Knowledge and Perception of Emergency Management: A Comparative Cross-Sectional Study Between Health and Non-Health Students at Universitas Muhammadiyah Yogyakarta

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Abstract. Emergency situations that are not handled appropriately and promptly increase the risk of complications and death. Appropriate handling of emergencies requires a positive perception and a good level of first aid knowledge. The purpose of this study is to analyze differences in knowledge levels, perceptions of emergency care management, and the relationship between demographic factors and knowledge levels and perceptions among health and non-health students. The method used is descriptive analytical with a cross-sectional design, conducted from September to December 2024 at Muhammadiyah University of Yogyakarta. The study population consisted of active undergraduate students from the 2020-2023 cohorts for the 2023/2024 academic year. The sample comprised 328 health students and 376 non-health students, calculated using the Lemeshow formula. The inclusion criteria were active undergraduate students in regular health and non-health programs from the 2020-2023 cohort in the 2023/2024 academic year. The instrument used was a questionnaire with knowledge assessment divided into good, adequate, insufficient, and positive and negative perceptions. The relationship analysis used the Chi-square test, while differences were analyzed using the Mann-Whitney test. The majority of respondents were aged 19–21 years. Health students were predominantly female (64%), while non-health students were predominantly male (51.5%). The largest cohorts were 2023 (health) and 2021 (non-health). Health students had more organizational and training experience. The level of knowledge about emergency care among health students (76.4%) was better than that of non-health students (23.9%) (p-value < 0.001). The majority of health respondents (53.8%) and non-health respondents (56%) had positive perceptions, with no significant difference (p-value: 0.524). Demographic factors significantly associated with knowledge levels include gender, educational level, and organizational experience. Perceptions are influenced by gender, training, organizational experience, and educational level. The relationship between knowledge and perception was significant among non-health students (p-value: 0.000), but not significant among health students (p-value: 0.702). In conclusion, health students have better knowledge, and demographic factors are significantly associated with knowledge levels.

Keywords: emergency care, knowledge level, perception, demographic factors.

INTRODUCTION

According to The Disease Control Priority, effective emergency measures can save lives and prevent disability in low- and middle-income countries(WHO, 2024). Emergency conditions requiring first aid include cases of choking, accidents, snake bites, fainting, seizures, and injuries (Yulita et al., 2023). Emergency situations that are not properly addressed in a timely manner increase the risk of complications and death (Intan Permatasari Situmorang & Dety Mulyanti, 2023). According to research by Bashekah et al (2023), the average level of emergency knowledge among the Saudi Arabian population is moderate (55%), while the most common conditions requiring assistance are choking (63.2%), difficulty breathing (61.7%), and fainting (56.7%) (Bashekah dkk., 2023).

Emergency situations can occur anytime and anywhere, including within the University of Muhammadiyah Yogyakarta. In 2024, the University of Muhammadiyah Yogyakarta introduced a new program called the Emergency-Friendly Campus or Campus Code Blue System (Universitas Muhammadiyah Yogyakarta, 2024). This highlights the importance of conducting research to analyze students' knowledge and perceptions regarding emergency response. Emergency situations require immediate first aid before being transported to a healthcare facility to enhance treatment success and reduce complications (Wang & Wu, 2022). According to research by Basuhail et al. (2022), the level of emergency knowledge among health students is 44.05%, while non-health students have a lower level at 33.02%. Health students have a higher level of knowledge compared to non-health students because they have received formal education in this area (Handayani & Kusuma, 2013).

Perception is influenced by an individual's level of knowledge. The higher the level of knowledge, the more positive the perception (Tolouei et al., 2024). Nursing students' perceptions regarding the importance of providing first aid in emergencies showed results of 67.86% for wounds, while epilepsy, fractures, burns, nosebleeds, and fainting were below 50% (Vishma et al., 2014). The level of knowledge can be influenced by demographic factors. According to research by Laili et al. (2021), education influences the level of knowledge with a p-value of 0.000 <0.05. Higher levels of education will influence an individual's level of knowledge. Higher education will influence an individual's ease in receiving information. Age significantly influences the level of knowledge with a p-value of 0.000 < 0.05, as knowledge can be gained from personal experience that increases with age (Laili dkk., 2021).

