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Evaluation of Knowledge Teachers for First aid in Schools

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ABSTRACT:

Knowledge of first aid is an invaluable life-skill for schoolteachers. Immediate attention many times avoids life threatening conditions. It is very much important to evaluate such skills once trained. This manuscript discusses about evaluation of knowledge and practice of teachers for first aid by collecting information from them regarding first aid. From various states of India, teachers provided their responses regarding knowledge for first aid and selected number of educators were taken into consideration for study. From basic to moderate level questions were drafted with the help of literature and standard manuals to incorporate in online questionnaires. From results it was indicated that there was no significant difference between response of male and female candidates. It was also observed for few important knowledge and practice was below 50%. There was a need for schools to take proactive part, unloading training/support from a variety of professionals and that would be helpful, and current academic demands such training in curriculum. This information is useful to school physicians, nearby hospital specialists, and administrators in helping set the stage for establishing emergency tackling abilities by learning practices in schools. It is also possible from these representative group that further large number of educators may need similar training for the first aid that remain crucial in saving human lives.

KEY WORDS: first aid, schoolteachers, emergency handling, APVU scale, medical emergencies

INTRODUCTION

Every experimental study requires collection of truthful and accurate data. These data may be from indirect or direct source, one must select good methodology for the collection of the data those are relevant to the study, factual, accurate. Not only quality of these data is important, the sufficiency in quantity is also equally important. First aid is immediate treatment to hurt or sick. In certain situations, the initial assistance consists of first aid in the midst of a medical emergency [1- 3]. This assistance will help them thrive before they obtain clinical aid. In other situations, first-aid requires caring for a minor wounded victim. Primary assistance is also all required to treat slight wounds, cuts and bee stings, for example. Injuries, chronic health problems, or unexplained

significant disabilities in school could result in medical emergencies for children and adults. It is very important to know that the educators bearing primary knowledge regarding the first aid and its practice and if yes then the frequency and if any corrective measure are required or not. Thus, the study was conducted in 300 teachers in limited territory of India. The responses were collected through online tool. Following are the questions' set answered by all of them.

EVALUATION METHODOLOGY

Selection of data collection source: In this study the primary target group was school -teachers and in that specifically school teachers including primary and high school. On the other hand, the data collection technique

was influenced by digital as well as social media. It was very tough to restrain the data being submitted from any particular region or any particular group and thus the source of data collection was made arbitrary. The strength of data i.e., the number of participants were confined to 300 school teachers. All information were collected through google form supplied with digital link that can be accessed anywhere [4].

School teachers' knowledge assessment

Teachers are the prime responsible in any school campus for complete development of children studying in the campus. Hence, quality of teachers is needed to impart same in children and it may be regarding education, experience, behavioral sense, physical activity or any extracurricular activity. To give good training to students, it is very important that the teachers themselves are trained. Education and experience are easy to observe by physical records, but other qualities are difficult to judge by any record of attaining any program, seminar, conference or any such physical records. Assessment of knowledge of teachers hence become very important in such case by unique method/s [5].

Identification for basic requirements on first aid

The identification of basic need for first aid is very important part for any organization to manage all first aid related management. One can set questionnaire to test basic knowledge and practice of participants on first aid usage in emergency cases. Such questions can let organizers know their primary objective on knowledge, experience in medical emergencies. Here in this manuscript, a framework on for first research tool provided that may help organizers to manage first aid in their schools [6-7]. To assess knowledge and practice of teachers regarding first aid, following questions can be designed and drafted. Such questionnaires can be start from assessing basic information regarding first aid viz., what first aid is, where applicable and how it is applied?

1 Meaning to 'First aid'

To assess the knowledge of subject regarding their understanding about meaning of first aid, the question frame was 'What first aid actually is? The answer to the question can be number of explanations yet limiting objects for the different answers also required. Help from 'First aid Manual' by [8] was considered to provide correct option along with other options.

2 First response on an event of an accident

The next question of this questionnaire can be 'After you have surveyed an accident scene and provided for your own safety you should?', the question will answer on primary knowledge of teachers'/ instructors' ability to apply first aid training in relevant conditions. There can be several different answers can be expected for such question. To limit the number of replies for the question, following options were decided using help of 'First aid Manual' [9].

3 Prime objective of first aid

To assess the knowledge of subjects regarding their understanding about the prime objectives of first aid, the next question can be set as 'One of the prime objectives of first aid is?'

