IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

"A STUDY TO ASSESS THE KNOWLEDGE AND EFFECTIVENESS OF A STRUCTURED TEACHING PROGRAM REGARDING PREVENTION OF HEAT STROKE DURING SUMMER AMONG DEGREE STUDENTS IN A SELECTED COLLEGE AT ANKOLA, UTTARA KANNADA DISTRICT,KARNATAKA."

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*Abstract:*Heat stroke is a serious heat-related emergency and can be prevented through appropriate knowledge and preventive measures. The present study assessed knowledge regarding prevention of heat stroke during summer and evaluated the effectiveness of a structured teaching programme among degree students in a selected college at Ankola, Uttara Kannada District, Karnataka. A quantitative approach with a one-group pre-test and post-test pre-experimental design was adopted. Fifty degree students were selected by purposive sampling. A structured knowledge questionnaire was used, followed by a 45-minute structured teaching programme using lecture and PowerPoint presentation. Data were analyzed using frequency, percentage, mean, median, mode, standard deviation, paired t-test and chi-square test. In the pre-test, 9 (18%) students had good knowledge, 34 (68%) had average knowledge and 7 (14%) had poor knowledge. In the post-test, 45 (90%) had good knowledge, 5 (10%) had average knowledge and none had poor knowledge. The mean knowledge score increased from 13.00 to 21.74, with a mean difference of 8.74. The calculated paired t value was 11.97, greater than the tabulated value of 2.01 at 0.05 level of significance (df=49), indicating a significant improvement in knowledge following the structured teaching programme. Post-test chi-square analysis showed no statistically significant association between knowledge scores and the selected demographic variables. The study concluded that the structured teaching programme was effective in improving knowledge regarding prevention of heat stroke.

Index Terms–Heat stroke;Prevention;Knowledge;Structured teaching programme;Health education

I. INTRODUCTION

Climate change is one of the major environmental and public health challenges of the present century. Rising temperatures and prolonged periods of extreme heat are increasing the risk of heat-related illness and death worldwide. According to the World Health Organization (WHO), an estimated 489,000 heat-related deaths occurred globally each year during 2000–2019, with approximately 45% occurring in Asia [1]. Most heat-related health effects are preventable through appropriate preventive and public-health measures [2].

Heat exposure occurs when a person is exposed to high environmental temperatures, direct sunlight, high humidity and reduced air movement. When the body is unable to dissipate excess heat effectively, normal thermoregulation is impaired, increasing the risk of heat-related illnesses [2]. These illnesses range from heat rash, heat cramps and dehydration to heat exhaustion and heatstroke. Heat exhaustion may present with excessive sweating, weakness, headache, dizziness, nausea and dehydration. If excessive heat exposure continues without timely intervention, the condition may progress to heatstroke [2].

Heatstroke is the most severe form of heat-related illness and is a medical emergency. It results from failure of the body's ability to regulate temperature following excessive heat exposure and may present with confusion, altered mental status, seizures and loss of consciousness. Severe cases can result in serious organ damage and death [2]. Early recognition and prompt management are therefore essential.

Preventive measures include avoiding unnecessary outdoor exposure during the hottest part of the day, staying in shaded or cool environments, maintaining adequate hydration, wearing loose and lightweight clothing, taking sufficient rest and avoiding strenuous physical activity during extreme heat [2,4]. Individuals involved in sports, exercise or other physically demanding activities are particularly vulnerable to heat-related illness [2].

College students may also be exposed to excessive heat through travelling to and from college, outdoor activities, sports and physical exertion. Extreme heat may not only affect their health but can also interfere with concentration, learning and other educational activities. Improving students' knowledge regarding the causes, risk factors, signs and symptoms, prevention, first aid and appropriate healthcare-seeking behaviour may help them recognize heat-related illness early and adopt protective practices.

Assessment of knowledge among degree students is therefore important to identify existing knowledge gaps and provide baseline information for planning appropriate health-education interventions [5]. A Structured Teaching Programme is a planned and systematic educational intervention designed to provide organized information about a specific health problem. A teaching programme on prevention of heatstroke can improve students' understanding of heat exposure, risk factors, warning signs, preventive measures, hydration, avoidance of excessive heat and appropriate first-aid practices. The National Centre for Disease Control (NCDC) also emphasizes awareness, training and preparedness for prevention and management of heat-related illnesses [3].