The level of knowledge, perception, demographic factors, and the relationship between knowledge level and perception among health and non-health students at Muhammadiyah University Yogyakarta are important to study, so that they can be used as an evaluation for the university regarding the level of student knowledge.

MATERIAL AND METHODS

The method used in this study was descriptive analytical with a cross-sectional design conducted from September to December 2024 at Muhammadiyah University Yogyakarta. The research sample consisted of Muhammadiyah University Yogyakarta students with the inclusion criteria, namely active students from the 2020-2023 academic years of the 2023/2024 academic year in the regular undergraduate program. The sample size was calculated using the Lemeshow formula with a system random sampling method, resulting in 328 health students and 376 non-health students. This study used a questionnaire instrument with 15 statements for the perception questionnaire and 37 statements for the knowledge level questionnaire. The questionnaire used had been tested for validity and reliability in previous studies. The assessment of the perception questionnaire was calculated using the median of the questionnaire completion analysis results. Respondents with scores ≥ the median were considered to have positive perceptions, while those with scores < the median were considered to have negative perceptions. The knowledge level questionnaire assessment used the percentage of correct answers, which were divided into several categories: good (>75%), adequate (>56%), and poor (<56%). Univariate analysis was conducted to analyze the distribution of respondent demographic data. Meanwhile, bivariate analysis used the Chi-square test.

RESULTS

A. Respondent Characteristics

This study was conducted at Muhammadiyah University Yogyakarta with a sample size of 331 health students and 507 non-health students. The characteristics of the respondents in this study are as follows:

Table 1. Respondent Characteristics

Variable	Characteristics	Health		Non-health	
		n	%	n	%
Age (years)	<19	0	0%	7	1,4%
	19-21	306	92,4%	297	58,6%
	>21	25	7,6%	203	40,0%
Total		**331**	100%	**507**	**100%**
Gender	Man	119	36%	261	51,5%
	Women	212	64%	246	48,5%
Total		**331**	**100%**	**507**	**100%**
Education Level	2020	12	3,6%	105	20,7%
	2021	103	31,1%	172	33,9%
	2022	99	29,9%	112	22,1%
	2023	117	35,3%	118	23,3%
Total		**331**	**100%**	**507**	**100%**
Organization	Yes	246	74,3%	46	9,1%
	No	85	25,7%	461	90,9%

Variable	Characteristics	Health		Non-health	
		n	**%**	**n**	**%**
Total		**331**	**100%**	**507**	**100%**
Training	Yes	272	82,2%	82	16,2%
	No	59	17,8%	425	83,8%
Total		**331**	**100%**	**507**	**100%**

The majority of health and non-health students participating in the study were aged 19–21 years, comprising 306 health students (92.4%) and 297 non-health students (58.6%). Among health students, female respondents (212, 64%) outnumbered male respondents (119, 36%). Meanwhile, among non-health students, male respondents (261, 51.5%) outnumbered female respondents (246, 48.5%). The 2023 cohort of health students had the highest number of questionnaire respondents, totaling 117 students (35.3%), while among non-health students, the highest participation was from the 2021 cohort, with 172 students (33.9%). A total of 246 health students (74.3%) had participated in organizations related to emergency response, while in emergency response training, 272 respondents (82.2%) reported having participated in such activities. In contrast to health students, the majority of non-health students, 461 respondents (90.9%), had never participated in organizations related to emergency response. Regarding participation in training, the majority of non-health students, 425 respondents (83.8%), have never received or participated in training related to emergency response.

B. Level of Knowledge of Emergency Management

The level of knowledge of students was calculated based on the percentage of correct answers. A score of less than 56 was classified as a low level of knowledge, 56 to 75 indicated an adequate level of knowledge, and 76 to 100 indicated that students had a good level of knowledge. The distribution of the results of the significance test of the level of knowledge of emergency management between health and non-health students is shown in Table 2.

