

Teachers' Awareness Regarding Emergency Preparedness at Industrial Secondary Schools at Minia Governorate

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Abstract

Background: Schools prepared for emergency can save lives, minimize damage and return to normal operations in less time. Industrial schools exposed to many emergency situations, including fires, hazardous accidents, chemical leaks or other emergencies. Teachers have essential role in caring for students in an emergency. **Aim:** to assess teachers' awareness regarding emergency preparedness at industrial secondary schools at Minia governorate. **Research design:** A descriptive cross sectional research design. **Sample:** A multistage random sampling of 440 teachers. **Data Collection Tools: Tool (I):** A self-administered questionnaire includes two parts. **Part 1:** Demographic characteristics for teachers, **Part 2:** History of previous school emergencies. **Tool (II):** A self-administered questionnaire includes three parts. **Part 1:** Teachers' knowledge regarding school emergency plan. **Part 2:** Teachers' knowledge regarding evacuation procedure, **Part 3:** Teachers' knowledge regarding first aid. **Tool III:** Disaster Attitude Scale (DAS). **Results:** Mean age of participating teachers was 47.30 ± 6.948 yrs. 39.5% of them had poor level of knowledge regarding school emergency preparedness and 76.4% of them had negative attitude regarding school emergency preparedness. **Conclusion:** Above one third of participating teachers had poor level of knowledge about school emergency preparedness and majority of them had negative attitude regarding school emergency preparedness. There was a positive correlation between participants' knowledge score and their attitude regarding emergency preparedness in schools. **Recommendations:** Implementing continuous workplace safety, emergency preparedness and first aid training for school teachers.

Keywords: Emergency Preparedness, Industrial Secondary Schools, Teachers' Awareness.

Introduction:

According to the hazard classes, industrial schools are categorized under the "hazardous class". If the necessary precautions are not taken and there is not enough attention to health and safety at work, work-related accidents can occur, leading to injuries or possible deaths. Industrial schools can be exposed to pandemic diseases, fires, drugs, dangerous accidents, and many natural calamities such as earthquakes. There are many causes for concern as school violence nationwide creates a climate of fear (Kweyama et al., 2024).

Emergencies affect students, system of the school and disturb children's entitlement to education. The outcomes of educational enhancement are inversely related to the harm done to educational facilities, the extended interruption of education, inadequate arrival to schools, as well as decrease in the education quality. The emergency can also have a psychosocial effect on school personnel. Counseling as well as guidance for teachers can increase their capacity for psychosocial development, so they have psychosocial knowledge as well as skills that should be applied before, via and after the crisis (Handaka et al., 2022).

Emergency accidents that may occur in school, such as fires, explosions, active firearms, storms, chemical spills, or other natural calamities, require significant training and adherence to drill procedures. School leaders should create and implement safety drills such as evacuations and lockdowns to improve staff and student responses and to reduce fear related to school emergencies (McAlpin et al., 2023).

Emergency preparedness have a vital role in mitigating and reducing the bad impacts of natural as well as

man-made disasters through increasing knowledge, awareness, and ability of individual to deal with emergency situations. Emergency preparedness actions incorporate developing plans, gathering equipment and performing drills. These actions must be converted into suggestions, checklists as well as exercises that institutions give to their individuals, families, communities as well as workplaces to prepare them for emergencies (Baluran, 2023).

Emergency preparedness consists of the preparation or planning phase to reduce the consequences of any disaster. Preparedness strengthens the overall management process (both short term and long term) and stakeholders' technical ability to respond to emergencies. The program depend on the implementation of disaster management policy, adopting Early Warning Systems (EWSs), components and procedures of response to the events, public enforcement with training on coping techniques, and providing of important supplies for relief (Sapkota et al., 2023).

The consequences of an emergency can be reduced in schools by being prepared, especially for the students and staff. Additionally, emergency risk reduction and management include not only avoiding potential damage to school property, but also coordinating efforts to save lives and avoid disruption to learning. Teachers, students, parents and members of their communities are all encouraged to actively participate in emergency preparedness, as it is an effective way to improve awareness of risk reduction (Morcilla, 2023).

Teachers in industrial secondary schools play an essential role in supplying for students, supervision as well as health hazards controlling. During the performance of their duties, they may be experienced with several occupational

risks and numerous problems, as physical, psychological, chemical as well as mechanical issues. These teachers should be properly trained in emergency control and first aid to save students' lives. In Egypt, technical industry high schools represent twenty-eight percent of total education. Also the teachers are at risk of accidents and injuries due to inquiry, lack of experience as well as raised mobility of students. Furthermore, over 350,000 students lose their life every year as a result of occupational accidents (Qawala et al., 2021).

The roles of community health nurses in schools during the emergency are to work with doctors and other health staff members. They have a fundamental role in emergencies reaction. They provide health teaching and health promotion and apply interventions to keep students and teachers healthy before, during and after the emergency. Also, introduce first aid, give care as well as lifesaving drugs; victim assessment and triage; allocation of scarce facilities; and observe current physical as well as requirements for mental health (Flaubert et al., 2021).

Operational definition:

Teachers' awareness: a dimension of teacher behavior in which the teacher know important information. Also defined as including not only knowledge, but also knowing how to use this knowledge to elevate educators' awareness (komorowska, 2022).

Significance of research

Teachers should keep students safe in the event of a calamity especially when students are at school. In addition, teachers are often in charge of the immediate safety of their students. They must know how to evacuate their classrooms, administer first aid and provide emotional support to students who may be traumatized. Studying emergency preparedness among teachers can help identify gaps in their knowledge and skills and provide recommendations for training programs aimed at filling these gaps (Fuentes, 2023).

Teachers play a crucial role in the classroom, especially in emergency education. Most schools and teacher education institutions are the most effective resource for raising awareness by educating students about emergency preparedness. So aspiring teachers must know emergency preparedness techniques (Chondekar, 2020).