In India, heat preparedness has become an important public health priority. The NCDC Advisory for State Health Departments for Summer 2026 emphasizes preparedness, timely response, implementation of heat-health action plans and dissemination of national guidelines on heat-related illnesses [3]. These measures highlight the importance of community awareness and health education in reducing the health effects of extreme heat.

Considering the increasing exposure to extreme heat, the potentially serious consequences of heat-related illness and the importance of preventive knowledge among young people, there is a need to provide appropriate health education to college students. Therefore, the investigator felt the need to assess the existing knowledge of degree students and evaluate the effectiveness of a Structured Teaching Programme regarding prevention of heatstroke.

II. CONCEPTUAL FRAMEWORK

CONCEPTUAL FRAMEWORK BASED ON THE MODIFIED LUDWIG VON BERTALANFFY GENERAL SYSTEM THEORY

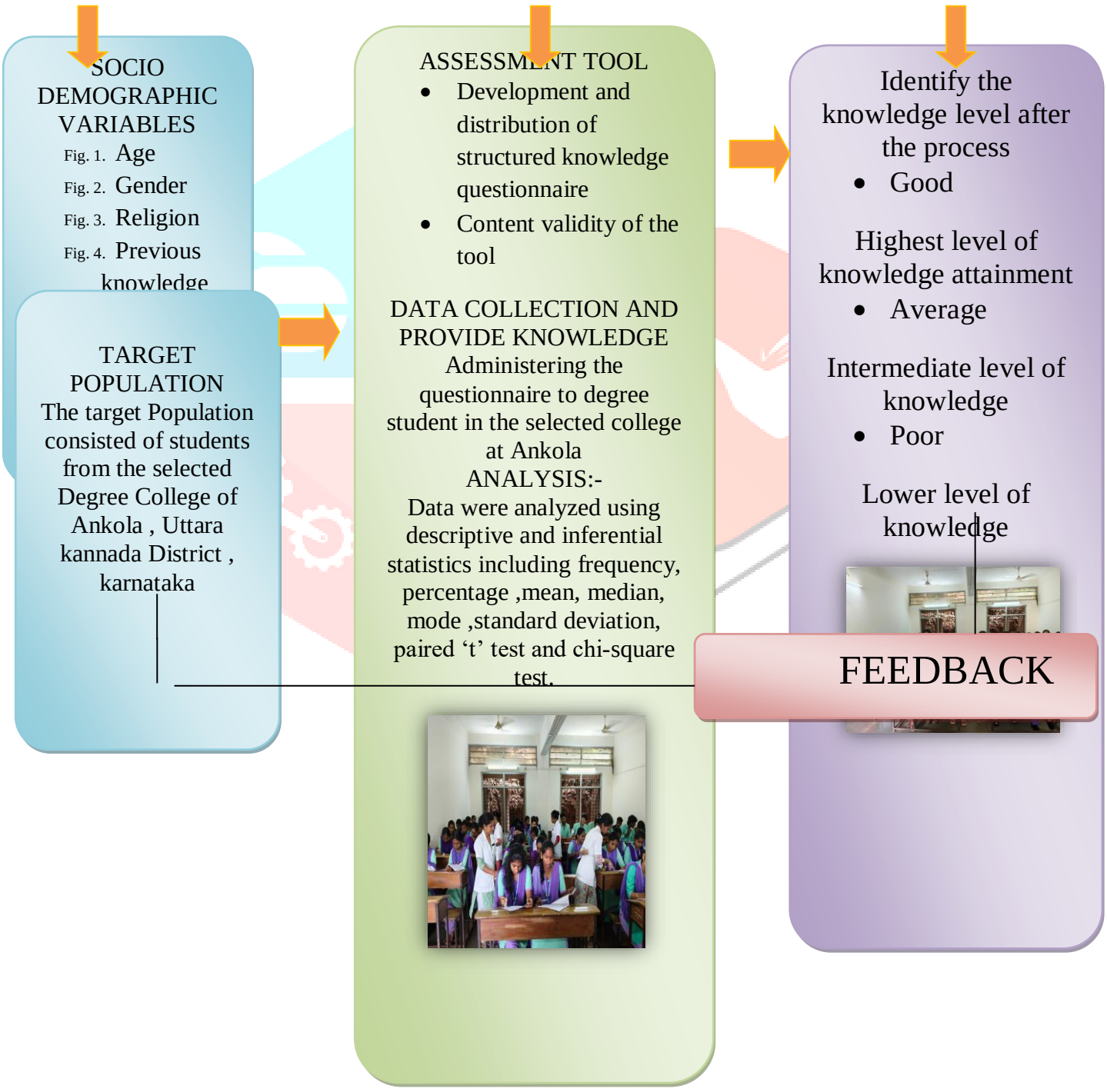


Figure 1: Conceptual framework based on Rosen Stock Health Belief Model (1974)

