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## RESEARCH ARTICLE

# A STUDY TO ASSESS THE KNOWLEDGE REGARDING HEAT STROKE AND ITS MANAGEMENT AMONG TEACHERS, WORKING IN SELECTED SCHOOLS OF TIRUPATI

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### ABSTRACT

The aim of the study is to assess the level of knowledge regarding heat stroke and its management among school teachers.

#### OBJECTIVES OF THE STUDY:

- To assess the knowledge regarding heatstroke and its management among school teachers
- To find the association between knowledge regarding heat stroke and its management among school teachers with their selected socio-demographic variables
- To distribute information booklet regarding heatstroke and its management

**Methodology:** By using Non probability-Convenient Sampling Technique, Non experimental-Descriptive Research Design was adopted, 100 school teachers were taken for the study and data was collected by using a self structured questionnaire and analysed by using descriptive and inferential statistics.

**Results:** The results revealed that out of 100 school teachers majority 67(67%) had inadequate knowledge, 33(33%) had moderate knowledge and none of them has adequate knowledge regarding heat stroke and its management, significant association was found between level of knowledge and socio economic status.

**Conclusion:** Every year we can find many changes in the environment, due this even the health is being affected very much one among the health affects is considered to be heat stroke, where even the children are being affected, the researcher found that educating school teachers can minimise this and so, education was given to the school teachers.

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## INTRODUCTION

A human body normally generates the heat as a result of metabolism, and it usually able to dissipate the heat by either radiation of heat through the skin or by evaporation of sweat, but if there is a vigorous physical exertion under the sun, the body may not be able to dissipate the heat and the body temperature rises up to 106<sup>0</sup> F (41.1<sup>0</sup> C) or higher. Exposure to high temperatures has shown adverse effects on human health. These effects may be especially dangerous for children whose physiology is still developing and internal coping mechanisms are yet to be fully operationalized (Sheffield, 2011).

Children constitute large sections of the population in India. It is a great challenge to the nation to provide health, education and food to the children below 15 years who are the dependent, unproductive section which comprising of 40% of the total population of the country (Census, 2011). Heat related illnesses are increasing with increased global warming. Greater awareness regarding heat related illness will help in recognizing and treating these disorders at an early stage. Prolonged or intense exposure to hot temperatures can cause heat-related illnesses such as heat exhaustion, heat cramps, and heat stroke (also known as sun stroke). Heatstroke is not a fever, where the body deliberately raises its temperature in response to, for example, an infection and being the most

severe and life threatening. As the body works to cool itself under extreme or prolonged heat, blood rushes to the surface of the skin. Heat stroke, is a most severe form of heat related illness which occurs when the body's heat regulating system is overwhelmed by excessive heat i.e., higher than 106<sup>0</sup> F (41.1<sup>0</sup> C) associated with physical and neurological dysfunction. Heat stroke is a true life threatening emergency that requires emergency medical attention, it can fatal if not treated properly and promptly (Fauci, 2008).

### Need for the study:

#### “A milligram of prevention is worth a kilogram of cure”

India is one of the largest developing countries in the world. India - a country of over a billion people - is today one of the youngest countries in the world. Nearly one third of its population is under 15 years of age. It constitutes around 20% of school going children. The future of our country rests on the children who will become the future citizens and leaders. Care for the children is not only vital in itself but the most important aspect of the health of the community as a whole. Economists and advocates of developments have repeatedly stressed that India needs to provide far greater access to improved healthcare and education for this young population. The Indian heat wave of 2015 saw the temperatures of as high as 49.4°C in Jharsuguda and 47.8°C in Allahabad. The number of deaths due to heat stroke reached 2,500. India has been experiencing severe heat waves during summer almost every year now. More than 20,000 people have died of heat-related causes in India since 1990. These deaths could have been prevented by following preventive measures, proper planning, creating awareness of heat stroke among the general population etc.

Severe heat wave conditions are expected to prevail in many states during summer. The National Crime Records Bureau Data indicates that a total of 7686 people lost their lives due to Heat stroke from the year 2010 to 2015. Out of 7686 deaths from 2010 to 2015, 6198 victims are male while 1487 victims are female. In other words, about 81% of the victims in these six years are male while the rest of the 19% are female. This breakup was more or less same in each of these years. 1274 people lost their lives in 2010 while the number came down to 793 in 2011, a decrease of 38%. The year 2011 saw a sudden dip in the number of deaths only to increase the next year to 1247. Both 2013 & 2014 witnessed about 1200 deaths each year. In the year 2015, the number of deaths increased to 1908, an increase of more than 50% compared to 2014. Andhra Pradesh alone accounted for 1825 deaths, about 24% of the All India figure, out of 5 deaths in the country 1 death was noticed in Andhra Pradesh.