In Egypt, many studies concerning assessment of safety measures and environmental health hazard at industrial secondary schools have done as (Ahmed et al., 2019, Amin et al., 2020) but there were very limited studies assessing teachers awareness about emergency preparedness at those schools. From investigator's opinion, it is vital to assess teachers' awareness about emergency preparedness to identify their needs for educational program and training regarding emergency preparedness. Additionally, they are the implementers and executors of school emergency plan and educators for students about hazard/ risk reduction that can affect students' willingness to respond to emergency. Accordingly, it is vital to conduct this study to shelled light on such concern.

Aim of research:

This study aims to assess teachers' awareness regarding emergency preparedness at industrial secondary schools at Minia governorate.

Questions of research:

1. What is the level of teachers' knowledge regarding emergency preparedness at secondary industrial schools in Minia governorate?
2. What is the level of teachers' attitude regarding emergency preparedness at secondary industrial schools in Minia governorate?
3. Is there a relationship among demographic characteristics of teachers and their level of awareness regarding emergency preparedness in Minia governorate?

Methodology: -

Research design: a cross sectional descriptive research design was utilized to achieve the objective of the present study.

Setting:

The study was conducted at three industrial secondary schools for males in a randomly selected three districts in Minia governorate: (Minia, Matay, and Mallawy industrial secondary school for males). Industrial secondary schools for males were chosen as there is several occupational workshops that increase risk for emergencies and hazardous accidents and life threatening injuries for teachers and students as (electric workshop, chemical laboratories.... etc.) compared to industrial secondary schools for females.

Sample size: the study sample was consisted of four hundred and forty teachers.

Sampling technique: A technique was multi-stage random sampling utilized to choose the research sample.

In the 1st stage: selecting three districts from nine districts of Minia governorate randomly by pickup method, which was Minia, Matay and Mallawy districts. 2nd stage: one governmental industrial secondary school for males was selected randomly by pick up method from each district (total numbers of governmental industrial secondary schools in the three districts are five schools, three schools in Minia district, one schools in Matay district and one schools in Mallawy district). And the 3rd stage: the investigator takes all teachers those in charge.

Total numbers of teachers those in charge at Minia industrial secondary school for males which located in the center of Minia governorate includes (one hundred and fifty teachers), Matay industrial secondary school for males which located in the north of Minia governorate includes (one hundred and sixty teachers), Mallawy industrial secondary school for males which located in the north of Minia governorate includes (one hundred and thirty teachers).

The sample is shown in the next table:

Name of the school	Number of teachers
Minia industrial secondary school for males	150
Matay industrial secondary school for males	160
Mallawy industrial secondary school for males	130

Inclusion criteria:

-Males or females teachers those in charge.

Exclusion criteria:

-Teachers not present at the time of collecting study data and those who not willing to participate.

Tools of Data Collection:

Data gathered through self-administered questionnaire that the investigator was designed after extensively reviewing the related literature as (Alkalash et al., 2023, Murata et al., 2020, Ahmed et al., 2019); It was consisted of the next three tools:

Tool I: self-administered questionnaire that had been created by the investigator, utilized for gathering data for this research. It includes two parts.

Part I: Demographic characteristics for teachers:

It was consisted of six items related to demographic characteristics of teachers, includes: age, sex, experience years, residence, educational qualifications and marital status.

Part II: History of previous school emergencies:

It was included six items for example, presence of previous emergency, Types of those school emergencies, Number of occurrences, and previous training program about emergency preparedness.

Tool II: self-administered questionnaire that had been developed by the investigator to assess teachers' knowledge regarding emergency preparedness after reviewing related literatures as (Murata et al., 2020, Ahmed et al., 2019), used for collecting this research data. It involved three parts:

Part I: Teachers' knowledge regarding school emergency plan:

which was consisted of twelve questions concerned with assessing teacher knowledge regarding school emergency plan as (do you know that your school have an emergency plan,...etc).

Part II: Teachers' knowledge regarding evacuation procedure

This part was consisted of thirteen questions concerned with teacher's knowledge regarding school evacuation procedure as do you alert of the alarm that given during emergency, and do you know the assembly area.

Part III: Teachers' knowledge regarding first aid

It was consisted of twenty questions, concerned with teachers knowledge regarding first aid at school regarding bleeding, epistaxis, head and back injury, burn and fire.

Scoring system for Teachers' knowledge regarding emergency preparedness:

The response of "Yes", and "No " also , "Don't know " was scored **one** for "Yes", as well as "**zero**" for "No", also for " Don't know". Then the scores was summed as well as was transformed into a percent score (Ahmed et al., 2019).

Teachers'levels of knowledge regarding emergency preparedness was divided into three categories:

- Poor knowledge if score is < 50%.
- Average knowledge if the score ranged from 50%-70%.
- Good knowledge if the score is > 70%. (Ahmed et al., 2019).

Tool III: Disaster Attitude Scale (DAS)

It was adopted by Türkan & Kılıç (2017) and was modified by the investigator to assess teachers' attitude regarding emergency preparedness as (I have basic knowledge about disasters) modified to (I have basic knowledge about emergencies).

It was consists of eighteen items with three domains; cognitive (six items), affective (five items), and behavioral domain (seven items).

Scoring system

The scale had a 5-point Likert design, extending from one for (strongly disagree) to five for ('strongly agree'). Participants are classified as having a positive attitude if their score is more than eighty percent or above; those who score below this threshold are classified as having a negative attitude. (Alkalash et al., 2023).

Ethical consideration

The University of Minia's Faculty of Nursing's Research Ethical Committee provided the first written clearance. After explaining the purpose and advantages of the study to the participants, verbal informed agreement was acquired. To ensure participant confidentiality, each data collection sheet was coded, and participant names were not shown on the forms. It was made clear to participants that they might leave the research at any moment. Measures were implemented to safeguard the participants' ethical rights.

Validity

Expert evaluation was used to determine the authenticity of tool's content. For coverage content, language, format, length, as well as overall appearance, the questionnaire was examined by five experts in community health nursing. Among the modifications done in response to suggestions and opinions from experts were the rewording and rearranging of phrases.

