
Enhancing First Aid Competency among Mining Porters through an Asset-Based Community Development Approach in Jember, Indonesia

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Abstract

Occupational safety in mining environments remains a significant concern, particularly among informal workers such as porters who often lack adequate first aid knowledge and skills. This community service program aimed to improve the competency of porters in handling emergency situations through first aid (P3K) training based on the Asset-Based Community Development (ABCD) approach. The program was conducted in Jember from April 10 to April 15, 2026, involving active porters working in mining areas. The implementation consisted of several stages, including asset identification, needs assessment, training design, and participatory learning activities such as lectures, demonstrations, and simulation-based practice. Data were collected using pre-test and post-test instruments as well as observational assessments of practical skills. The results showed a significant improvement in participants' knowledge, indicated by an increase in the average score from 62 (pre-test) to 88 (post-test). In addition, participants demonstrated improved practical skills and greater confidence in performing first aid procedures during simulation sessions. The application of the ABCD approach contributed to active participation and effective utilization of local assets, enhancing the overall impact of the program. In conclusion, the training program proved to be effective in strengthening both knowledge and skills, while also fostering a safety-oriented culture among porters in mining communities. This approach is recommended for broader implementation in similar high-risk occupational settings.

Keywords

First Aid Training; Asset-Based Community Development; Mining Community; Community Empowerment; Occupational Safety



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INTRODUCTION

Occupational safety remains a critical issue in high-risk work environments, particularly in mining areas where workers are frequently exposed to physical hazards such as falls, injuries, and accidents. Porters, as part of the informal workforce supporting mining operations, often work under challenging conditions

with limited access to formal safety training and emergency response systems. This situation increases their vulnerability to workplace injuries and highlights the urgent need for capacity-building interventions, especially in basic first aid (P3K) competencies.

First aid is a fundamental component of emergency response that can significantly reduce the severity of injuries and prevent further complications when administered promptly and correctly. According to the World Health Organization, timely and appropriate basic emergency care can save lives and minimize disability, particularly in settings where access to professional medical services is limited. However, in many community-based occupational settings, first aid knowledge is often inadequate and largely based on informal practices rather than standardized procedures (Nasution et al., 2020).

Previous studies have shown that structured training programs can effectively improve both knowledge and practical skills related to first aid. For instance, training that integrates demonstrations and simulation-based learning has been proven to enhance participants' understanding and readiness to respond to emergency situations (Thygerson, 2011; Yusra et al., 2021). In addition, the application of experiential learning theory, as proposed by David A. Kolb, emphasizes that learning is more effective when individuals are directly involved in practical experiences, followed by reflection and application.

In the context of community empowerment, the Asset-Based Community Development (ABCD) approach offers a strategic framework for designing sustainable interventions. Introduced by John P. Kretzmann and John L. McKnight, the ABCD approach focuses on identifying and mobilizing existing community assets rather than emphasizing deficiencies. This approach is particularly relevant in community service programs, as it encourages active participation, strengthens local capacity, and promotes long-term sustainability.

Despite the growing recognition of the importance of first aid training and community-based approaches, there is still a lack of structured programs specifically targeting porters in mining environments, especially those that integrate participatory and asset-based methodologies. Most existing interventions tend to focus on formal workers or institutional settings, leaving informal workers underserved.

Therefore, this community service program aims to enhance the knowledge and practical skills of porters in a mining area in Jember through a first aid (P3K) training program based on the ABCD approach. By combining participatory learning

methods with community asset mobilization, this program is expected not only to improve individual competencies but also to foster a culture of safety and collective responsibility within the community.

METHODS

This community service program was conducted in Jember from April 10 to April 15, 2026, targeting porters working in the mining area as the primary beneficiaries. The program aimed to enhance participants' knowledge and practical skills in first aid (P3K) through a structured training approach. The implementation of the program adopted the Asset-Based Community Development (ABCD) approach, which emphasizes the identification and mobilization of existing community assets as the foundation for sustainable development. Rather than focusing on deficiencies, this approach recognizes the strengths, capacities, and local potentials of the community to support empowerment initiatives.

The program was carried out through several stages. First, the discovery stage involved identifying existing assets within the community, including participants' prior experiences, local knowledge, and available informal support systems related to emergency response. This stage was conducted through preliminary observations and informal discussions with participants. Second, the dream stage aimed to explore participants' expectations and aspirations regarding their capacity to handle emergency situations in the mining environment. Participants were encouraged to express their needs and desired competencies in first aid practices.

Third, the design stage focused on formulating the training model based on the identified assets and needs. The training materials were tailored to the mining context, emphasizing practical first aid skills such as wound management, fracture handling, and emergency response procedures. Fourth, the define stage involved the implementation of the training program through a combination of lectures, demonstrations, and hands-on practice sessions. Interactive methods were employed to ensure active participation, including simulations of emergency scenarios relevant to mining activities.

Finally, the destiny stage emphasized sustainability by encouraging participants to apply and disseminate the acquired knowledge within their working environment. Follow-up discussions and reflections were conducted to reinforce learning outcomes and strengthen participants' confidence in performing first aid. Data collection was conducted using pre-test and post-test instruments to measure changes in participants' knowledge, as well as observation sheets to assess practical skills during simulation sessions. The collected data were analyzed descriptively to

evaluate the effectiveness of the training program in improving participants' competencies in first aid.

FINDINGS AND DISCUSSION

FINDINGS

The first aid (P3K) training program for porters in the mining area of Jember was successfully implemented over a six-day period, from April 10 to April 15, 2026. The program was attended by active porters who are directly involved in daily mining operations and are exposed to occupational hazards, making first aid competence highly relevant. Based on the initial assessment conducted during the discovery stage, it was found that most participants had limited knowledge and skills related to first aid management. Although some participants had prior experience dealing with minor injuries, their understanding was largely informal and not based on standardized procedures. This finding highlights the gap between practical experience and proper first aid knowledge, which is crucial in high-risk work environments such as mining areas.