3.1 Aims of first aid

The next question can be derived to access knowledge about understanding about aim of first aid the question can be asked as 'what is aim of first aid?' As per the first aid manual by Piazza, G. M. (Ed.). (2014) [9], whatsoever objectives of first aid as per situation, the aim is only one that is to save lives.

3.2 A good Samaritan

To assess the knowledge of subject regarding understanding about legal definition or definition according to constitutions for a good Samaritan, the question can be set as, 'A good Samaritan in legal terms refers to....'. To provide correct option along with other three option, help of Indian First Aid Manual, 2016 was considered [9]. The good Samaritan always helps any victim in emergency or roadside accidents. A good Samaritan never hesitates helping others if called for help. The data shows that certain law protects and promotes good Samaritan. This law includes, (1) A good Samaritan do not require to reveal his identity., (2) A good Samaritan is protected from legal and criminal liabilities., (3) A good Samaritan never demands for pay or detention., (4) for them police investigation done once and that is also by online mode., (5) time to time good Samaritan is rewarded by government.

1. Responsibility of first aider

To assess the knowledge of respondent about responsibility that any first aid care provider owes, the close ended question can be asked. The question can be set as 'The first aid care provider does not owe any responsibility of being careful while providing care to injured or sick'. Here the respondent needed to answer

only in yes or no. The question asked is a negative question as the first aid provider need to be very care full at the place, the answer is 'No'.



Figure 1 Good Samaritan's Law

A. Personal safety awareness while assessing site of first aid

As per WHO, thousands of people decease in a day around the globe due to infections developed while receiving or delivering health care. Hands are the primary source to spread virus, bacteria also called transmission of germ during providing or receiving care for health. Thus, hygiene of hand is the big concern as per World health Organization and important measure to avoid the transmission of harmful microorganism including virus and bacteria and to control and limit health care-associated contaminations. The assessment of the same their understanding about awareness towards microorganism contamination and hygiene of hand, the close ended question can be framed for questionnaire as 'An important part of safety also includes washing your hands and wearing gloves or a protection when coming in contact with the injured or sick person's blood or body fluids'[3].

B. Duty of giving care

One of the legal responsibilities in First Aid is to look after an individual when they are injured, wounded or ill and this is called in general 'Duty of Care'. The term usually used for a trained workplace first aid provider for a territory. He/she has a duty of care to look after public in his area of workplace only in the event they are sick, injured or wounded. Any other person, bystander or a workplace first aider does not have a duty of care in a public place that is beyond territory. Beyond territory, it is a choice to assistance or give service in this situation. At the same time once a person has committed to assist or give service, a duty of care begins.

The duty of care once begins with territory or by choice, it ends only in the following situations.

- a. When any paramedic, doctor or any medical professional takes charge from first aider by starting to take care of them.
- b. The casualty inspection is completed, he found recovered and no further help required.
- c. First aider become incapable physically due to fatigue and continuous service at workplace.
- d. It becomes difficult or dangerous for first aider to continue at workplace

C. First aider's action at the scene of emergency

At the site of emergency, situations are very always difficult. Correct action in work is very important in such situation for any trained healthcare provider. To assess the work carried out by first aider as per training they have received, following question was drafted carefully.

D. When to stop or handover the responsibility

The first aider is the person who take charge, remain calm and give instant attention to sufferers of accidents with confidence till person comeback to life or any skilled medical workforces arrive. But this is not only the case when the first aider needs to stop. In certain untoward conditions also, step backward is required.

E. Resuscitation

To assess further in-depth knowledge of the subjects regarding first aid, the question can be asked as, 'What is resuscitation?'. In the event of certain emergencies, and trauma, an important part of therapy is to correct physiological disorder. In such conditions, reviving

someone who is unconscious and/or not breathing or not breathing normally is called resuscitation [10].

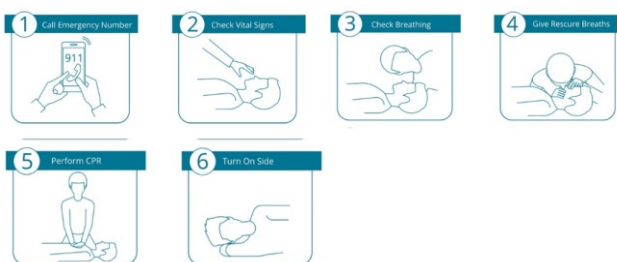


Figure 2 Resuscitation Methods

2. APVU scale

In the event of certain medical condition, injury especially when in brain, poisoning, may all lead to trauma, and condition which is not conscious and usual. For such conditions, APVU also very well-known AVPU scale have become so helpful and that immediately scales patient’s condition. The scale mostly used to denote level of consciousness of patient in emergency situations, hospitals, ICUs, and other such places. Here A stands for ‘Alert’- used when patient is aware to surrounding environment and responds to first aider or doctor’s instruction. P stands for response indicating Pain, V stands for verbal response, and U stands unresponsive.