Reliability:

Internal consistency was assessed through test for Cronbach's alpha coefficient, which showed that the study tools were good reliable, as evidenced by the values of tool II: part (1), part (2), part (3) were 0.871, 0.734 and 0.814, respectively (total reliability of tool II was 0.789), and 0.932 for tool III.

Pilot study:

A pilot study was performed on ten percent of sample size which was forty-four teachers (44) from three schools, fifteen (15) from Minia industrial secondary school for males, fourteen (14) from Mallawy industrial secondary school for males, fifteen (15) from Matay industrial secondary school for males, to test the content, efficiency and time spent to complete study tools. Depend on the results of the pilot study, minor changes were made and the pilot sample was included in a study.

Data Collection Procedure:

Approval was taken by the ethical committee of the Faculty of Nursing of the University of Minia, the jury committee gave their agreement for the tool to be used to collect study data.

The official approval for the realization of this research was gotten from the responsible authority, after receiving permission from the responsible authority, the

investigator proceeded by introducing himself to the director of the three schools and the teachers, and then discussed with them the purpose and the goal of the study to obtain their participation.

The investigator went to school from nine in the morning to one in the afternoon and attended twice per a week (Wednesday and Thursday), the investigator sat with teachers and began the assessment. At the beginning, the investigator was introduced to them and the purposes of the research were discussed in detail, and verbal consent was obtained to complete the questionnaire.

The actual fieldwork for the collection of data started at the beginning of October 2023 and ended on December 2023. The investigator collected the sheets from participants where they were available (in the Classroom, Workshops, Teachers' rest area). Each sheet was taken 15-20 minutes to be

filled by the teacher. The investigator collected 15-19 sheets per a day. The investigator visited each school for one month (Matay on October, Minia on November, Mallawy on December) to collect the sheets from participants.

Statistical analysis

Use the statistical software for the social sciences (SPSS), version 22, the acquired data were tabulated and examined. Descriptive statistics, such as means and standard deviations for quantitative variables and frequencies and percentages for qualitative variables, were used to display the data. The correlation test (r-test) and chi-square test were performed to identify relationships between the variables. A statistical difference was deemed significant when the p-value was less than 0.05 and very significant when the p-value was less than 0.001.

Results

Table 1: demographic characteristics of participating teachers, at industrial secondary schools in Minia governorate, 2023 (n = 440).

demographic data of participants	No.	%
Sex		
Males	292	66.4
Females	148	33.6
Age (years)		
20 ≤ 30	6	1.3
31 ≤ 40	68	15.5
41 ≤ 50	212	48.2
51 ≤ 59	154	35.0
Mean ± SD	47.30 ± 6.948 yrs.	
Residence		
Rural	230	52.3
Urban	210	47.7
Marital Status		
Single	48	10.9
Married	336	76.4
Divorced	38	8.6
Widowed	18	4.1
Education		
Diploma or secondary school	184	41.8
Bachelor's degree	200	45.5
Post-graduate	56	12.7
Years of experiences		
< 5 yrs.	48	10.9
5-10 yrs.	178	40.5
>10 yrs.	214	48.6

Table 1, showed that the mean age of them were 47.30 ± 6.948 yrs., 66.4% of them were males, 76.4% of them were married, 52.3% were residents in urban area and 45.5% of them were having bachelor degree. Regarding to their years of experience, 48.6 % of them were having more than ten (>10) years of experiences.

Table 2: Distribution of participants regarding their history of previous school emergencies, at industrial secondary schools in Minia governorate, 2023 (n = 440).

History of previous school emergencies	No.	%
Presence of previous emergencies in your school:		
Yes	138	31.4
No	302	68.6
Types of those school emergencies: (n=138)		
Students and staff related emergencies	52	37.7
School physical facilities related emergency	48	34.8
Fire or gas explosion related emergency	26	18.8
Weather related emergencies	12	8.7
Numbers of occurrence: (n=138)		
Once	7	5.1
Twice	19	13.7
More than twice	112	81.2
The curriculum of your specialty contains how to deal with such emergencies:		
Yes	108	24.5
No	332	75.5
Previous training program about emergency preparedness		
Yes	166	37.7

History of previous school emergencies	No.	%
No	274	62.3
Previous training program about first aid/CPR		
Yes	178	40.5
No	262	59.5

Table 2, revealed that only 31.4 % of them were experienced previous emergencies in his school, 37.7% of those emergencies' types were students and staff related emergencies.

Concerning to having previous training program about emergency preparedness or first aid/cardiopulmonary resuscitation, 40.5% and 37.7% of them were having previous training program about first aid/CPR and emergency preparedness respectively.

Table 3: Frequencies distribution of participants regarding to their knowledge about school emergency plan, at industrial secondary schools in Minia governorate, 2023 (n = 440).

Variables	Yes		No/ Don't know	
	No.	%	No.	%
1. School has an emergency plan.	334	75.9	106	24.1
2. Goals/objectives of your school emergency plan.	244	55.5	196	44.5
3. Potentially life threatening hazards /emergencies in your school.	280	63.6	160	36.4
4. School emergency plan is updated, reviewed and distributed annually.	238	54.1	202	45.9
5. There is an emergency response team.	188	42.7	252	57.3
6. The school emergency response team (school safety staff).	190	43.2	250	56.8
7. Roles and responsibilities of school emergency response teams.	186	42.3	254	57.7
8. Your responsibilities in occurrence of an emergency.	106	24.1	334	75.9
9. The location of on-site emergency equipment.	204	46.4	236	53.6
10. Universal emergency procedures as alert status, evacuation and lockdown.	86	19.5	354	80.5
11. Numbers of Civil Defense.	222	50.5	218	49.5
12. How to use fire extinguishers.	102	23.2	338	76.8

Table 3, represented that 75.9% of participating teachers know that their school has an emergency plan, 63.6% of them know potentially life threatening hazards /emergencies in school and 75.9% of them don't know of their responsibilities in occurrence of an emergency.

Also, 80.5% of them didn't know universal emergency procedures as alert status, evacuation and lockdown procedures and 76.8% of them didn't know how to use fire extinguishers.