Table 2. Level of Knowledge

Level of Knowledge	Health		Non-Health		*p-value*
	n	**%**	**n**	**%**	
Good	253	76,4%	121	23,9%	**<0,001**
Adequate	64	19,3%	258	50,9%	
Low	14	4,2%	128	25,2%	
Total	**331**	**100%**	**507**	**100%**	

Based on the Mann Whitney Test analysis, there was a significant difference in the level of knowledge between health and non-health students (p-value: <0.001). The majority of health students had a good level of knowledge, with 253 respondents (76.4%), while the majority of non-health students had a sufficient level of knowledge, with 253 respondents (50.9%).

C. Students' Perceptions of Emergency Management

The results of the analysis of the perceptions of health and non-health students are shown in table 3.

Table 3. Student's Perceptions of Emergency Management

Student's Perceptions	Health		Non-Health		*p-value*
	n	**%**	**n**	**%**	
Positive	178	53,8%	284	56%	**0,524**
Negative	153	46,2%	223	44%	
Total	**331**	**100%**	**507**	**100%**	

Based on the analysis, it was found that both health and non-health students had positive perceptions of emergencies. Positive perceptions among health students were found in 178 respondents (53.8%), while among non-health students, 284 respondents (56%) had positive perceptions. The process of forming perceptions can be influenced by individual factors, environmental factors, and inhibiting factors.

D. The Relationship Between Demographic Factors and Knowledge Levels

Based on research by I Nengah, et al (2020), student ages were classified into three categories: <19 years, 19-21 years, and >21 years. The majority of health and non-health respondents were in the 19-21 age range. The results of the analysis of the relationship between age and level of knowledge of emergency treatment are shown in table 4.

Table 4. Relationship between Age and Knowledge Level

Level of Knowledge	Age (years)	Health		Non-Health	
		n	%	n	%
Good	<19	0	0%	3	2,5%
	19-21	234	92,5%	60	49,6%
	>21	19	7,5%	58	47,6%
Total		**253**	**100%**	**121**	**100%**
Adequate	<19	0	0%	4	1,6%
	19-21	58	90,6%	155	60,1%
	>21	6	9,4%	99	38,4%
Total		**64**	**100%**	**258**	**100%**
Low	<19	0	0%	0	0%
	19-21	14	100%	82	64,1%
	>21	0	0%	46	35,9%
Total		**14**	**100%**	**128**	**100%**
p-value			**0,596**		**0,077**

The majority of health students with good knowledge (234 students, 92.5%), adequate knowledge (58 students, 90.6%), and insufficient knowledge (14 students, 100%) were aged 19–21 years. Similarly, among non-health science students, 60 respondents (49.6%) had good knowledge, 155 respondents (60.1%) had adequate knowledge, and 82 respondents (64.1%) had insufficient knowledge, all of whom were aged 19–21 years.

Table 5. Relationship between Organization and Level of Knowledge

Level of Knowledge	Organization	Health		Non-Health	
		n	%	n	%
Good	Yes	207	81,8%	11	9,1%
	No	46	18,2%	110	90,9%
Total		**253**	**100%**	**121**	**100%**
Adequate	Yes	28	43,8%	14	5,4%
	No	36	56,3%	244	94,6%
Total		**64**	**100%**	**258**	**100%**
Low	Yes	11	78,6%	21	16,4%
	No	3	3%	107	83,6%
Total		**14**	**100%**	**128**	**100%**
p-value			**<0,001**		**0,002**

Based on the results of the chi-square test, it was found that the level of knowledge of students was influenced by their experience in participating in emergency organizations. The relationship between the level of knowledge and organizational experience was proven through a p-value <0.001 for health students and a p-value of 0.002 for non-health students.