Here to know the knowledge level of first aider the question regarding APVU can be made available in questionnaire as, ‘in APVU scale for measuring of consciousness of patient ‘A’ stands for...?’.

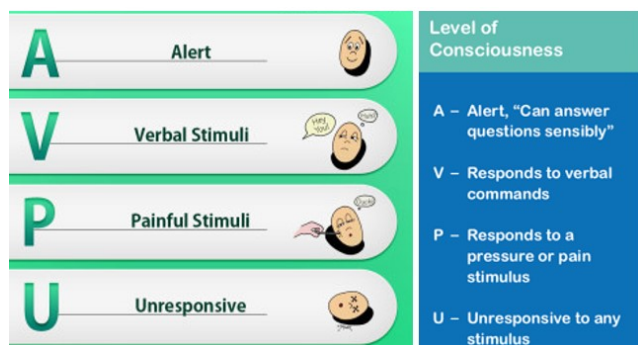


Figure 3 APVU Scale

3. Handling of Medical emergencies

A responsible and correct action is desirable from a first aider in case of emergencies. Once causality is completed by primary investigation, identification of criticality of condition is very much necessary. The condition may become life threatening if the timely measures are not taken. Thus, immediately the first aider needs to begin

second survey in cases of unconsciousness. This survey includes, assessing birthing, if not one need to provide CPR until the subject responds. In case of success, immediately check for any bleeding is there or not that may become life threatening. If the unconscious subject is breathing, evaluate any cut or bleeding on the body or other damage that may become life threatening. Once the evaluation gets completed call for medical emergency helplines. Thus, regarding handling of medical emergencies next question can be set as, ‘After checking the alertness/ consciousness of patient, what next the first aider should check?’ [11].

4. Head tilt-chin lift

At site of first aid requirement while checking breathing if person is facing difficulty in breathing, considering there may be obstruction in air way and thus, the chin is left, and head is tilted. By doing this posture of head the air way of the person will get cleared and he/she may breathe better.



Figure 4 head tilt-chin lift demonstration

So, to test learnings regarding head tilt chin lift the question can be set as, “chin lift head tilt manoeuvre is used for what purpose?” [11].

5. The way of checking pulses

Once breathing it checked and the person is able to breath properly, next is to check pulses. A person’s heart is pumping blood in its regular mode or not is needed to conform, and usual pulse rate is 60-100 in a minute and 15-20 in 15 seconds. So, if the person is having lesser pulses, he/she may need assistance and can be shifted for emergency services.

The common ways to check heart rate needed to take a pulse at the wrist. This is recognized as the radial pulse. To check radial pulse, take palm in hand and at the base of thumb an inch along place your thumb to check pulses. Same way at another place you can check pulses. By using two fingers on neck and then moderately press into the soft groove on whichever side of the windpipe. This method of checking heart rate is advisable in case of first

aid as this pulse running through one of the carotid arteries- (arteries running from the heart to the head) so even if low pulses will be there, it could be identified easily. These are the main arteries that run from the heart to the head.

The other places to find a rate of pulse are 1. behind the knees, 2. on the inside of an elbow when the arm is outstretched, 3. in the groin, 4. at the temple on the side of the head, 5. on the top or the inner side of the foot and these options are quite difficult as well.

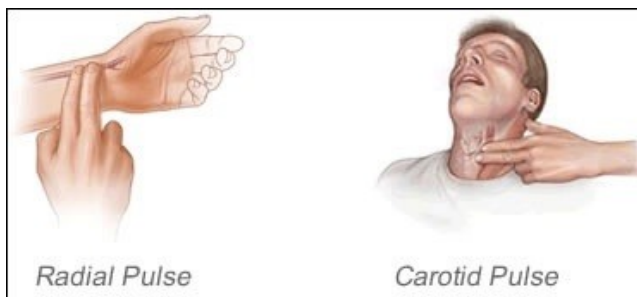


Figure 5 two major pulse check positions

In this case, to test the knowledge of the first aider here question can be set is ‘how should the first aider check the pulse in case of emergency?’