Table 4: Distribution of participants according to their knowledge regarding Evacuation procedure, at industrial secondary schools in Minia governorate, 2023 (n = 440).

Variables	Yes		No/ Don't know	
	No.	%	No.	%
1. Be alert of the alarm that will be raised by public announcement.	304	69.1	136	30.9
2. Identify the assembly area.	232	52.7	208	47.3
3. Ensure that access points (exit and entry) are opened.	256	58.2	184	41.8
4. Lock all doors and windows	176	40.0	264	60.0
5. Turn off lights and fans	244	55.5	196	44.5
6. Advise others to keep a low profile by sitting on the floor.	208	47.3	232	52.7
7. Start a complete sweep of all school buildings where it is safe to do so.	222	50.5	218	49.5
8. Include and take charge of any visitor that are in their area at the time of the alarm activation	176	40.0	264	60.0
9. Ensure that all students are present	218	49.5	222	50.5
10. Report missing students and staff to the Student Accounting Coordinator	172	39.1	268	60.9
11. Encourage everyone to remain seated and calm. Insist on silence.	234	53.2	206	46.8
12. Phone lines are to be kept clear unless immediate threat exists.	172	39.1	268	60.9
13. When the threat is over, the Principal will advise all staff of the "All Clear".	216	49.1	224	50.9

Table 4, expressed that 69.1% of them were alert of the alarm that will be raised by public announcement, 58.2% were aware about insuring that access points (exit and entry) are opened, and 55.5% were alert about turning off lights and fans. Furthermore, 53.2% of them were know about encouraging everyone to remain seated and calm, 52.7% were know about identifying the assembly area and 50.5% were aware of starting a complete sweep of all school buildings where it is safe to do so.

Regarding knowledge about evacuation procedure 60.0% of them don't know about locking all doors and windows, 60.9% of them didn't know about reporting missing students and staff to the student accounting coordinator, 60.0% of participating teachers didn't know that include and take charge of any visitor that are in their area at the time of the alarm activation.

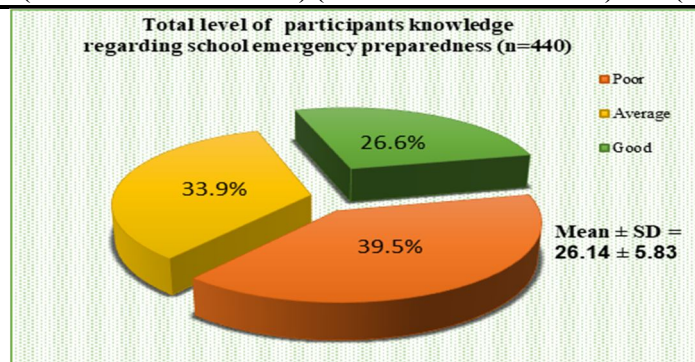


Figure (1): Total knowledge level regarding school emergency preparedness, at industrial secondary schools in Minia governorate, 2023 (n=440).

Fig 1, showed that Mean ± SD of their total knowledge score was 26.14 ± 5.83 and 39.5% of them had poor level of knowledge about school emergency preparedness.

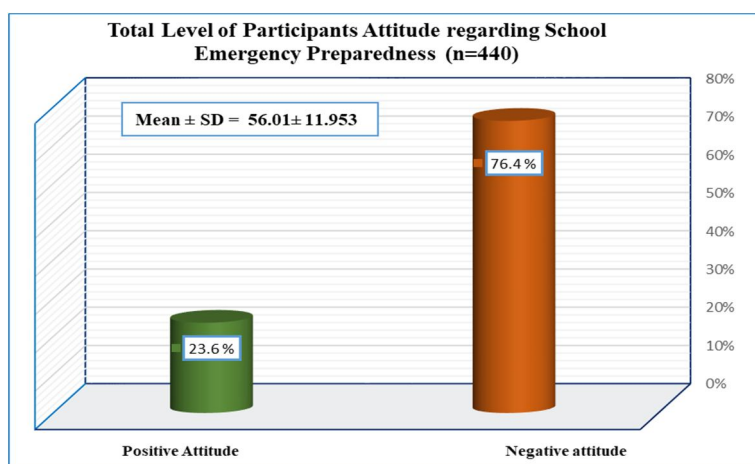


Figure (2): Total attitude level regarding school emergency preparedness, at industrial secondary schools in Minia governorate, 2023 (n=440).

Fig 2, showed that Mean ± SD of their total attitudes score was 56.01 ± 11.953 and 76.4% of them had negative attitude regarding school emergency preparedness.

Table 5: Relationship between participants' level of knowledge regarding school emergency preparedness and their demographic variables, at industrial secondary schools in Minia governorate, 2023 (n = 440).

demographic variables	Participants' level of knowledge regarding school emergency preparedness						X ²	(P – value)
	Poor (n=174)	Average (n=149)	Good (n=117)					
Sex								
Male	118	67.8	96	64.4	78	66.7	20.578	.002**
Female	56	32.2	53	35.6	39	33.3		
Age (years)								
20 ≤ 30	4	2.3	2	1.3	0	0.0	12.254	.009**
31 ≤ 40	16	9.2	29	19.5	23	19.6		
41 ≤ 50	81	46.6	75	50.3	56	47.9		
51 ≤ 59	73	41.9	43	28.9	38	32.5		
Residence								
Rural	84	48.3	78	52.3	68	58.1	2.718	.257 ^{NS}
Urban	90	51.7	71	47.7	49	41.9		
Educational qualifications:								
Diploma or secondary school	79	45.4	61	40.9	44	37.7	14.016	.007**
Bachelor's degree	63	36.2	74	49.7	63	53.8		
Post-graduate	32	18.4	14	9.4	10	8.5		
Marital Status								
Single	14	8.0	23	15.4	11	9.4	5.867	.438 ^{NS}
Married	136	78.2	111	74.5	89	76		
Divorced	16	9.2	10	6.7	12	10.3		
Widowed	8	4.6	5	3.4	5	4.3		
Years of experience								
< 5 yrs.	14	8.0	28	18.8	6	5.1	22.194	.000**
5-10 yrs.	60	34.5	60	40.3	58	49.6		
>10 yrs.	100	57.5	61	40.9	53	45.3		

NS= Not statistically significance. * statistically significant at P – value ≤ .05. ** Highly statistically significant at P – value ≤ .01.