III) MATERIALS AND METHODS

Parameter	Description
Research approach	Quantitative approach
Research design	One-group pre-test and postst –test pre experimental design
Setting	KLE'SDegreecollege'ankola'uttarakannada district,karnataka
Sample size	50 Degree students
Sampling technique	Purposive sampling
Tool	Structured knowledge questionnaire
Teaching programme	45-minute lecture with power point presentation

III) RESULT AND DISCUSSION

SECTION- A: Findings related to Demographic data of Degree College students selected colleges in Ankola, Uttara Kannada District.

TABLE :1(n=50)

SL.NO	**DEMOGRAPHIC DATA**	**FREQUENCY**	**PERCENTAGE(%)**
1.	**Age (in year)**		
	17-18 years	5	10%
	19-20 years	45	90%
	21-22 years	0	0%
2.	**Gender**		
	Male	6	12%
	Female	44	88%
3.	**Religion**		
	Hindu	49	98%
	Muslim	1	2%
	Christian	-	-
	If any other	-	-
4.	**Previous knowledge**		
	Yes	25	50%
	No	25	50%
5.	**Source of information**		
	Newspaper	1	4%
	Journal	1	4%
	Internet	11	44%

	Real experience	12	48%
6.	**Type of family**		
	Joint family	12	24%
	Nuclear family	38	76%
7.	**Area of residency**		
	Urban	18	36%
	Rural	32	64%
8.	**Daily water intake**		
	500ml - 1litre	2	4%
	1.5 -2.5litre	48	96%
	3- 5litre	0	0%

The date present in table 1 indicate that :

- Out of the total 50 degree Students 10% (5) belonged to age group of 17-18 years, 90% (45) belonged to age group of 19-20 years, no students belonged to age group of 21 – 22 years.
- The majority of the degree students 88% (44) were female.
- The majority of the degree students 98% (49) belonged to Hindu religion, while 2%(1) belonged to the muslim religion.
- Half of the degree students 50% (25) had previous knowledge, while 50% (25) had no previous knowledge .
- The majority of the degree students 48% (12) reported the Real experience as the source of information.
- The majority of the degree students 76% (38) belonged to nuclear families.
- The majority of degree students 64% (32) were from rural area, while 36% (18) were from urban areas.
- The majority of the degree students 96% (48) consumed 1.5 - 2.5 litres of water per day, while 4% (2) consumed 500 ml - 1 litre .

FIGURE : 1

THE PIE DIAGRAM REPRESENTS THE AGE DISTRIBUTION OF DEGREE STUDENTS IN SELECTED COLLEGES OF UTTARA KANNADA DISTRICT.