## MATERIAL AND METHODS

**Research approach:** Non experimental.

**Research design:** Descriptive research design.

**Setting of the study:** Z.P.High school-S.N.Puram, 2. Z.P.High school-Renigunta, 3. Z.P.High school-Karakambadi, 4. Z.P.High school-Mangalam trends, Tirupati.

**Study population:** School teachers.

**Study sample:** School teachers who are working in Z.P.High school-S.N.Puram, 2. Z.P.High school-Renigunta, 3. Z.P.High

school-Karakambadi, 4. Z.P.High school-Mangalam trends, Tirupati.

**Sample size:** 100 school teachers.

**Sampling technique:** Non probability-Convenient Sampling Technique was adopted for the present study.

## CRITERIA FOR SAMPLE SELECTION

### Inclusion criteria

#### School teachers who are

- Willing to participate in the study
- Working in government schools
- Available at the time of data collection

### Exclusion criteria

#### School teachers who are

- who are below 20 years of age
- working other than government schools

## DEVELOPMENT AND DESCRIPTION OF THE TOOL:

The tool acts as an instrument to collect data from the respondent of the study (Polit and Beck, 2004) and at the same time it adds to the body of general knowledge in the discipline, that enables to collect the data or to answer the researcher question or to test hypothesis and evaluate outcome of particular collection. The researcher developed the tool based on the objectives of the study. A closed ended Structured Questionnaire is used to collect the necessary data from the samples. The same tool was developed in English. The tool consists of I & II sections.

### Section-I: Socio-demographic data

It consists of variables such as age, gender, religion, residence, educational status, total teaching experience, Family income per month, type of diet, marital status, subject taught in school and source of information about heat stroke and its management.

**Section-II: Structured Questionnaire on Knowledge regarding heat stroke and its management:** Structured questionnaire consists of items to assess the knowledge regarding Heat stroke and its management. All the items were multiple choice questions, A total of 30 in which some questions contain one answer and some other questions contain more than one answer each correct answer carries 1 mark and wrong answer carries 0 mark the maximum score was 43.

## SCORE INTERPRETATION FOR SECTION – II:

SCORE	MARKS	LEVEL OF KNOWLEDGE
<50 %	<21.5	Inadequate level of knowledge
51-75 %	22-32	Moderate level of knowledge
>75%	>32	Adequate level of knowledge

**CONTENT VALIDITY:** Content validity refers to which the items of an instrument adequately represents the universe of the content for the content of being measured

The tool was submitted to 5 experts in Sri padmavathi Government college of nursing, Tirupati, 3 expert in department of SPM, SVIMS, Tirupati, 1 expert in St. Joseph College of Nursing, Guntur, 1 expert from government college of nursing, Kurnool. Based the suggestions given by the experts the necessary modifications of the tool were made and final draft was prepared and incorporated in pilot study.

**RELIABILITY OF THE TOOL:** Reliability of the tool is defined as the expert to which the important fields the same results in repeated measures. It concerns with stability internal consistency and homogeneity. It was conducted in Z.P.High school, Annaswamyapalli, Tirupati. To establish the reliability of Cronbach's Alpha Reliability method was used. Tool was administered to 10 members who were not included in the pilot study. The reliability score was  $r=0.75$  which means tool was highly reliable.

**PILOT STUDY:** The pilot study is small version of traits runs done in preparation for major studies, formal permission was obtained from the school authority. Pilot study was conducted on 10 school teachers in Z.P.High school, Mallamgunta, Tirupati, who fulfil the inclusion criteria were selected, obtained consent from them by establishing good rapport and the sample for pilot study was based on non-probability convenience sampling technique.

Investigator administered the questionnaire to assess knowledge regarding heat stroke and its management among school teachers and instructions were given to them to answer questionnaire frankly. After the questionnaire was answered information booklet on heatstroke and its management was given to the participants statistical analysis was done by using descriptive and inferential statistics. Findings of the study revealed that the tool was feasible and practicable to conduct the study.

**PROCEDURE FOR DATA COLLECTION:** The study was conducted from 26/3/2021 to 7/4/2021 at 1. Z.P.High school-S.N.Puram, 2. Z.P.High school - Renigunta, 3. Z.P.High school-Karakambadi, 4. Z.P.High school-Mangalam trends, Tirupati. The investigator initially establishes rapport with the study subjects, then the questionnaire was used to collect data from school teachers. The time limit of 30 minutes was taken, by the investigator to each sample. The investigator maintained confidentiality and had no difficulty in collecting the data.

**DATA ANALYSIS:** After completing the data from each individual student, results were tabulated. Descriptive and inferential statistics were used for analysis of school teachers level of knowledge.