Table 5: illustrated that there was highly statistically significant association among participants’ level of knowledge and their sex, age, educational qualification and years of experiences where P-value were 0.002, 0.009, 0.007 and 0.000 respectively.

Table 6: Relationship among participants’ level of attitude regarding school emergency preparedness and their demographic variables, at industrial secondary schools in Minia governorate, 2023 (n = 440).

demographic variables	Participants’ level of attitude regarding school emergency preparedness				X ²	(P – value)
	Negative (n=336)		Positive (n=104)			
Sex						
Male	228	67.9	64	61.5	1.420	.233 ^{NS}
Female	108	32.1	40	38.5		
Age (years)						
20 ≤ 30	6	1.8	0	0.0	5.416	.144 ^{NS}
31 ≤ 40	46	13.7	22	21.2		
41 ≤ 50	162	48.2	50	48		
51 ≤ 59	122	36.3	32	30.8		
Residence						
Rural	172	51.2	58	55.8	.667	.414 ^{NS}
Urban	164	48.8	46	44.2		
Educational qualifications:						
Diploma or secondary school	126	37.5	58	55.8	15.549	.000**
Bachelor’s degree	158	47.0	42	40.4		
Post-graduate	52	15.5	4	3.8		
Marital Status						
Single	46	13.7	2	1.9	12.693	.005**
Married	252	75.0	84	80.8		
Divorced	26	7.7	12	11.5		
Widowed	12	3.6	6	5.8		
Years of experience						
< 5 yrs.	42	12.5	6	5.8	8.847	.010*
5-10 yrs.	124	36.9	54	51.9		
>10 yrs.	170	50.6	44	42.3		

NS= Not statistically significance. * Statistically significant at P – value ≤ .05. ** Highly statistically significant at P – value ≤ .01.

Table 6, illustrated that there was highly statistically significant association among participants’ level of attitudes and their educational qualification, and years of experiences where P-value were 0.000, 0.005 and 0.010 respectively.

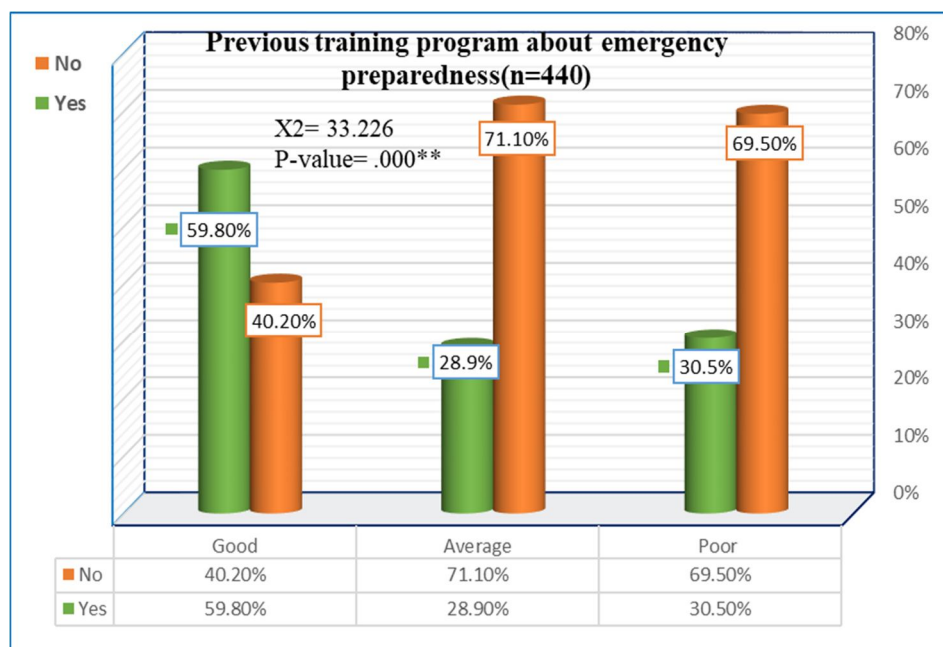


Figure (3): Relationship between participants’ level of knowledge regarding school emergency preparedness and their previous training program about emergency preparedness, at industrial secondary schools in Minia governorate, 2023 (n=440).

Fig 3, showed that there was highly statistically significant association among participants’ level of knowledge regarding school emergency preparedness and their previous training program about emergency preparedness where P-value were 0.000.

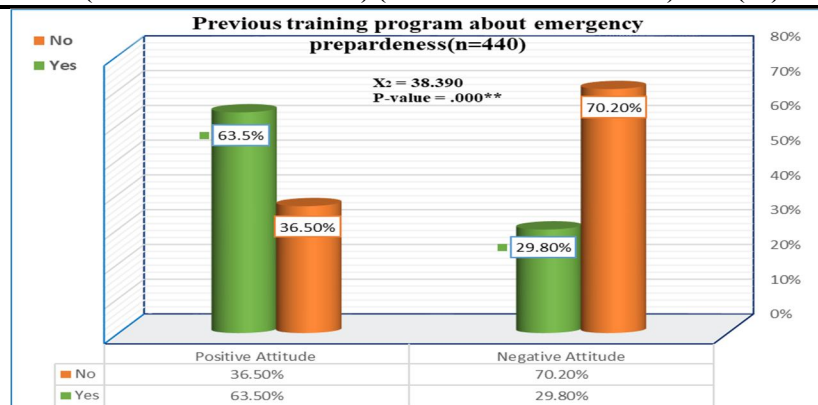


Figure (4): Relationship between participants' level of attitude regarding school emergency preparedness and their previous training program about emergency preparedness, at industrial secondary schools in Minia governorate, 2023 (n=440).
 Fig 4, showed that there was highly statistically significant association among participants' level of attitude regarding school emergency preparedness and their previous training program about emergency preparedness where P-value were 0.000.