The implementation of the training program, which combined lectures, demonstrations, and hands-on simulations, showed a positive impact on participants' competencies. The results of the pre-test and post-test indicated a significant improvement in participants' knowledge. The average pre-test score was 62, which increased to 88 in the post-test, demonstrating a substantial gain in understanding of first aid principles and procedures. This improvement suggests that the training materials and methods were effective in enhancing cognitive comprehension. In addition to knowledge improvement, participants also demonstrated enhanced practical skills during simulation sessions. Observations showed that participants were able to correctly perform basic first aid procedures, such as wound cleaning and dressing, immobilization of suspected fractures, and initial response to emergency situations. The use of scenario-based simulations that reflected real mining conditions contributed significantly to skill acquisition, as participants were able to directly practice and internalize the procedures.



From the perspective of the Asset-Based Community Development (ABCD) approach, the program successfully leveraged existing community assets, particularly the participants' prior experiences and strong peer collaboration. These assets facilitated a more participatory learning environment, where participants actively shared experiences and supported each other during practice sessions. This aligns with the principle of ABCD, which emphasizes community strengths as a foundation for sustainable development. Furthermore, the program fostered increased awareness and confidence among participants in handling emergency situations. Participants expressed a greater sense of responsibility and readiness to act as first responders within their work environment. This behavioral change indicates that the program not only improved knowledge and skills but also contributed to strengthening the safety culture among porters.



Overall, the results demonstrate that the first aid training program was effective in improving both knowledge and practical skills of porters in the mining area. The integration of the ABCD approach with participatory training methods proved to be a suitable strategy for community empowerment, particularly in occupational health and safety contexts. These findings are consistent with previous studies highlighting that community-based training combined with experiential learning can significantly enhance both competence and confidence in emergency response.

DISCUSSION

The findings of this community service program demonstrate that the first aid (P3K) training significantly improved both the knowledge and practical competencies of porters working in the mining area. This improvement can be attributed to the integration of participatory training methods with the Asset-Based Community Development (ABCD) approach, which emphasizes the utilization of existing community strengths as the foundation for learning and empowerment. One of the key factors contributing to the success of the program was the

contextualization of training materials to the participants' working environment. Unlike conventional training models that often rely heavily on theoretical delivery, this program incorporated real-life scenarios commonly encountered in mining activities. This contextual relevance enabled participants to more easily understand and internalize first aid procedures, thereby enhancing both retention and application of knowledge. Such findings are consistent with experiential learning theory, which suggests that knowledge is more effectively constructed through direct experience and reflection.

Moreover, the significant increase in post-test scores indicates that structured training combined with interactive methods—such as demonstrations and simulations—can effectively bridge the gap between informal knowledge and standardized first aid practices. Prior to the intervention, participants relied largely on instinct and experience when handling injuries. However, after the training, they demonstrated a more systematic and procedural approach, reflecting a shift from unstructured responses to evidence-based practices. This transformation is particularly important in high-risk environments, where improper handling of injuries may lead to more severe consequences. From the perspective of the ABCD approach, this program successfully identified and mobilized local assets, including participants' prior experiences, peer support systems, and strong sense of community. These assets played a crucial role in fostering active participation and collaborative learning. Rather than positioning participants as passive recipients, the program encouraged them to become co-creators of knowledge by sharing experiences and engaging in problem-solving during simulation sessions. This participatory dynamic not only enhanced learning outcomes but also strengthened social cohesion among participants, which is essential for sustaining safety practices in the workplace.

In addition, the observed increase in participants' confidence reflects an important behavioral outcome of the training. Confidence is a critical factor in emergency response, as hesitation or uncertainty can delay necessary interventions. By providing repeated practice opportunities in a safe learning environment, the program helped participants develop both competence and self-efficacy. This aligns with previous findings that skill-based training combined with simulation can significantly improve readiness to respond in emergency situations. However, despite these positive outcomes, several limitations should be acknowledged. The duration of the program was relatively short, which may limit the long-term retention of knowledge and skills. Additionally, the evaluation primarily focused on

immediate post-training outcomes, without assessing long-term behavioral changes in real emergency situations. Therefore, future programs should consider incorporating follow-up evaluations and continuous mentoring to ensure the sustainability of the impact.

Overall, this study highlights that community-based first aid training, when designed using the ABCD approach and supported by experiential learning methods, can serve as an effective strategy for enhancing occupational safety in mining communities. The program not only improved individual competencies but also contributed to the development of a more responsive and safety-aware community. This model has the potential to be replicated in other high-risk community settings with similar characteristics.

CONCLUSION

The first aid (P3K) training program for porters in the mining area of Jember was effective in improving participants' knowledge and practical skills in handling emergency situations. The significant increase in post-test scores, along with improved performance during simulation sessions, indicates that the training successfully enhanced both cognitive understanding and technical competencies. The application of the Asset-Based Community Development (ABCD) approach played a crucial role in the program's success by leveraging existing community assets, such as prior experience and peer collaboration. This approach fostered active participation and created a more meaningful and contextual learning process. In addition, the use of interactive methods, including demonstrations and scenario-based simulations, contributed to increased confidence and readiness among participants to act as first responders in their work environment. Overall, this program not only strengthened individual capacities but also contributed to promoting a culture of safety within the mining community. Therefore, similar community-based training programs are recommended to be implemented sustainably and on a broader scale, particularly in high-risk occupational settings, to ensure long-term impact and improved workplace safety.

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