6. CPR

If somebody is insensible and getting unconsciousness and not breathing ordinarily, call immediately medical emergencies/ ambulance and then start CPR straight away. CPR is cardiopulmonary resuscitation. There are few ways for CPR but for the first aider they are limited to 1. ‘Hands only CPR’ and 2 ‘CPR with rescue breaths’ for adults [12].



Figure 6 CPR technique

1. By hands only

- Keep the heel of your hand on the breastbone at the centre of the person's chest (as shown in figure part 1).
- Put another hand above your firsthand and interlocking with your fingers (as shown in figure part 2).

- Location by hand with your shoulder joint above your hands (as shown in figure part 3).
- By applying the whole-body weight pressure straight down by 4 to 6 cm on victim’s chest.
- Release the compression but yet keep your hands at same place same position and let the torso to return to its original situation.
- Need to replicate such compressions at 100 to 120 times / minute rate you get exhausted, or emergency services reaches to you.

2. By hands with rescue breaths



Figure 7 step by step tackling emergency with CPR

This method is based on by hands only CPR technique. Here also one need to follow following steps.

- Keep the heel of your hand on the breastbone at the centre of the person's chest (as shown in figure part 1).
- Put another hand above your firsthand and interlocking with your fingers (as shown in figure part 2).
- Location by hand with your shoulder joint above your hands (as shown in figure part 3).
- By applying the whole-body weight pressure straight down by 4 to 6 cm on victim’s chest.
- Release the compression but yet keep your hands at same place same position and let the torso to return to its original situation.
- Need to replicate such compressions at 100 to 120 times / minute rate but after every 30 such torso

compressions, one need to provide two rescue breaths.

To provide rescue breath, first set head in tilt and lift the chin so remove obstruction if any. Squeeze the person's nose and then provide rescue breaths. For that cover your mouth on their mouth, and pump air firmly into their mouth in a flash of 1 second. Check for any rises in chest. Give 2 such rescue breaths of 1 seconds.

- Continue with cycles of 30 chest compressions and 2 rescue breaths until they begin to recover, or emergency help arrives.

Restricting injures person’s movement

At the site of accident or at the site where first aid is required, the patients are required to stabilize in order to preserve life. Very first he requires first aid and observation of his condition and if required shift to hospital in case of emergency. But till the ambulance reach to the site of accident, the movement of the patient need to restrict to minimize unknown injury related issue. Thus, to assess the knowledge about patient’s movement restriction question can be set as ‘As a general rule, the injured person should not be moved from the scene of an accident because,’

Identification of life-threatening condition

Any condition capable of causing death, is a life-threatening condition The injuries are usually considered serious but not life-threatening but the 4 different conditions with or without injury considered life-threatening. In any emergency situation if first aider finds any person in following conditions, call emergency medical services.

- No breathing or difficulty breathing- fatal
- Injury with unconsciousness- fatal
- No pulse- fatal
- Severe bleeding – fatal

To assess the knowledge of first aider regarding their understanding about or according to them which situation is considered life-threatening situation, the next question set was ‘How a situation can be identified as life threatening?’.

RESULTS & DISCUSSION

The frequencies recorded for the assessment of teachers regarding knowledge of first aid and its practice. Out of several participants, 150 males and 150 females, having complete information filled on digital form were selected

for further analysis. Pivot charts were prepared for all of them to make analysis easier. The analysis of data in form of charts are given here under with description.

Meaning to ‘First aid’- Out of 300 participants it was observed that 273 had reply correctly and knowing the correct meaning of first aid. Among them, 135 females and 138 males were there the distribution can be observed through the chart.

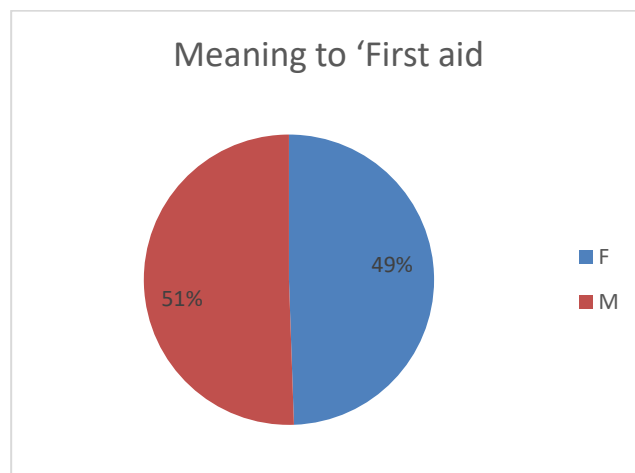


Figure 8 Response to meaning of 'first aid'

First response on an event of an accident:

Amid participants to know further about knowledge, a practical situation was given to them to answer what will they do on an event of accident? Only 162 candidates replied correctly, and 80 females and 82 males were there in that.