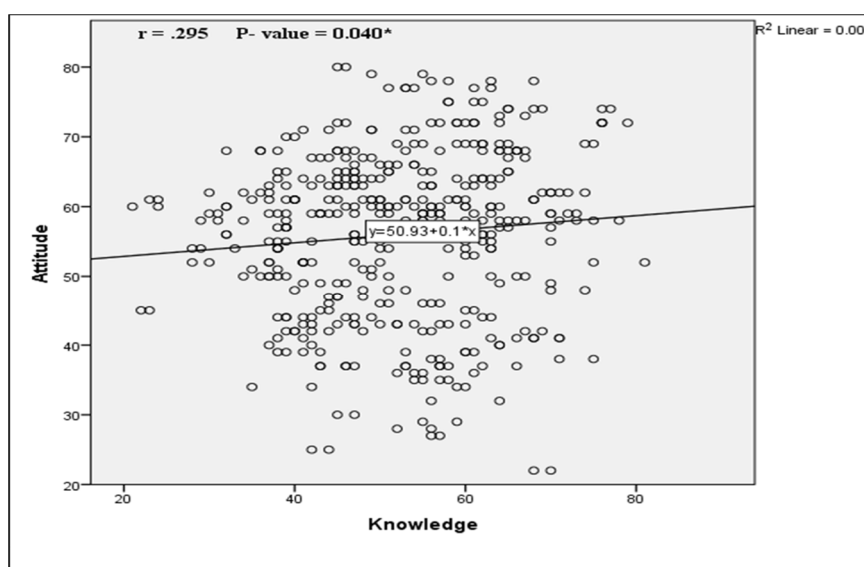


Figure 5: Correlation between participant's knowledge and their attitude regarding school emergency preparedness, at industrial secondary schools in Minia governorate, 2023 (n = 440).

Figure 5, illustrated that there was a weak positive correlation among participants' level of knowledge and their attitude regarding school emergency preparedness which was a statistically significant where $r = .295$ and P-value was 0.040.

Discussion:

Teachers don't include only in the education of children but they assist in the management of schools post the emergency. Teachers need to be ready for emergencies as a result. Raising public awareness of emergencies and identifying the variables that may encourage them are essential in order to support teacher preparation for disaster prevention (Kawasaki et al., 2022), so this study aims to evaluate teachers' awareness of emergency preparedness in secondary industrial schools in Minia governorate.

Concerning the socio-demographic traits of the sample, the current study showed that mean age of them were 47.30 ± 6.948 yrs., which was in accordance with Alanazy et al., 2023, who studied "The level of teachers' knowledge on first aid management and control of epistaxis in the Qassim region, Saudi Arabia" and stated that less than fifty percent of the study sample was aged (35-45). This result disagreed with Aawdin & Mustafa., 2021, who studied "Effect of Educational Program on Teachers' Awareness Related COVID-19 Pandemic", and mentioned that the mean age of participant 34.48 ± 4.11 yrs.

Regarding teacher's gender, nearly sixty six percent of the studied sample was males, and about three quarter of them were married, this result was supported by Iqbal & Nauman., 2024, who studied "Assessment of Teacher's Disaster Preparedness Using the Comprehensive School Safety Framework", and reported that nearly fifty percent of studied sample was males. The finding of the present result was contrast with those of Aawdin & Mustafa., 2021, reported that almost sixty six percent of the study sample was female, and sixty six percent of them were married.

Concerning residence the present study found that about half of the study sample were from an urban area, this result was in accordance with Mohamed et al., 2023, who studied " A retrospective study to identify knowledge, attitude, practice and psychological distress of secondary school teachers towards the prevention of Covid 19 in selected schools", and reported that less than half of study sample came from an urban area.

Regarding education, less than half of the sample had a bachelor's degree, with almost half of them having more than ten years of experience, this result was in line with Sonmez & Gokmenoglu, 2023, who studied "Understanding

disaster preparedness beliefs of the teachers", and reported that teachers with experience in emergency education have a higher level of emergency preparedness beliefs than those without experience.

Additionally, the current result was in accordance with **Khalidi et al., 2021**, who studied "The Readiness of Government Schools to Deal with the Emergency and Crisis Situations from School Administrators View Point", and reported that about half of the study sample had above ten years of experience. The finding of the current result was in contrast to **Ors, 2021**, who studied "Learning needs of primary schools teachers about first aid" and reported that the majority of the sample had a bachelor's degree.

The current study found that only thirty three percent of the sample had never experienced emergencies in their school, and almost a third of these types of emergencies were student and staff related emergencies, **from investigator's opinion**, it might be due to the good geographical location of Minia governorate, which is far from natural disasters, so the most common type of emergency is related to student and staff emergencies. Also industrial schools contain many workshops that increase the risk of accidents and emergency situations for teachers and students.

This study was consistent with **Kawasaki et al., 2022**, who studied "Relations between teachers' awareness of disaster prevention also the concerns about disaster preparedness" and reported that two thirds have never had an emergency in the school. Furthermore the current result was similar to that of **Kawasaki et al., 2020**, who studied "Teachers-parents cooperation in disaster preparation when schools become as evacuation centers", and illustrated that a minority of sample had experienced emergencies while working in the school.

Concerning to having previous training program about emergency preparedness or first aid/CPR, more than a third had previous training programs about emergency preparedness and almost a third had a previous training program about first aid/CPR and emergency preparedness, **According to investigator's point of view**, it might be due to the reduction in the number of emergency training programs that are offered by schools for teachers to be able to handle emergency situations.

This result was in accordance with **Alenezi et al., 2024**, who studied "Assessment of knowledge, attitude, and practice of first aid management of choking among primary school teachers: a cross-sectional study", and reported previous first aid training was reported by more than a third. Also the current result was agreed with **Charalambous, 2021**, who studied "Investigation of the teacher's knowledge and attitude towards providing first aid in the school environment", and mentioned that above third of sample had attended to a first aid training session.

