

**ORIGINAL RESEARCH**

**Effect of Family Resilience Training on the Improvement of Parents' Knowledge, Skills, and Perceptions in the Kiddos Explorer Community**

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**Abstract**

Family resilience training in facing health emergencies and critical situations (~~K5~~) is essential to prevent delays in handling emergencies within the household. This study aimed to improve the knowledge, skills, and perceptions of parents in the Kiddos Explorer Medan community regarding family preparedness for emergency situations. The training consisted of two sessions—lecture and practice—covering basic life support (BLS), first aid for wounds, fainting, and choking. A total of 40 parents who met the inclusion criteria and agreed to participate in all sessions were included. Data were collected using pre- and post-test questionnaires across three domains: knowledge, skills, and perception. Statistical analysis was performed using the Wilcoxon Signed Ranks Test. The results showed a significant improvement in all domains ( $p=0.000$ ). Knowledge increased from a predominantly low category to 45% high, skills improved from 87.5% low to 100% high, and perception rose from 100% moderate to 100% high. These findings indicate that community-based K5 training is effective in enhancing family preparedness for emergencies. This program may serve as a model for strengthening community-based family resilience and can be replicated in other communities. This study addressed the gap in integrated family-focused emergency preparedness training and offered a novel assessment of simultaneous improvements in knowledge, skills, and perception.

**Keywords:** basic life support, emergency preparedness, family resilience, K5 training, Kiddos Explorer

## INTRODUCTION

Family resilience is a fundamental foundation in facing various forms of threats, particularly in the context of health and emergencies<sup>(1)</sup>. The COVID-19 pandemic has tested families' responsiveness to global health crises<sup>(2)</sup>, emphasizing the need for robust, community-based preparedness systems<sup>(3)</sup>. Within the framework of national development, family resilience is a strategic issue since the family serves as the basic social institution that upholds societal stability<sup>(4)</sup>.

Household emergencies such as burns, choking, falls, or poisoning require rapid intervention before medical help arrives<sup>(5)</sup>. Activities involving children, such as traveling or sports, also carry risks of acute incidents like dehydration, trauma, or even stroke<sup>(6)</sup>. The WHO reported that falls are the leading cause of fatal household injuries, accounting for hundreds of thousands of deaths each year<sup>(7)</sup>.

The Kiddos Explorer Medan community consists of parents engaged in experiential education through hiking, nature exploration, and children's sports. However, many members have not received formal training in basic life support (BLS) or first aid (FA), despite the high-risk nature of their activities. Preliminary assessments revealed that most parents experienced anxiety and confusion when facing emergency

incidents<sup>(8,9)</sup>.

Such training has been proven to enhance family preparedness in responding to emergencies, as demonstrated by studies in RW Kapasa, Makassar, and Purwokerto, which showed significant improvements in knowledge after health education sessions<sup>(10,11)</sup>. Community interventions are considered effective strategies, as Beidas et al. highlighted that locally based community approaches strengthen self-reliance and social networks<sup>(12)</sup>.

Family resilience is influenced by multiple factors, including social support, chronic stressors, family developmental stages, and coping capacity<sup>(13,14)</sup>. In this context, the K5 training (*Pelatihan Ketahanan Keluarga dalam Kesiapsiagaan Kesehatan dan Kegawatdaruratan Keluarga* or Family Resilience Training in Health and Emergency Preparedness) is a structured program that integrates both preventive and responsive components through simulation-based training. This approach aims to enhance families' abilities to recognize early signs of health emergencies, provide initial responses such as basic life support, and coordinate timely access to medical care<sup>(7,15)</sup>.

Zaenal et al. reported that such training effectively improves parents' practical skills and readiness within the household setting<sup>(7)</sup>. Therefore, strengthening K5-based preparedness among parents is essential to reduce morbidity and mortality caused by

delayed response in household emergencies.

Despite growing evidence on community-based emergency education, most existing programs focus on general public preparedness or school-based interventions, while structured family-focused emergency preparedness training (such as K5) has rarely been evaluated, especially in active parent communities engaging in high-risk outdoor activities such as the Kiddos Explorer group. Previous studies primarily assessed knowledge outcomes, with limited evidence on the simultaneous improvement of knowledge, practical skills, and perception within a single intervention model.