Prime objective of first aid:

When all participants were asked the question about prime objective of first aid, 294 of them were able to answer with expectations and both male and females were equally distributed in that frequency.

Aims of first aid:

The aim of first aid was known with clarity to 269 out of our total number of participants teachers. 136 were male educators and 133 were female educators amid them.

A good Samaritan:

The educators were also asked about what quality makes a first aider, a good samaritan. 282 school teachers were able to justify qualities of good samritans. Amid 300 participants, both male and female answered equally.

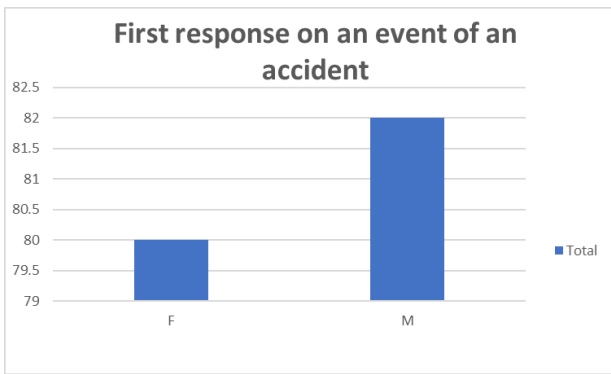


Figure 9 First response on an event of accident

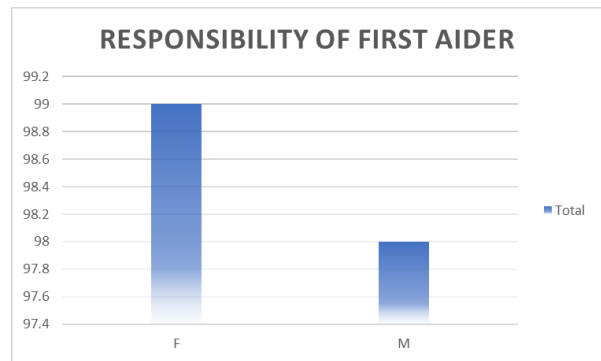


Figure 13 Responsibility of first aid

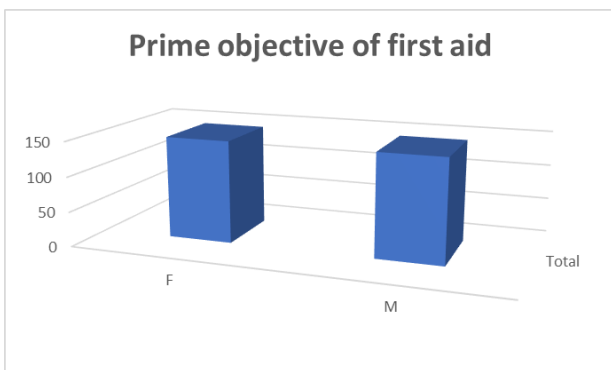


Figure 10 Response to 'Prime objective of first aid'



Figure 14 Personal safety awareness while assessing site of first aid

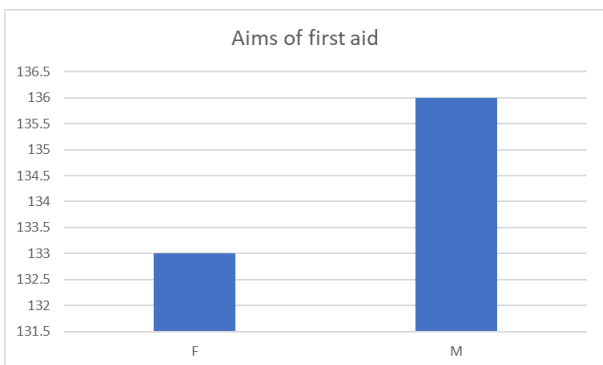


Figure 11 Response on 'aim of first aid'