Table 6. Relationship between Training and Level of Knowledge

Level of Knowledge	Training	Health		Non-Health	
		n	%	n	%
Good	Yes	203	80,2%	24	19,8%
	No	50	19,8%	97	80,2%
Total		**253**	**100%**	**121**	**100%**
Adequate	Yes	56	87,5%	36	14,0%
	No	8	12,5%	222	86,0%
Total		**64**	**100%**	**258**	**100%**
Low	Yes	13	92,9%	22	17,2%

			No	1	7,1%	106	82,8%
		Total		**14**	**100%**	**128**	**100%**
		p-value			**0,309**		**0,328**

The respondents who most frequently participated in emergency training were health students, while fewer non-health students had participated in emergency training. Among health science students, the level of knowledge was good among those who had participated in training, with 203 out of 272 respondents who had participated in training, while the level of knowledge was good among those who had never participated in training, with 48 out of 59 students who had never participated in training. The analysis results showed that training was not significantly associated with the level of knowledge (p-value: $0.309 > 0.05$).

Table 7. Relationship between Education Level and Level of Knowledge

Level of Knowledge	Education Level	Health		Non- Health	
		n	**%**	**n**	**%**
Good	2020	8	3,2%	41	33,9%
	2021	79	31,2%	22	18,2%
	2022	82	32,4%	36	29,8%
	2023	84	33,2%	22	18,2%
Total		**253**	**100%**	**121**	**100%**
Adequate	2020	4	6,3%	44	17,1%
	2021	22	34,4%	96	37,2%
	2022	14	21,9%	50	19,4%
	2023	24	37,5%	68	26,4%
Total		**64**	**100%**	**258**	**100%**
Low	2020	0	0%	20	15,6%
	2021	3	21,4%	54	42,2%
	2022	3	21,4%	26	20,3%
	2023	8	57,1%	28	21,9%
Total		**14**	**100%**	**128**	**100%**
p-value			**0,352**		**<0,001**

Among health students, the majority of respondents with a high level of knowledge were those who had been studying for 2023 years, totaling 84 respondents (33.2%), followed by those who had been studying for longer periods. The results of the analysis of the relationship between the level of knowledge and the level of education among health students showed that there was no significant relationship between the level of education and the level of knowledge (p-value: 0.352).

E. The Relationship Between Demographic Factors and Perceptions

The relationship between demographic factors and perceptions was analyzed using the chi-square test.

Table 8. Relationship between Age and Perceptions

Perceptions	Age (years)	Health		Non-Health	
		n	**%**	**n**	**%**
Positive	<19	0	0%	6	2,1%
	19-21	163	91,6%	168	59,2%
	>21	15	8,4%	110	38,7%
Total		**178**	**100%**	**284**	**100%**
Negative	<19	0	0%	1	0,4%
	19-21	143	93,5%	131	58,7%
	>21	10	6,5%	91	40,8%
Total		**153**	**100%**	**223**	**100%**
p-value			**0,516**		**0,302**

Based on the results of the analysis in Table 21, there is no significant relationship between age and perception among health students (p-value: 0.516) or non-health students (p-value: 0.302).

Table 9. Relationship between Gender and Perceptions

Perceptions	Gender	Health		Non-health	
		n	**%**	**n**	**%**
Positive	Men	48	27%	141	49,6%
	Women	130	73%	143	50,4%
Total		**178**	**100%**	**284**	**100%**
Negative	Men	71	46,4%	120	53,8%
	Women	82	53,6%	103	46,2%
Total		**153**	**100%**	**223**	**100%**
p-value			**<0,001**		**0,352**

Among health students (130, or 73%) and non-health students (143, or 50.4%), positive perceptions of emergency care were more common among female respondents. The majority of respondents with negative perceptions were male (71, or 46.4% of health students and 120, or 53.8% of non-health students), although there was no significant relationship between gender and perceptions among non-health students.