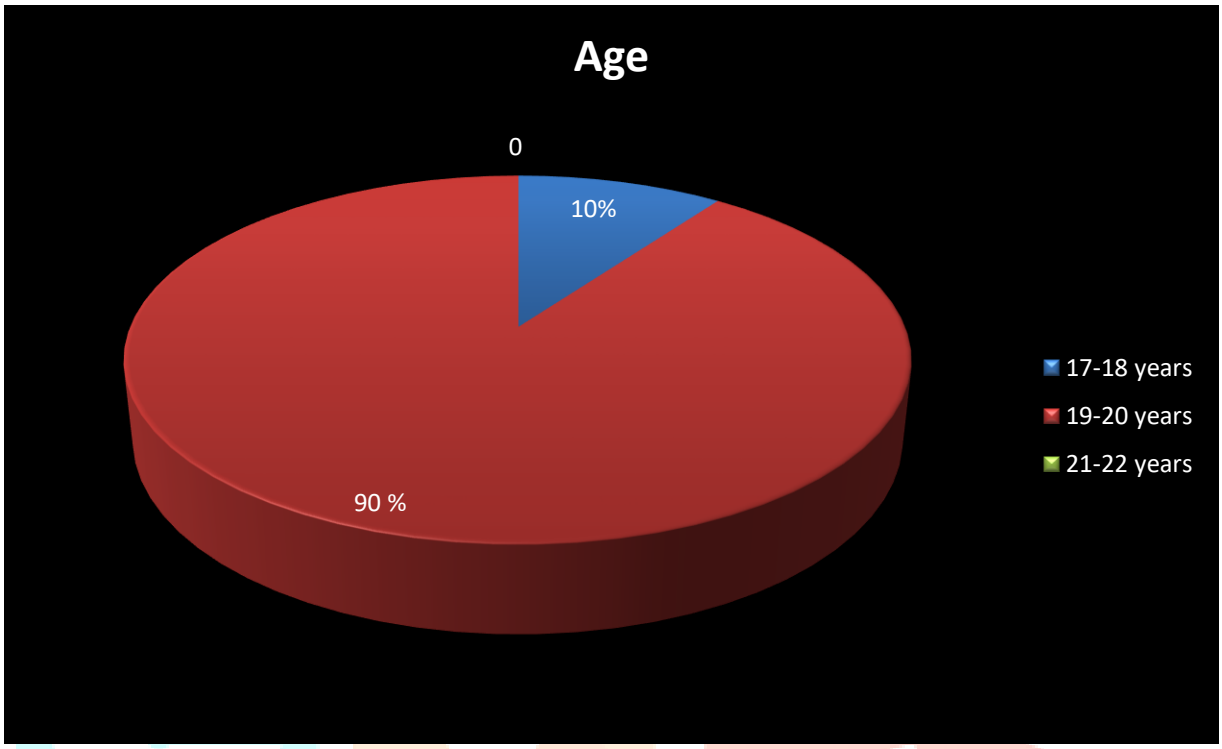


FIGURE : 2

THE CONE DIAGRAM REPRESENTS GENDER OF DEGREE STUDENT

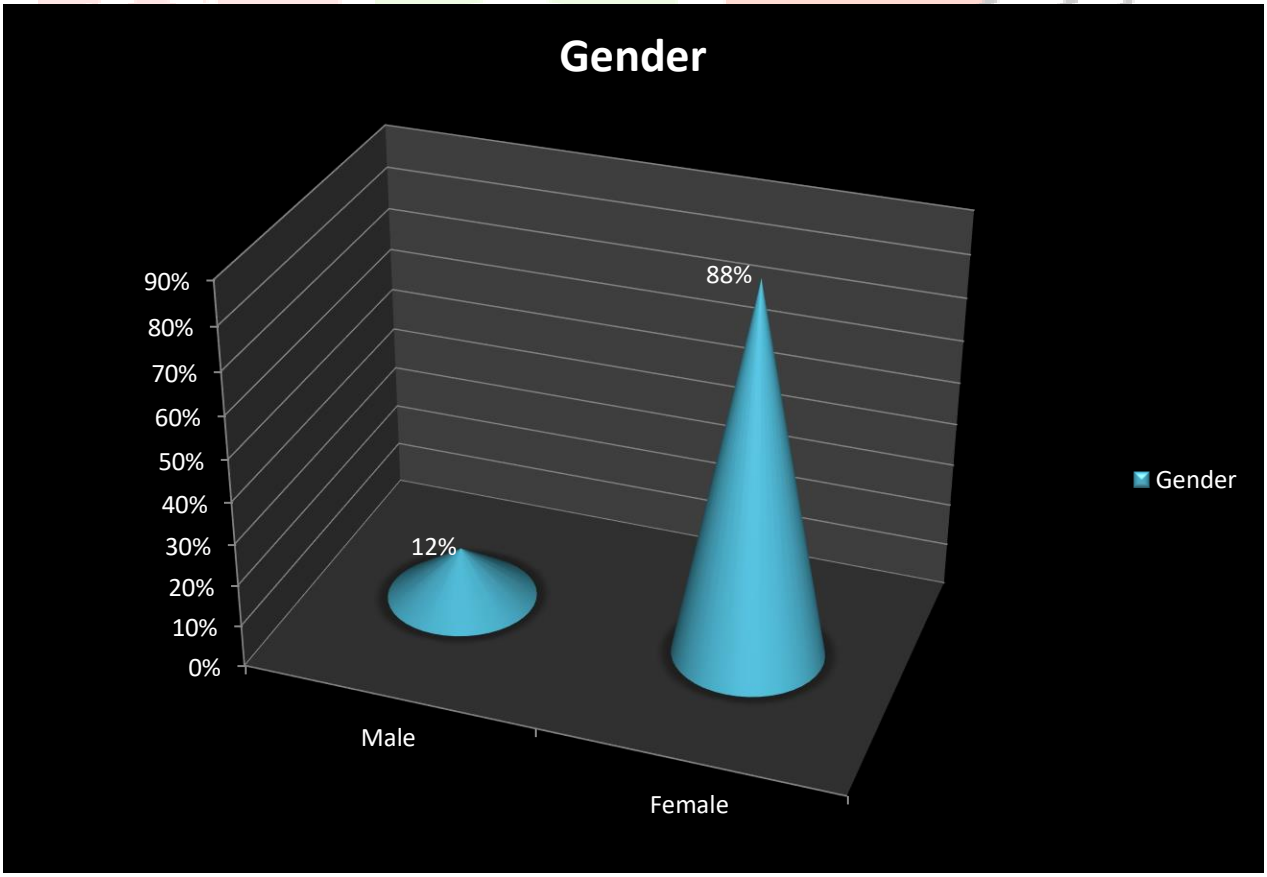


FIGURE : 3