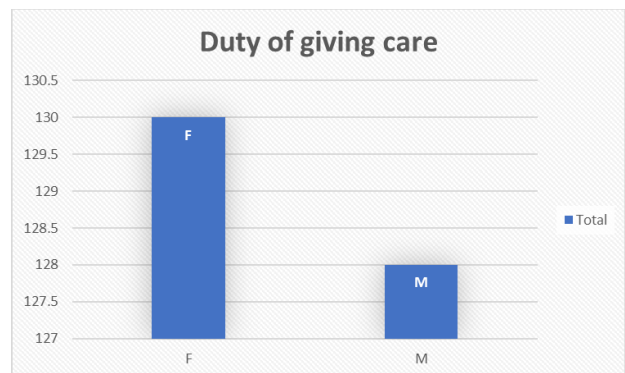


Figure 15 Duty of giving care

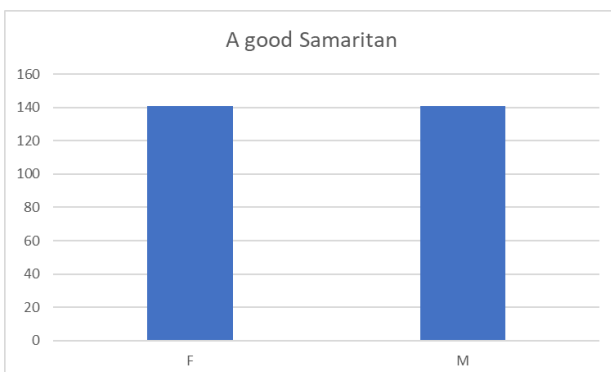


Figure 12 Response on 'About a good samaritan'

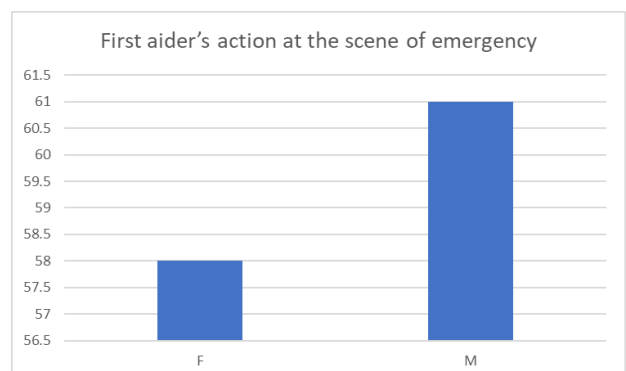


Figure 16 first aider's action at scene of emergency

Responsibility of first aider:

Out of 300 teacher participants it was observed that only 197 had reply correctly about responsibility of first aider. Among them, 99 females and 98 males were there the distribution can be observed through the chart and one can say both were equally distributed for the answer. The total number of correct responses was quite low here.

Personal safety awareness while assessing site of first aid

When the participants were questioned about what personal safety, they will have to take care about while assessing site of first aid, only 110 of them were able to match the answer with expected one. Among them 56 were female and 54 were males with quite equal distribution in that frequency, but total number of correct answers was below 50%.

Duty of giving care

Amidst 300 participants to know further about duty of giving care, they had been provided different options and 258 educators were able to answer correctly. Among them 130 were female educators and 128 were male educators.

First aider's action at the scene of emergency

The all participant school teachers were also asked about what action a aider will take once visit the scene of emergency? For this question only 119 educators were able to give an answer that matches with expectation of reference. Amidst the affirmative answers, 58 answers were given by females and 61 by male candidates.

When to stop or handover the responsibility

In case of knowledge of school teachers about handing over responsibility to the expert when they arrived at site of first aid requirement, only 97 participants were fully aware. Among them 47 female candidate and 50 male candidates were there.

Resuscitation

Amidst 300 participants to know further about resuscitation methods in emergencies, 179 had expressed correct method of resuscitation and among them 88 were female educators and 98 were male educators. It was almost 60% of total population that gave answer that was satisfactory.

APVU scale

The educators were also asked the question to know their knowledge of APVU scale. 226 participants were able to justify APVU scale. Amid 300 participants, both male and

female answered almost equally yet 114 were female and 112 were male candidates.

Handling of Medical emergencies

Handling of medical emergencies was another expect that was needed to include in the quest. The question asked to know awareness about overall handling of medical emergencies. 263 among 300 participants gave answer as it was expected as correct answer and as it was decided from the references. 131 females and 132 males were there among the correct answer.

Head tilt-chin lift

Knowing about improving breathing position the question was asked for what purpose this method is used? The answer obtained correctly only from 142 candidates and that was less than 50%. Both male and female answered equally for it.

The way of checking pulses

To know participants' clarity in the ways of checking pulse the quest was set along with other questions. Less than 50% participants could replied correctly. It was 128 participants and among them 63 male and 65 female candidates answered correctly.