Table 10. Relationship between Organization and Perceptions

Perceptions	Organization	Health		Non-health	
		n	**%**	**n**	**%**
Positive	Yes	127	71,3%	14	4,9%
	No	51	28,7%	270	95,1%
Total		**178**	**100%**	**284**	**100%**
Negative	Yes	119	77,8%	32	14,3%
	No	34	22,2%	191	85,7%
Total		**153**	**100%**	**223**	**100%**
p-value			**0,182**		**<0,001**

Among health students who had positive perceptions and had participated in organizations involved in emergency response, there were 127 respondents (71.3%). Meanwhile, 270 non-health students (95.1%) had positive perceptions despite never having participated in emergency response organizations. However, negative perceptions were also held by 119 health science students (77.8%) and 32 non-health science students (14.3%) who participated in organizations. This finding indicates no association between participation in health science student organizations and perceptions (p-value: 0.182).

Table 11. Relationship between Training and Perceptions

Perceptions	Training	Health		Non-health	
		n	**%**	**n**	**%**
Positive	Yes	156	87,6%	44	15,5%
	No	22	12,4%	240	84,5%
Total		**178**	**100%**	**284**	**100%**
Negative	Yes	116	75,8%	38	17%
	No	37	24,2%	185	83%
Total		**153**	**100%**	**223**	**100%**
p-value			**0,005**		**0,639**

Based on the results of the study, it was found that training and the perceptions of health students had a significant relationship (p-value: 0.005). A total of 156 health students (87.6%) who had participated in training had positive perceptions. In addition, positive perceptions among health students were found in 22 respondents (12.4%) who had never participated in training, which was less than the negative perceptions of 37 respondents (24.2%).

Table 12. Relationship between Education Level and Perceptions

Perceptions	Education Level	Health		Non-health	
		n	**%**	**n**	**%**
Positive	2020	8	4,5%	67	23,6%
	2021	64	36%	84	29,6%
	2022	40	22,5%	55	19,4%
	2023	66	37,1%	78	15,4%

Total		**178**	**100%**	**284**	**100%**
Negative	2020	4	2,6%	38	17%
	2021	40	26,1%	88	39,5%
	2022	59	38,6%	57	25,6%
	2023	50	32,7%	40	17,9%
Total		**153**	**100%**	**223**	**100%**
p-value			**0,012**		**0,004**

Among health and non-health students, the majority of respondents from the class of 2020 had a positive perception of emergency response. Meanwhile, the majority of students with negative perceptions were found in the lower classes, namely 2022 for health students (38.6%) and non-health students (25.6%) and 2021 (39.5%).

DISCUSSION

According to Handayani & Kusuma (2013), health students have a higher level of knowledge than non-health students because they have acquired this knowledge in lectures. Health students have easier access to sources of information related to health, which can increase their knowledge (Handayani & Kusuma, 2013). Meanwhile, non-health students receive less information, especially in this study on emergency treatment. According to theory, education is a factor that influences a person's level of knowledge. Different types of education will provide different experiences for each individual (Fitriani & Andriyani, 2015). The curriculum in formal education aims to equip students with both theoretical and practical knowledge and skills (Hastuti, 2014). According to Piaget's constructivist theory, an individual's active role in seeking knowledge is crucial because without it, one would not gain any knowledge (Suparno, 2003 in Hastuti, 2014).