This result was also confirmed by the finding of **Elsayed et al., 2022**, who studied "Effect of structured educational package on primary school teachers' knowledge and practice regarding first aid management among school children" and stated that about a third of the sample had attended training program.

This result was in contrast to the result of **Alkalash et al., 2023**, who studied "Knowledge of and Attitude toward Disaster Preparedness among Secondary School Students" and reported that majority of the study group had not received training in disaster preparedness before. Also the results didn't correspond to those of **Vermonden et al., 2023**, who studied "

Teacher preparedness for medical emergencies in Belgian classrooms: studying objective and subjective first-aid knowledge", and reported that the majority part of the participants had taken the first aid training. Also the current result was disagreed with **Alsulami et al., 2022**, who studied "Knowledge and attitude of pediatric first aid among elementary schoolteachers", and reported that more than half had received first aid training.

The actual study showed that three-quarters of the study sample were know that their school had an emergency plan, almost two thirds of them knew potentially life threatening hazards /emergencies in his school and three-quarters of them didn't aware of their responsibilities in occurrence of an emergency, **from investigator's point of view**, it might be due to a reduced experience with emergencies, and their schools not provide them with the necessary information about emergency situations, and don't allocate clear roles and responsibilities in the schools emergency plan.

The current study was similar to **Ilori& Sawa., 2020**, Who reported that three quarters said that their school didn't have an emergency plan and didn't know their responsibilities in case of an emergency. This result was disagreed with **Arcegoni et al., 2024**, who studied "Disaster Awareness and Preparedness and Disaster Risk Reduction Practices in Secondary Schools", and reported that teachers and school leaders understood their role in an emergency.

The present result clarified that more than half of the study sample didn't know the roles and responsibilities of the school emergency team, and the majority of study sample didn't know the universal emergency procedures, as alert status, evacuation and lockdown procedures, the current result was in contrast to **Iqbal& Nauman., 2024**, who studied "Assessment of School Teacher's Disaster Preparedness by Using Comprehensive School Safety Framework", and showed that the roles of school emergency team were assigned in the school and that all emergency teams have been established and trained for evacuation and lockdown drills.

The current result showed that three quarters of studied sample didn't know how to use fire extinguishers, it was in accordance to **Hassanain et al., 2022**, who studied "A framework for fire safety management in school facilities" and reported that almost two thirds of the study sample didn't know how to use fire extinguishers.

Concerning to participants knowledge regarding evacuation procedure, the present study showed that almost three-quarters of the study sample were aware of the alarm that would be raised by public announcement. This study was disagreed with **de Carvalho et al., 2022**, who studied "Using serious game in public schools for training fire evacuation procedures", and reported that more than half knew that the school did not have a fire alarm. Additionally the current result was in contrast with **Carvalhais et al., 2023**, who found that more than two thirds of the sample was not familiar with the emergency alarm, or had never heard.

The current study showed that two-thirds of the study sample didn't know about closing all doors and windows, and almost two-thirds of them didn't know how to report lost students and staff to the student accounting coordinator, which was in contrast to **de Carvalho et al., 2022**, who studied "Using serious game in public schools for training fire evacuation procedures", and reported that two-thirds of them said that they would let the door opened while they counted the people at the place and reported those missing.

The current study found that about more than a third of studied sample had poor level of knowledge regarding school emergency preparedness, **According to investigator's perspective**, this result might be due to a reduced experience to emergency situation for school teachers, as well as a lack of educational programs and seminars that provide basic information on emergency plan, evacuation planning, lockdown procedure and first aid programs.

The current result was in contrast to **Widiastuti et al., 2022**, who studied "Analysis of Disaster Preparedness Knowledge as well as Skill Among Teachers at Middle School and High School, South Lampung" and stated that a minority of the study sample had low levels of emergency knowledge and skills.

Additionally, the current finding was agreed with **Kharat& Khadke., 2022**, who studied "Effectiveness of awareness program on disaster preparedness and mitigation among teachers in selected secondary schools of City", and reported that more than a third had insufficient knowledge about emergency preparedness.

The present study was confirmed by **Baisal et al., 2023**, Who studied "A Study to Assess the Knowledge regarding Disaster Preparedness and Mitigation among people in Kerala with a view to Develop an Instructional Module", and showed that a minority of the sample had a good understanding of emergency preparedness. Also it was disagreed to the study of **Maghfiro& Widiastuti., 2023**, who studied "Teachers Knowledge about Disaster Preparedness: A Case Studies in Disaster Risk area", and reported that none of the sample of the study sample had little knowledge of emergency preparedness.

The actual study showed that about three-quarters of the participants had a negative attitude toward school emergency preparedness, **from investigator's point of view**, it might be due to decreased level of preparation of teachers, since a decrease in knowledge about emergency preparedness lead to teachers didn't have the necessary basic information to deal with emergency situations which lead to a negative attitude toward the management of these emergency situations. It was in accordance to **Salita et al., 2021**, who studied "Assessment of school teachers' disaster preparedness using the extended parallel process model: a cross-sectional study in Angeles City, Philippines", and revealed that above half of the participants of the study showed an attitude of avoidance towards emergency preparedness.

The current result was disagreed with **Alkalash et al., 2023**, who studied "Knowledge of and Attitude toward Disaster Preparedness among Secondary School Students", and reported that the majority of the study sample showed a positive attitude towards emergency preparedness.

The present study showed that there was a highly statistically significant association among the level of knowledge of the participants and their sex, age, educational qualification and years of experiences. **From investigator's opinion**, the demographic characteristics of the school teachers are important and related to the level of knowledge of emergency preparedness, because when the educational level is higher, it positively affects the level of knowledge and awareness of emergency preparedness, also increasing years of experience, increasing the level of knowledge, further increasing age, increasing the level of knowledge of teachers.

The results of the actual study were similar to those of **Heydari et al., 2022**, who studied "Assessing the Risk Perception of Natural Disasters Among the Staff of Hospitals

", and reported that there was a statistically significant relationship between the level of education and their perception and knowledge of emergency situations.

