of burns if not treated quickly. A total of 16 respondents (64%) knew that burns do not cause loss of body fluids if the burn is severe. A total of 19 respondents (76%) knew that symptoms of hypothermia can occur due to severe burns. As many as 19 respondents (76%) knew that applying butter to the wound would worsen wound healing, as many as 16 respondents (64%) knew that the burn area should be given running water for 5-7 minutes, as many as 20

respondents (80%) knew that burns should be covered with a clean cloth as part of first aid. A total of 18 respondents (72%) knew that the first aid for burns is to rinse with running water

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3.	Electrical burns can only occur at home	19	76%
4.	Infection is one of the complications that can occur if burns are not treated immediately	25	100%
5.	Burns cannot cause loss of body fluids	17	68%
6.	Symptoms of hypothermia can occur as a result of severe burns	24	96%
7.	Applying butter to burns can speed up healing	23	92%
8	The burn area should be drained with running water for 5-7 minutes	21	84%
9.	Covering burns with a clean cloth is part of first aid	23	92%
10.	First aid for burns includes rinsing the wound area with running water	24	96%
TOTAL RESPONDEN		25	100%

Based on the table above, in question 1 as many as 25 respondents (100%) knew that burns can be caused when the skin or hands are exposed to fire directly, as many as 18 respondents (76%) knew that hot liquid is not one of the injuries that cause burns, one of which is fire, as many as 19 respondents (76%) knew that burns can occur only at home, not only at home, As many as 25 respondents (100%) knew that if the opening wound is not treated appropriately, infection or complications will occur if not treated immediately, 17 respondents (68%) knew that burns do not cause fluid loss if they are still in the category of minor burns, as many as 24 respondents (96%) knew that hypothermia symptoms can occur in severe burns, While 23 respondents (92%) knew that applying butter to the burn could not speed up the healing of the wound and instead made the burn worse, as many as 21 respondents (84%) knew that the first treatment of the burn should be in the water stream for 5-7 minutes so that the burn does not cause further damage, as many as 23 respondents (92%) knew that the wound must be covered with a clean cloth is part of the first aid for the burn, And as many as 24 respondents (96%) knew that first aid for burns included rinsing the burn area with running water

Discussion

The findings of this community education program show a marked improvement in the public's knowledge about the correct first aid response for burn injuries. The data from pre- and post-tests demonstrated a substantial increase in awareness, particularly in the understanding that the use of clean, running water is the most effective immediate treatment for burns. Additionally, misconceptions such as the use of butter or toothpaste—which are common in traditional practices—were effectively corrected among most participants.

These outcomes confirm that targeted health education, especially when delivered through interactive and culturally adapted approaches, can significantly shift community behavior and understanding. The educational sessions, which incorporated visual aids, demonstrations, and discussions, enabled participants not only to absorb the material but also to engage with it meaningfully, contributing to stronger knowledge retention.

Compared with previous studies, this program aligns well with findings that structured, short-term interventions can successfully elevate public health literacy. Similar improvements were noted by Amalia et al. (2021) and Tomayahu & Setyaningrum (2023), reinforcing that accessible, community-focused education programs are both practical and impactful, especially in low-resource or rural areas.

The broader implications are equally significant. This program empowered local residents with the capacity to respond quickly and effectively to burn injuries—before professional medical help is available—thereby potentially reducing long-term harm. Moreover, by forming local “first aid ambassadors,” the project built a foundation for sustainability, ensuring that knowledge can continue to spread through peer-led efforts. The integration of materials such as posters, leaflets, and videos (including QR-based access) further supports continued learning and outreach.

Nonetheless, there are limitations to be acknowledged. The sample size was relatively small, and the evaluation focused only on short-term knowledge gains without assessing long-term behavioral change. Furthermore, digital access limitations may hinder full engagement with multimedia tools in some regions.

For future research and community programming, it is recommended to scale up this initiative across multiple villages, include behavior-based assessments, and integrate the program into local health systems. Collaborating with local health authorities could enhance the program's reach and ensure policy-level support.

In conclusion, this study demonstrates that structured, low-cost health education significantly improves first aid knowledge in rural communities. The program not only corrected dangerous misconceptions but also established a model for sustained community resilience in emergency health response.

Restate the Key Findings

The key findings of this study show a significant improvement in the knowledge and understanding of community members in Sukoharjo 3 Barat Village regarding appropriate first aid for burn injuries. Pre- and post-test evaluations revealed that the majority of participants gained accurate information, corrected previously held misconceptions, and became more confident in responding to emergency burn cases. Specifically, awareness that clean running water is the first and most essential step in treating burns increased from 64% to 84%. Similarly, recognition that applying butter or toothpaste is harmful rose from 76% to 92%.