Individual factors such as knowledge, experience, and age influence a person's perception. The knowledge and experience gained by students, both in health and non-health fields, are not limited to lectures, so this will affect their perception of emergencies. In addition, situational factors such as where, when, and how something can happen influence perception. Someone who provides first aid and makes the victim feel better influences the formation of positive perceptions (Ulfa, 2017). Target factors influence the formation of negative perceptions. Based on the analysis of each perception topic, significant differences in perceptions were found in the protocol for emergency situations (p-value: <0.001). A total of 304 health students (91.8%) had a more positive level of knowledge compared to 254 non-health students (50.1%). In life-threatening conditions for the victim, the rescuer immediately calls an ambulance to avoid mortality. The rescuer can also provide first aid until the ambulance arrives at the scene. The time from receiving the call until the ambulance arrives at the scene is called the response time. The standard response time according to Emergency Medical Services (EMS) is 8 minutes (Irmajidain & Risnawati, 2024). Ambulances arriving within 15 minutes in emergency situations such as cardiac arrest save more patients than ambulances arriving later (p-value: 0.02) (Irmajidain & Risnawati, 2024). Additionally, healthcare students have more positive perceptions than non-healthcare students regarding the subvariables of safety and compliance with safety protocols (p-value: <0.001). When an emergency situation occurs nearby, rescuers should assess the surrounding conditions before providing assistance. The safety of the rescuer is just as important as the safety of the victim. Emergencies can occur in any situation, so rescuers also face the risk of becoming victims. The use of appropriate personal protective equipment (PPE) will minimize the risk to the rescuer related to the surrounding conditions and reduce the risk of infection caused by direct contact with the victim's bodily fluids (McCarthy dkk., 2020). Target factors consist of obstacles that occur in the process of forming perceptions. Things such as first aid being new knowledge, pre-existing assumptions that emergency assistance is not important, or other opinions can make a person's perception negative (Ulfa, 2017). Negative perceptions in a person can be caused by dissatisfaction, ignorance, and lack of experience with the object or information that is the source of perception (Ulfa, 2017).

Age is one of the factors that influence a person's level of knowledge. Based on research by A. Darmawan & Fatihar(2019), as a person ages, their ability to think improves. However, this theory does not align with the findings of the study on the relationship between the level of knowledge in emergency care and the age of health science students (p-value: 0.595) and non-health science students (p-value: 0.077). The lack of a significant association between age and knowledge level may be due to the fact that the age range of the students is within the productive age group, where the ability to absorb information remains very good (I Nengah et al., 2020). This aligns with the findings of I Nengah et al. (2020), who reported that age does not significantly influence an individual's knowledge (p-value: 0.957). Meanwhile, among non-health science students, the majority of respondents aged 19–21 years had

sufficient knowledge, with 155 respondents (60.1%). The lack of significant influence among non-health science students may be due to insufficient experience in handling emergencies.

The results of this study are consistent with the research by Jamaludin et al. (2018), which found that gender is associated with the level of knowledge about emergencies (p-value: 0.018 <0.05). Women have better knowledge levels influenced by good planning skills, memory, recall, and problem-solving abilities related to academic outcomes (Vera Gil, 2024). Based on the research by Bashekah et al. (2023), women are more interested in emergency care than men, resulting in better knowledge among women. In line with health students, the level of knowledge about emergency management among 66 female respondents (54.5%) who were non-health students was better than that of 55 male respondents (45.5%). Male students (54.7%) had less knowledge than female students (45.3%). Although there are differences in knowledge levels between male and female students, there is no significant relationship between gender and knowledge levels among students (p-value: 0.295). This aligns with the findings of a study among students in Urban Bangalore, which showed no significant relationship between knowledge levels and gender (p-value: 0.184) (Mai et al., 2020). Among non-health students, the majority of respondents, both male and female, had no experience participating in organizations, which was significantly related to their level of knowledge. Therefore, the information possessed by male and female non-health students about emergency care tends to be the same. A good level of knowledge is due to the fact that in emergency organizations, students will learn the actions that need to be taken in first aid (Adere et al., 2022).

Student participation in organizations can increase their level of knowledge due to the exchange of information between group members so that each member receives new knowledge (Anggraeni & Aulawi, 2018). This is consistent with the findings of Joseph et al (2014), who reported that training did not have a significant effect on the knowledge levels of health students (p-value: 0.08). According to Jamaludin et al. (2018), training was not significantly associated with knowledge levels because health students were more frequently exposed to emergency situations in their lectures, even without participating in training. Among non-health science students, 82 respondents had participated in training and had an average good level of knowledge, while 97 respondents who had never participated in emergency training also had a good level of knowledge. These results indicate that training does not significantly affect the knowledge level of non-health science students (p-value: 0.328 > 0.05). According to Anderson et al. (2011), training that is not updated regularly will reduce a person's knowledge compared to those who update their training. The ability to handle choking was performed well by respondents who attended training within 1-90 days, while respondents who underwent training beyond 90 days had poor ability (Anderson et al., 2011).