This gap highlights the need for a comprehensive, simulation-based family resilience program tailored to community characteristics. Therefore, the novelty of this study lies in its integrated assessment of three domains, knowledge, skills, and perceptions, following a structured K5 training intervention within an experiential-learning parent community. The objective of this study is to determine the effect of K5 training on parents' preparedness in managing household health emergencies.

## METHOD

This study employed a pre-experimental design with a one-group pre-test–post-test approach. The sample consisted of parents who were active members of the Kiddos Explorer Medan community and met the

inclusion criteria: a minimum education level of high school, having school-aged children, and active participation in nature-based or sports activities<sup>(7,15)</sup>.

The research procedure included four main stages: (1) participant identification and orientation, (2) completion of the pre-test questionnaire, (3) implementation of K5 training consisting of theoretical and practical sessions, and (4) completion of the post-test. The training was conducted in two 60-minute sessions covering basic life support (BLS), management of choking, wounds, and fainting, following a community-based training module<sup>(16,17)</sup>.

The research instruments included informed consent, a demographic questionnaire, and the K5 evaluation questionnaire consisting of three domains: knowledge, skills, and perception. The validity and reliability of the instruments had been tested in previous studies<sup>(18)</sup>. Data collection was carried out using Google Forms, and the results were analyzed using statistical software. The Wilcoxon Signed Ranks Test was applied since the data were not normally distributed<sup>(7,15,19)</sup>.

## RESULTS

This study was carried out according to the first-year implementation schedule, focusing on assessing the effect of K5 training on improving parents' knowledge, skills, and perceptions within the Kiddos Explorer

community. The training consisted of two sessions, including theoretical and practical components related to health and emergency preparedness. Members of the research team also monitored participants' engagement and involvement throughout the sessions. A total of 40 parent respondents actively participated in all stages of the program. Before and after the training, measurements were conducted using a questionnaire instrument covering three main domains: knowledge, skills, and perception. Statistical analysis revealed a significant improvement in all three measured aspects.

#### A. Distribution of Questionnaire Results Based on Knowledge Level Before and After Training

The results showed the distribution of parents' knowledge levels before and after participating in the K5 training, as presented below:

**Table 1. Distribution of Parents' Knowledge Levels Before and After K5 Training**

Score	Pre-test		Post-test	
	n	%	n	%
10-19	0	0.0	0	0.0
20-39	0	0.0	0	0.0
40-59	22	55.0	0	0.0
60-79	18	45.0	28	55.0
80-100	0	0.0	12	45.0

The study revealed a significant

improvement in parents' knowledge regarding Family Health and Emergency Preparedness (K5) after participating in the training. Before the intervention, the majority of respondents (55%) were in the low knowledge category (score 40–59), while the remaining 45% were in the moderate category (score 60–79). None of the respondents achieved a high level of knowledge (score 80–100) prior to the training. This finding indicates that parents' understanding of K5 before the intervention was still limited and had not reached an optimal level.

After the training, a remarkable shift in distribution was observed. No respondents remained in the low or very low categories, suggesting that the training successfully elevated all participants to at least a moderate level. A total of 55% of respondents reached the moderate category (score 60–79), while 45% achieved the high category (score 80–100). This improvement reflects the success of the K5 training program in enhancing parents' awareness and understanding of family preparedness in responding to health emergencies.

These findings align with those of Susihar and Kholaso (2023), who reported that health education interventions significantly improved family preparedness against household food poisoning risks. Likewise, Zaenal et al. (2025) demonstrated that theoretical and practical family first-aid training markedly enhanced participants'

knowledge and readiness in managing household emergencies.

### **B. Distribution of Questionnaire Results Based on Skills Level Before and After K5 Training**

Skill assessment was conducted using the K5 evaluation questionnaire, which measured respondents' ability to apply health and safety principles during emergencies (as presented in table 2).