The current result was consistent with **Kharat& Khadke., 2022**, who studied "Effectiveness of awareness program on disaster preparedness and mitigation among teachers in selected secondary schools of City", and reported that there was a significant relationship between experience scores and the level of knowledge of the study participants.

The findings of current result were disagreed with **Baisal et al., 2023**, who reported that there is no relationship between knowledge and other demographic variables as age, residential area. In addition, the current result was disagreed with **Inal et al., 2019**, who studied "General emergency preparedness beliefs and related socio demographic characteristics", and reported that the demographic characteristics (age, gender, marital status, educational level) were not significantly related knowledge of emergency preparation.

The current study showed that there was a highly statistical significant differences relationship between the level of knowledge participants about emergency preparedness in schools and their previous training program about emergency preparedness, this finding was in accordance with **Sonmez& Gokmenoglu., 2023**, who studied "Understanding the teachers' beliefs about disaster preparedness, in turkey", and reported that teachers with experience in emergency education have higher levels of emergency preparedness beliefs in emergency situations than those who didn't have one.

The current study also was similar to **Inal et al., 2019**, who studied "General emergency preparedness beliefs and regard socio-demographic traits", and reported that having previous emergency/disaster training was significantly associated with an increase in participant's level of knowledge.

The current result contrasted with that of **Polinar& Gonzaga., 2023**, who studied "Selected Public School Teachers' Awareness also Involvement in School-Based Disaster Risk Reduction Management Measures", and reported that having a pre- emergency education was not significantly related to a level of increased knowledge of teachers.

Teachers who had previous training in first aid and emergency preparedness had positive attitudes and knowledge about emergency preparedness, **from investigator's point of view**, it might be due to having previous education and training program provided teachers with basic knowledge about emergency preparedness which changed their beliefs and persuading them to positively change their attitude and they can provide desired practices and behaviors and also affect their skills positively as when facing an emergency situation or providing first aid practice correctly and effectively.

The actual study showed that there was a highly statistical significant relationship between the level of attitude of participants regarding the school's emergency preparedness and their previous training program about emergency preparedness, it was in accordance to the current result **Çelebi& Özelçi., 2024**, who studied "The Effect of Disaster Training on Teachers Candidates' Perception of Disaster Awareness", and showed that the training had a good effect on teacher's attitudes to a limited extent.

The present result was similar to that of **Bulu & Avci., 2023**, who studied "Determination of disaster awareness perception levels of class teachers", the sample size was five hundred and nine and reported that the programs such as Disaster/emergency Education schools, positively affect classroom teachers' perceptions of disaster/emergency awareness.

Additionally, the current result was in agreement with **Sen et al., 2020**, who studied "The Effect of Disaster Awareness Training on The Level of Disaster Awareness of Classroom Teacher Students", and reported that emergency awareness training increased the levels of emergency awareness of teacher in the classroom influencing positively.

According to investigator's point of view, analyzing the current results, it was observed that the attitude of the teachers is influenced by the previous training regarding in first aid and emergency preparation. Teachers who had previous training can deal with the emergency and disaster effectively and demonstrate greater effectiveness in caring for victims, also they not fear of the emergency situation, therefore, training on first aid and emergency preparedness has been very important to positively change the attitude of the school teachers in case of emergency.

Concerning correlation between the level of knowledge of the participants and their attitude regarding school emergency preparedness, the current study showed that there was a positive correlation between the level of knowledge of the participants and their attitude regarding school emergency preparedness, it was in accordance to **Hariyanto et al., 2022**, who studied "The Impact of Disaster Knowledge and Attitudes on Community Preparedness in Facing Earthquakes", and reported that there was a significant relationship between emergency attitudes and preparedness knowledge.

Also, this finding was confirmed by **Retnowati et al., 2020**, who studied "Disaster Preparedness Behavior Based on the Disaster Mitigation and Disaster Preparedness Attitudes of Students", and showed that there was a positive relation between knowledge of emergency mitigation and emergency preparation attitude.

Also the present result was approved by **Fathoni et al., 2019**, who studied "The Relationship of the Role of Teachers in the Implemented Curriculum of School-Based Disaster Preparedness in Vulnerability in School Teachers with Disabilities", and showed that there was a significant relation between teacher preparation attitudes and teacher knowledge. The correlation value reported that a positive correlation.

This finding was in contrast to **Arcegono et al., 2024**, who studied "Disaster Awareness and Preparedness and Disaster Risk Reduction Practices among Secondary Schools" and mentioned that there was a highly significant positive relationship between awareness and emergency preparedness "a very strong relation between emergency awareness, preparedness and risk reduction practices".

Awareness and knowledge level positively affect the attitude of study participant, **from investigator's perspective**, it might be due to teachers with good knowledge in emergency preparedness lead to positively change their attitude and they can provide effective practice and behaviors positively so they could deal with any emergency situation.

Conclusion:

According to results of this study, it concluded that more than one third of participating teachers had poor level of knowledge about school emergency preparedness, and the majority of them had negative attitude regarding school emergency preparedness. Also, there was a highly statistically significant association among participants' knowledge and their sex, age, educational qualification and years of experience. There was a highly statistically significant association among participants' attitudes and their educational qualification, and years of experience. Finally, the current study indicated that there was a positive correlation between participants' knowledge score and their attitude regarding emergency preparedness in schools.

Recommendations

Based on results of this study, the following recommendations can be deduced:

- Implement continuous workplace safety, emergency preparedness and first aid training for teachers.
- Perform actual evacuation and lockdown drill for teacher and student periodically.
- Monitor school's environment and schools' workshops periodically to early detect environmental safety hazard.
- Implement mass media companies which target the whole community, about how to deal with emergencies and disasters.
- Activate and clarify the role of school health nurses and ensure their presence at each industrial school.
- Develop further research on emergency preparedness that are required to indicate the needs of teachers for educational emergency preparedness training.
- Involve disaster risk reduction in school educational curriculum.

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