The results of the analysis of the relationship between knowledge level and education level among health students showed no significant relationship between education level and knowledge level (p-value: 0.352). These results are similar to those of a study conducted by Arasu et al. (2020), which stated that education level was not significantly related to knowledge level (p-value: 0.377). The results of the relationship between education level and knowledge level are consistent with the findings of Arasu et al. (2020), who stated that education level is not significantly related to knowledge level (p-value: 0.377). The knowledge level of health students regarding emergency care since their lowest year of enrollment indicates that health students have already acquired sufficient information about emergency care. Information on emergency care is not only obtained from lectures but also from organizational experiences. Based on the frequency of students participating in organizations, it is evident that organizations are more frequently joined by students from the 2022 academic year (86.9%) and 2023 academic year (72.4%). Among non-health students, the highest level of knowledge is most commonly found among students who entered in 2020, with 41 respondents (33.9%). Based on these results, the analysis of the relationship between knowledge level and educational level among non-health students showed a significant result (p-value: <0.001). This result aligns with Jamaludin et al.'s (2018) study, which stated that educational level is related to knowledge level (p-value: 0.000). Knowledge level is influenced by the amount of information students receive during lectures.

According to Hanifah et al. (2018) in M. Yunus et al. (2022), as a person ages, their perspective on things tends to become more refined. The lack of a significant correlation between age and perception suggests that the factors influencing a person's acceptance of a belief are not influenced by age-related characteristics. According to Hayati et al. (2014) in M. Yunus et al. (2022), experience, daily observations, and the environment influence a person's perception. The Frame of Experience factor, or a person's experience, is one of the factors contributing to the absence of a relationship between age and perception (Mufidati, 2016 in M. Yunus et al., 2022). These results align with the research by M. Yunus et al. (2022) on the relationship between age and healthcare workers' perceptions of COVID-19 vaccination. The majority of positive perceptions were held by respondents aged 19–21 years, with 163 respondents

(91.6%) from healthcare students and 168 respondents (59.2%) from non-healthcare students. Younger individuals have higher expectations than older individuals, so younger people are more enthusiastic about seeking information (Yana Lajali et al., 2024). However, the age range with negative perceptions among health students (143 respondents, 93.5%) and non-health students (131 respondents, 58.7%) was 19–21 years old. Negative perceptions are caused by dissatisfaction or a lack of experience and knowledge about an object (Robbins, 2002 in Deriyanto & Qorib 2018). According to Deriyanto & Qorib (2018), prejudice is one of the factors influencing perception. Prejudice causes someone to form an opinion without first knowing the truth (Deriyanto & Qorib, 2018). The results of the analysis of the relationship between age and perception, which were not significant, may also be influenced by the majority of respondents who participated in the study being in the age range of 19-21 years, with 306 (92.4%) being health students and 297 (58.6%) being non-health students.

CONCLUSIONS

There is a significant difference in the level of knowledge between health and non-health students, with health students demonstrating better emergency management skills than non-health students (p-value: < 0.001). Non-health students had a more positive perception of emergencies, with 284 respondents (56%) compared to 153 health students (53.8%). However, there was no significant difference in the perceptions of health and non-health students regarding emergency management (p-value: 0.524). Women had a higher level of knowledge among health students (p-value: <0.001), while among non-health students, there was no significant difference in knowledge levels between men and women (p-value: 0.295). Organizational experience among health students (p-value: <0.001) and non-health students (p-value: 0.002) has a significant relationship with knowledge levels. Educational level has a significant relationship with knowledge levels among non-health students (p-value: <0.001), while among health students there is no significant relationship (p-value: 0.325). Based on the analysis results, the level of knowledge of health students is not related to perception (p-value: 0.702), while non-health students show a significant relationship where the better a person's level of knowledge, the more positive their perception (p-value: 0.000).

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