CPR

Amid all participants 260 participants gave correct answer about the way to avail CPR to the patients. Among them 130 females and 130 males were there.

Restricting injures person's movement

Out of 300 educator participants it was observed that only 281 could answer correctly about whether restricting injure person's movement will be beneficial or not. Among them 141 females and 140 male participants gave correct answer.

Identification of life-threatening condition

It is very important to identify Identification of life-threatening condition at site of accident. To have knowledge about same when questions were asked to participants, only 267 out of 300 teacher participants could give correct answer. Among them 134 females and 133 males gave correct answer.

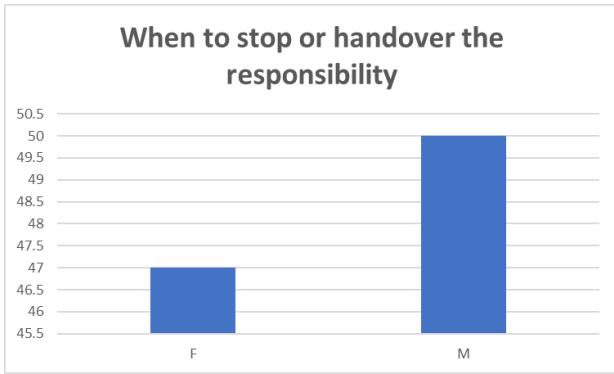


Figure 17 When to stop handover the responsibility

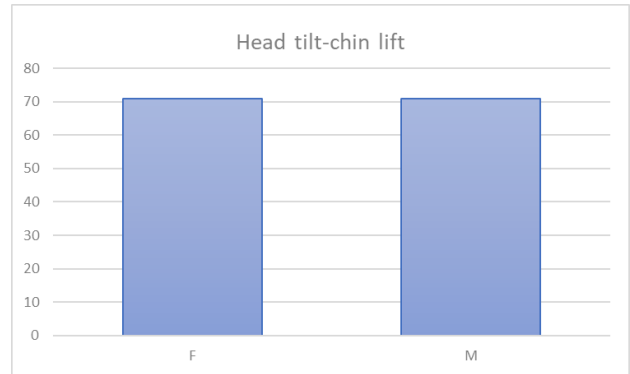


Figure 21 Head tilt-chin lift

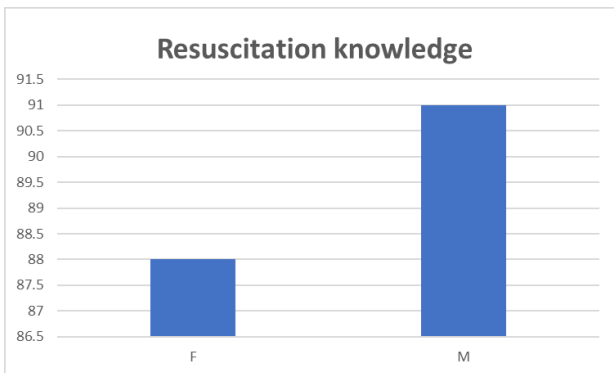


Figure 18 Resuscitation knowledge of participation

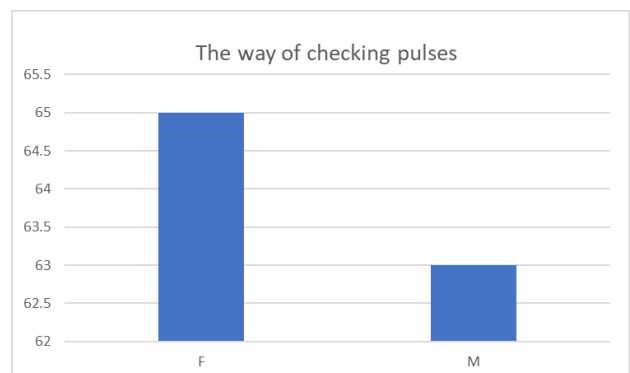


Figure 22 The way of checking pulses

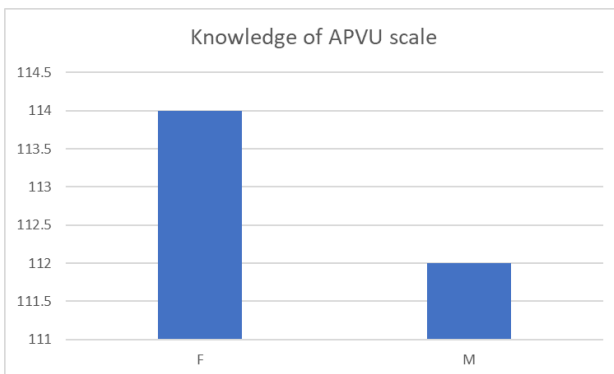


Figure 19 knowledge of APVU scale

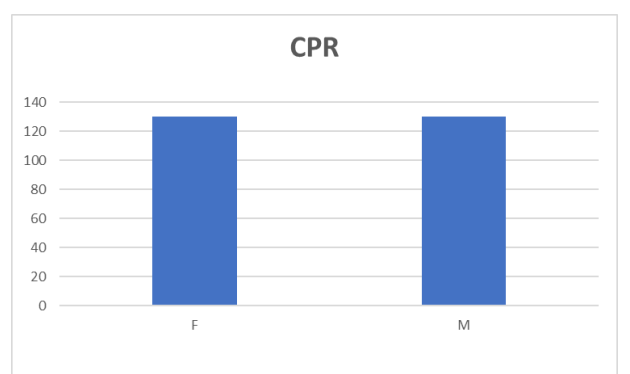


Figure 23 Response on knowledge of CPR

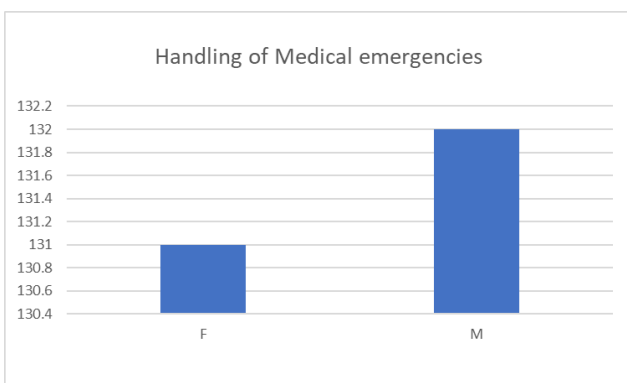


Figure 20 Handling of Medical emergencies

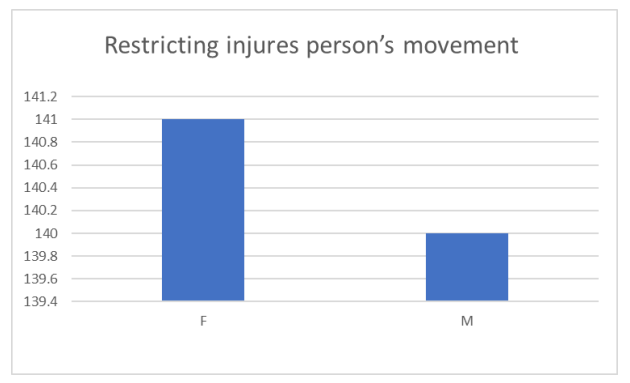


Figure 24 Restricting injures person's movement