**Table 2. Distribution of Parents' Skills Levels Before and After K5 Training**

Score	Pre-test		Post-test	
	n	%	n	%
10-19	0	0.0	0	0.0
20-39	0	0.0	0	0.0
40-59	35	87.5	0	0.0
60-79	5	12.5	0	0.0
80-100	0	0.0	40	100.0

The data indicated a highly significant improvement in parents' skill levels related to Family Health and Emergency Preparedness (K5) after participating in the training. Before the intervention, the majority of respondents (87.5%) were categorized as having low skills (score 40–59), while the remaining 12.5% were in the moderate category (score 60–79). None of the participants reached the high skill level (score 80–100). This finding suggests that prior to the training, most parents lacked sufficient practical abilities to effectively

respond to health emergencies within the household.

After the training, all respondents (100%) successfully achieved the high skill category (score 80–100). This complete transformation demonstrates the overall success of the training program in enhancing parents' practical competencies—particularly in performing first aid, recognizing emergency signs, and executing prompt responses in critical situations.

The significant improvement in skills is likely attributed to the hands-on training methods applied, such as first aid simulations, role-playing scenarios for managing sick children, and the use of training aids including manikins and educational posters. As noted by Zaenal et al. (2025), simulation-based training has proven effective in improving families' practical skills in handling household emergencies<sup>7</sup>.

### **C. Distribution of Questionnaire Results Based on Perception Levels Before and After K5 Training**

Perception assessment was conducted using the K5 evaluation questionnaire, which measured respondents' attitudes and views regarding the importance of applying health and safety principles (K3) in daily life. The study results showed the distribution of parents' perception levels before and after

participating in the K5 training, as presented below:

**Table 3. Distribution of Parents' Perception Levels Before and After K5 Training**

Score	Pre-test		Post-test	
	n	%	n	%
10-19	0	0.0	0	0.0
20-39	0	0.0	0	0.0
40-59	0	0.0	0	0.0
60-79	40	100.0	0	0.0
80-100	0	0.0	40	100.0

The findings revealed that prior to the implementation of the K5 training, all respondents (100%) were in the *moderate perception* category (scores 60–79). None of the participants demonstrated either low or high levels of perception regarding the importance of family preparedness in health and emergency situations. This indicates that before the training, although parents possessed a baseline awareness, they did not yet fully understand or internalize the urgency and tangible benefits of comprehensive K5 preparedness.

After the training, however, a significant shift was observed. All respondents (100%) moved into the *high perception* category (scores 80–100), with none remaining in the moderate or low categories. This finding demonstrates that the training not only succeeded in transferring knowledge and improving skills but also effectively changed the participants' mindset and beliefs about the importance of family preparedness in

responding to health and emergency conditions at home.

Data analysis began with normality testing using the Kolmogorov–Smirnov and Shapiro–Wilk tests for each variable. The results showed that all data had a significance value (Sig.) < 0.05, indicating non-normal distribution. Therefore, further analysis was conducted using the Wilcoxon Signed Ranks Test, a non-parametric method used to compare differences between pre-test and post-test scores.

**Table 4. Results of Normality Test**

Variable	Kolmogorov-Smirnov Statistic	Kolmogorov-Smirnov Sig.	Shapiro-Wilk Statistic	Shapiro-Wilk Sig.	N	Conclusion
Pre-test (knowledge)	.164	.008	.916	.006	40	Non-normal
Post-test (Knowledge)	.167	.007	.916	.006	40	Non-normal
Pre-test (skills)	.221	.000	.864	.000	40	Non-normal
Post-test (Skills)	.222	.000	.880	.001	40	Non-normal
Pre-test (Perception)	.217	.000	.882	.001	40	Non-normal
Post-test (Perception)	.227	.000	.801	.000	40	Non-normal

Since the normality assumption was not met, further analysis was conducted using a non-

parametric test, namely the Wilcoxon Signed Ranks Test, to examine the differences between pre-test and post-test scores. The Wilcoxon test is more appropriate when data do not meet the criteria for normal distribution and is used to compare two related or paired measurements. The following are the Wilcoxon test results for each aspect:

**Table 5. Wilcoxon Test**

Variable	Z-Score	Asymp.Sig. (2-tailed)	Interpretation
Pre & Post-test of Knowledge	-4.031	0.00	Significant
Pre & Post-test of Skills	-4.034	0.00	Significant
Pre & Post-test of Perception	-4.038	0.00	Significant

Based on the results of the Wilcoxon Signed Ranks Test, a significance value of 0.000 was obtained for all aspects. This indicates that the K5 training had a significant impact on improving participants' knowledge, skills, and perceptions. All participants showed an increase in their scores, with no cases of decline or stagnation, further confirming the effectiveness of the training program.