These findings confirm that community-based education, when delivered using interactive and contextual approaches such as demonstrations, visual media, and participatory discussions, can significantly enhance public health literacy. The program succeeded not only in increasing individual knowledge but also in fostering a community-wide shift in how burn injuries are perceived and managed.

Interpret the Results

This intervention illustrates the transformative power of health education when implemented at the grassroots level. Prior to the intervention, community members relied heavily on unscientific and often harmful practices rooted in tradition, such as using toothpaste, oil, or butter to treat burns. These practices, while culturally familiar, are contraindicated and may delay healing or increase the risk of infection.

Post-intervention data showed a clear shift in these behaviors. Participants demonstrated a stronger preference for using water as a primary treatment and were more aware of signs that require medical attention. This behavioral change is crucial in reducing burn-related complications and unnecessary morbidity, particularly in areas with limited access to emergency care services.

Furthermore, the improvement in scores across all test items indicates that the educational content was well-received, understood, and retained. The use of audiovisual tools such as leaflets, posters, and short videos proved particularly effective in conveying messages clearly and memorably, especially to participants with varying literacy levels.

Compare with Previous Studies

The results of this program align with findings from previous research. Amalia, Dewi, and Haryanto (2021) demonstrated that structured health education could significantly improve mothers' knowledge of burn first aid. Although their study employed audiovisual media and ours combined visual tools with demonstrations, both approaches yielded similar improvements in participant understanding.

Similarly, Tomayahu and Setyaningrum (2023) found that short-term educational sessions could bring about substantial increases in knowledge among rural populations. Our findings support their conclusions and further validate the use of participatory, community-based methods in low-resource settings.

These parallels suggest that educational interventions, regardless of the specific medium, are a highly effective tool in modifying community health behavior. Moreover, they emphasize the universality of this approach—it can be replicated in other villages with minimal adaptation.

Highlight the Implications

The implications of this study are far-reaching. Firstly, it demonstrates that improving emergency preparedness at the household level is achievable through low-cost, scalable education programs. By empowering individuals with the right knowledge and skills, communities can respond more effectively to injuries before medical help arrives.

Secondly, the program has led to the formation of first aid ambassadors ("Duta Pertolongan Pertama") within the village. These trained individuals serve as peer educators and can continue disseminating knowledge long after the formal program ends. This model of capacity building fosters community resilience and reduces dependence on external healthcare providers for minor emergencies.

Thirdly, integrating this kind of education into existing community programs—such as Posyandu, school health initiatives, or local health posts—can institutionalize first aid awareness and ensure sustainability. The development of simple yet effective educational materials (leaflets, posters, and videos with QR codes) also supports long-term information dissemination.

On a broader scale, the success of this initiative could inform health policies at the district or provincial level, encouraging replication in other underserved areas. It also highlights the potential role of academic institutions in bridging knowledge gaps and promoting community health through student-led service learning programs.

Discuss the Limitations

Several limitations should be acknowledged. The small sample size (25 people) and lack of a control group limit generalizability. Also, this study only assessed short-term knowledge gain—long-term behavior changes were not tracked. Access to digital content like videos may also be restricted in areas with poor internet.

Suggest Future Research

Further studies should use larger, more diverse samples and assess long-term knowledge retention. Including behavior simulations or expanding the program to multiple villages could provide broader insights. Collaboration with local health authorities may also help institutionalize this model into public health strategies.

Conclusion

This study concludes that structured community education on burn first aid is effective in improving knowledge and emergency preparedness in rural settings. Participants in Sukoharjo 3 Barat showed significant improvements in understanding correct treatment methods, including avoiding traditional remedies and using clean water immediately after injury. This suggests that low-cost, participatory education programs can meaningfully enhance public health behavior and safety in emergency situations.

Community Implication

The outcomes of this program demonstrate that empowering communities through health education can lead to safer first aid responses and reduce preventable complications. The formation of local first aid ambassadors ensures sustainability and creates a ripple effect across families and neighborhoods. This approach can be replicated in other villages and incorporated into regional public health initiatives, contributing to stronger community resilience and preparedness.

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Author Contribution

- Sugiarto: Supervision, methodology development.
- Eko Wardoyo: Literature review, analysis support.
- Dian Arif Wahyudi: Coordination and project guidance.
- Hendra Prasetyo: Field implementation, data collection, manuscript writing.

Conflict of Interest

The authors declare that there is no conflict of interest.

Ethical Clearance

This community engagement activity was reviewed and approved by the Department of Nursing, Universitas Aisyah Pringsewu. Participation was voluntary, and informed consent was obtained from all participants.

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