#### DESCRIPTIVE STATISTICS

- Frequency and Percentage distribution used to analyze the demographic variables
- Percentage, mean distribution and S.D used to analyze the study variables that are school teachers

#### INFERENTIAL STATISTICS

- Pearson correlation was used for the present study

#### Findings of the study

**Table 1. Frequency And Percentage Distribution Of Knowledge Regarding Heat Stroke And Its Management Among School Teachers**

Knowledge on regarding heat stroke and its management	Frequency	Percentage
Inadequate (<50%)	67	67
Moderate (51-75%)	33	33
Adequate (>75%)	0	0
Total	100	100

Table 1. The above table 3 explains that regarding level of knowledge among school teachers out of 100 majority 67(67%) of sample had inadequate knowledge rest of 33(33%) of them had moderate knowledge and none of the school teachers had adequate knowledge.

#### DISTRIBUTION OF MEAN AND STANDARD DEVIATION OF KNOWLEDGE AMONG SCHOOL TEACHERS

**Table 2. The above table 4 shows that mean knowledge score was 0.67 and SD was 0.19 respectively**

Level of Knowledge on heat stroke and its management	Mean	Standard Deviation
Inadequate (<50%)	0.67	0.19
Moderate (51-75%)		
Adequate (>75%)		

Table 5: Above table 5 describes that there was a significant association between some of the socio-demographic variables and level of knowledge regarding heat stroke and its management among school teachers which are total experience and marital status at  $p<0.05$  level.

## DISCUSSION

The main finding of the study revealed that majority of the population had moderate level of knowledge on heat stroke and its management. The first objective of the study was "To assess the knowledge regarding heat stroke and its management among school teachers" regarding knowledge among teachers, out of 100 school teachers majority 67(67%) had inadequate knowledge, 33(33%) had moderate knowledge and none of them has adequate knowledge regarding heat stroke and its management.

The mean score of level of knowledge regarding heat stroke and its management was 0.67 and standard deviation was 0.19. This objective was supported by previous study conducted in karad Maharashtra. The study objective is assess the knowledge of school teachers heat stroke and its management at primary level the study used 22 school teachers were selected by simple random sampling technique. The study findings shown that 23% of subjects had adequate, 64(64%) had average and 13(13%) had inadequate knowledge regarding heat stroke and its management. Researcher recommended that structured teaching programme will be effective to improve knowledge level of teachers. The second objective of the study was to find the association between knowledge regarding heat stroke and its management among teachers with their selected socio demographic variables.

**Table 5. Association Of Knowledge Regarding Heat Stroke And Its Management Among School Teachers Wwith Their Selected Socio-Demographic Variable**

(N= 100)

S.No	Demographic Variables	Knowledge on regarding heat stroke and its management						Chi-Square
		Inadequate <50%		Moderate 51-75 %		Adequate > 75 %		
1.	Age							
	20 – 25 years	0	0	0	0	0	0	$\chi^2= 3.1$ P = 0.1 df =2
	26 - 30 years	10	15.0	8	24.2	0	0	
	31 – 35 years	27	40.2	16	48.4	0	0	
	Above 36 years	30	44.8	9	27.2	0	0	
	Total	67	100	33	100	0	0	
2.	Gender							
	Male	36	54	15	45.4	0	0	$\chi^2=1$ P=0.4 df= 1
	Female	31	46	18	54.5	0	0	
	Total	67	100	33	100	0	0	
3.	Religion							
	Hindu	30	44.8	19	57.5	0	0	$\chi^2 =1.47$ P=0.48 df=2
	Christian	22	33.0	8	24.2	0	0	
	Muslim	15	22.3	6	18.1	0	0	
	Total	67	100	33	100	0	0	
4.	Residence							
	Rural	39	58	24	72.8	0	0	$\chi^2 =2$ P = 0.2 df=1
	Urban	28	42	9	27.2	0	0	
	Total	67	100	33	100	0	0	
5.	Educational qualification							
	TTC	0	0	0	0	0	0	$\chi^2 =2.7$ P = 0.1 Df = 1
	B.Ed	34	51	11	33.4	0	0	
	M.Ed	33	49.2	22	66.7	0	0	
	Others specify	0	0	0	0	0	0	
	Total	67	100	33	100	0	0	
6.	Total teaching experience							
	<5years	19	28.3	4	12.1	0	0	$\chi^2 = 5.23^*$ P = 0.007 Df = 2
	6-8 years	17	25.3	14	42.4	0	0	
	9-11 years	21	31.3	13	39.3	0	0	
	>10 years	10	14.9	2	6.0	0	0	
	Total	67	100	33	100	0	0	