The results of this study demonstrated that K5 training significantly improved all three

domains assessed—knowledge, skills, and perception of family preparedness ( $p = 0.000$ ). These findings are consistent with Susihar and Kholaso, who reported that family-centered education effectively enhances understanding of household health risks<sup>(1)</sup>.

The significant increase across all domains indicates not only knowledge acquisition but also behavioral and attitudinal shifts, reflecting the effectiveness of experiential and simulation-based learning. The uniform improvement in skill scores (100% post-test) suggests that hands-on practice plays a crucial role in consolidating emergency response capabilities, supporting prior literature emphasizing the superiority of practical over theoretical methods in first-aid training. Moreover, the shift in perception from moderate to high demonstrates that training influences parents' risk appraisal and perceived self-efficacy—two core constructs of the Health Belief Model and essential drivers of preventive action. These findings collectively imply that the K5 program strengthens both preparedness and psychological readiness, positioning it as a comprehensive framework for family-centered resilience<sup>(10)</sup>.

Participants' knowledge improved from low to high categories among most respondents, aligning with findings from Purwokerto and Sumedang, where post-first aid training showed substantial increases in comprehension<sup>(3,4)</sup>. The marked

improvement in skills is also in line with studies by Zaenal et al. and Zukhri et al., emphasizing that hands-on and simulation-based training are essential for developing reflexive emergency responses<sup>(7,16)</sup>.

In terms of perception, participants shifted from moderate to high categories. According to the Health Belief Model, changes in perceived vulnerability and health benefits are major drivers of preventive behavior<sup>(11)</sup>. Greater awareness correlates with proactive measures, such as preparing first aid kits, pursuing further training, and creating household emergency response plans<sup>(18)</sup>.

This training also fostered positive cultural change within families—becoming more organized, alert, and responsive. Lestari et al. and Coleman et al. similarly reported that community-based training can cultivate internal family emergency systems, including clear role distribution and logistical readiness<sup>(14,18)</sup>.

Furthermore, the involvement of the local community and facilitators supported the sustainability of the intervention. FEMA and Beidas et al. highlighted that local integration is critical for strengthening community-based preparedness capacity. The participants' enthusiasm and willingness to become peer trainers reflected an early form of community empowerment<sup>(12,20,21)</sup>.

This study contributes to the advancement of emergency preparedness education by demonstrating that a structured, community-based K5 program can simultaneously enhance cognitive, psychomotor, and affective domains among parents. The findings provide empirical support for developing scalable models of family-centered emergency preparedness training that can be integrated into community empowerment programs, school–parent collaborations, and disaster-risk-reduction initiatives. The practical benefits include improved parental confidence, faster initial response during household emergencies, and potential reduction in morbidity associated with delayed treatment. These results highlight promising prospects for adopting K5 modules across similar parent communities, public health centers, and disaster-prone regions as part of long-term resilience-building strategies.

Although this study demonstrated significant improvements across all measured domains, several limitations should be acknowledged. First, it was conducted as a single-center study involving only members of the Kiddos Explorer community, which limits the generalizability of the findings to broader populations with more diverse social and educational backgrounds. Second, the relatively small sample size (40 respondents) may reduce the statistical power and representativeness of the results. Third, the evaluation was performed within a short period after the

training, preventing assessment of the long-term sustainability of the learning outcomes. Fourth, although the skills domain was evaluated, it relied on a self-administered questionnaire rather than direct observation, potentially introducing subjective bias in participants' self-perceived abilities. Therefore, future studies involving multi-center settings, larger samples, objective skill assessments, and long-term follow-up are recommended to enhance the validity and reliability of findings regarding the effectiveness of the K5 training program.

## CONCLUSION

The K5 training program effectively improved parents' knowledge, skills, and perception regarding household health and emergency preparedness. Significant increases were observed across all domains after the intervention, highlighting the program's success in enhancing family readiness for medical emergencies. Continued implementation and broader application of such training are recommended to strengthen community-level resilience and preparedness.

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