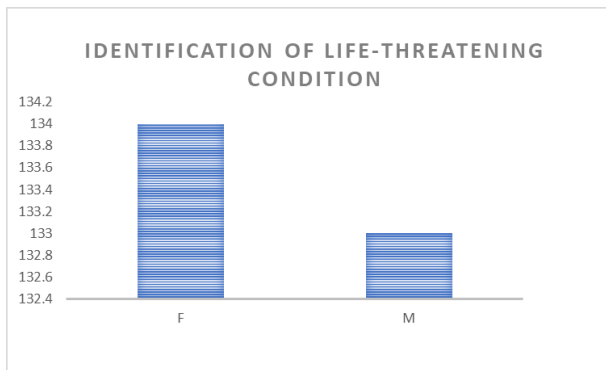


Figure 25 Identification of life-threatening condition

CONCLUSION

It was observed that in most of the question more than 50% participants have provided correct answer. Yet there were certain important questions was unsatisfactorily answered by the participants or can say less than 50% participants could gave correct answer including, first aider overall responsibility, taking care of personal safety awareness though assessing site of first aid, first aider's practice behaviour at the scene of emergency, to handover the responsibility to expert once they arrive, the way of checking pulses, and identification of life-threatening condition. It was observed that the group of educators still need training regarding these important first aid practice parameter. Schools should take proactive part, unloading training/support from a variety of professionals and that would be helpful, and current academic demands such training in curriculum. This information is useful to school physicians, nearby hospital specialists, and administrators in helping set the stage for establishing emergency tackling abilities by learning practices in schools. It is also possible from these representative group that further large number of educators may need similar training for the first aid that remain crucial in saving human lives.

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