8.	Family income per month							
	< Rs.20,000/-	14	21	10	30.3	0	0	$\chi^2 =3.0$ P = 0.5 Df = 3
	Rs. 20,000/- to Rs.30,000/-	14	21	6	18.1	0	0	
	Rs.30,000/- to Rs.40,000/-	23	34.3	9	27.2	0	0	
	> Rs.40,000	16	23.8	8	24.2	0	0	
	Total	67	100	33	100	0	0	
9.	Type of diet							
	Vegetarian	9	13.4	6	18.1	0	0	$\chi^2 =0.4$ P = 0.8 Df = 2
	Non vegetarian	20	29.8	10	30.3	0	0	
	Mixed diet	38	56.7	17	51.5	0	0	
	Total	67	100	33	100	0	0	
10.	Marital status							
	Married	56	83.5	23	69.7	0	0	$\chi^2 =2.6^*$ P = 0.0011 Df = 1
	Unmarried	11	16.4	10	30.3	0	0	
	Single	0	0	0	0	0	0	
	Divorced	0	0	0	0	0	0	
	Total	67	100	33	100	0	0	
11.	Subjects taught in school							
	Social studies	12	17.9	5	15.1	0	0	$\chi^2 =1.83$ P = 0.9 Df = 5
	General sciences	12	17.9	5	15.1	0	0	
	Mathematics	10	14.9	6	18.1	0	0	
	English	10	14.9	7	21.2	0	0	
	Hindi	12	17.9	7	21.2	0	0	
	Telugu	11	16.4	3	9.09	0	0	
	Any other specify	0	0	0	0	0	0	
	Total	67	100	33	100	0	0	
12.	Source of information							
	Health care personnel	12	17.9	5	15.1	0	0	$\chi^2 = 1.0$ P = 0.6 Df = 2
	Family members & relatives	16	23.8	11	33.3	0	0	
	Mass media	39	58.2	17	51.5	0	0	
	Total	67	100	33	100	0	0	

\*significant at 0.05 level.

There was a significant association between some of the socio demographic variables and level of knowledge regarding heat stroke and its management among teachers in selected schools, which were total experience and marital status significant at  $p < 0.05$  level. The above objective was supported by previous study conducted in Jabalpur Madhya Pradesh. The objective was to find the association between the knowledge and socio demographic variables. The study used 80 school teachers were selected by non-probability convenient sampling technique. The findings shown that there was a significant association between knowledge and age, gender, teaching experience, residence area. The results of this study is similar to present study.

**IMPLICATIONS:** The implications drawn from present study is of vital concern to health teams including nursing practice, nursing education, Nursing administration and so on.

### Nursing practice

- In the community small teaching sessions can be conducted regarding heat stroke and its management, to adopt the preventive practices by school teachers to bring down the incidence and prevalence of heat stroke or heat illness
- The nurse acts as an organizer for conducting mass health awareness programmes regarding heat stroke and to improve the knowledge and healthy practices

### Nursing education

- The community health nursing curriculum needs to be strengthened to enable nursing students with knowledge, attitude and practices regarding heat stroke and its management
- Community health nurses can develop educational materials for teaching the public regarding heat stroke or heat illness and its management to adopt healthy practices in their daily lives

### Nursing administration

- Conduct regular screening campaigns regarding heat stroke or heat illness and its management in the schools, colleges at workplaces in the community to initiate health programmes in order to prevent heat stroke or heat illness.
- Administration policies should allow for conducting training, workshops for nurses regarding prevention of heat stroke or heat illness to apply knowledge, life style changes in to practice.

### Nursing research

- The nurses and nursing students should be encouraged to do research complications of heat stroke, lifestyle changes among public in the community
- Utilization of research findings in the practice has to be encouraged

### Limitations

- Study is limited to school teachers

- Study is confined to Z.P high school-SN puram, Z.P high school Renigunta, Z.P. high school karakambadi, Z.P high school Mangalam trends-Triuapti.
- Study is limited to above 20 years of age group of school teachers

### RECOMMENDATION

- A similar study can be conducted to compare school teachers in government and private schools
- A comparative study can be conducted to assess knowledge, attitude and practices among school teachers
- As study can be conducted to assess the structured teaching programme on knowledge regarding heat stroke and its management among school teachers

### CONCLUSION

In this study knowledge among school teachers 67(67%) had inadequate knowledge, 33(33%) had moderate knowledge and none of them had adequate knowledge in relation to knowledge regarding heat stroke and its management. These findings suggested that extensive health education programmes were needed to bring awareness among school teachers. So nurses need to encourage to improve knowledge among teachers regarding heat stroke and its management by organizing structured teaching programs in schools to bring down the mortality and morbidity to make nation healthy.

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