THE COLUMN DIAGRAM REPRESENTS THE RELIGION OF DEGREE STUDENTS.

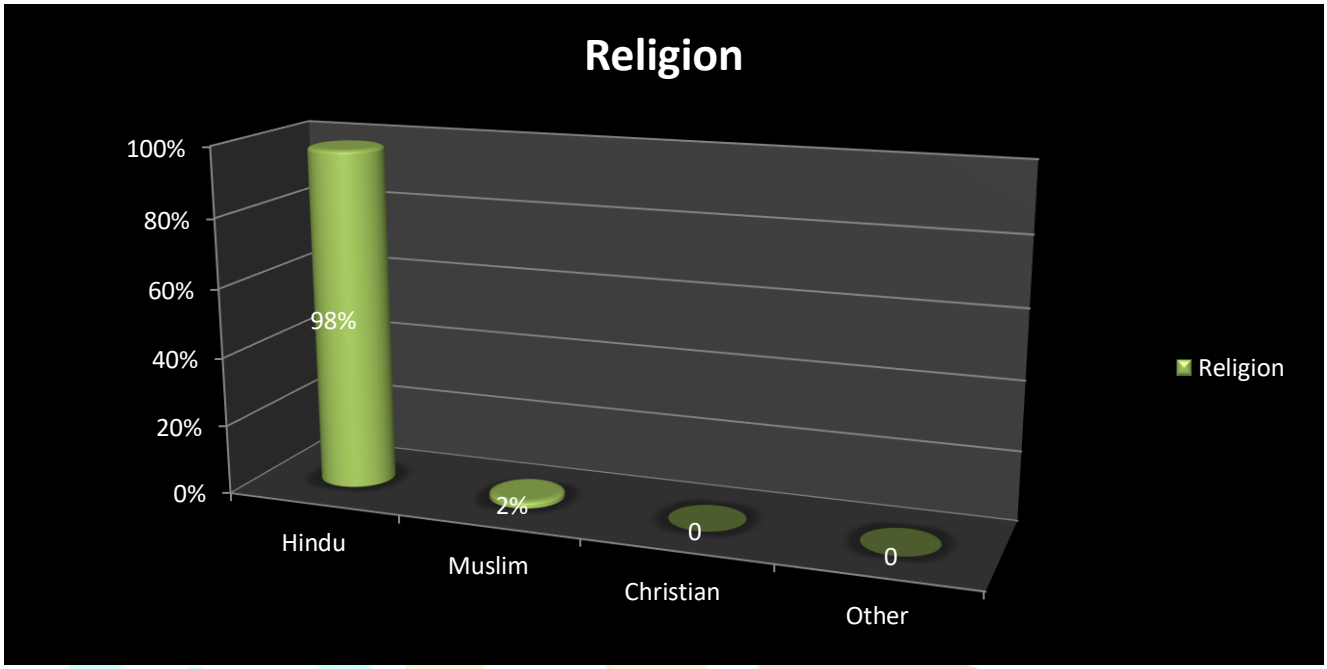


FIGURE : 4

THE DOUGHNTNUT CHART REPRESENTS THE PREVIOUS KNOWLEDGE OF DEGREE STUDENTS

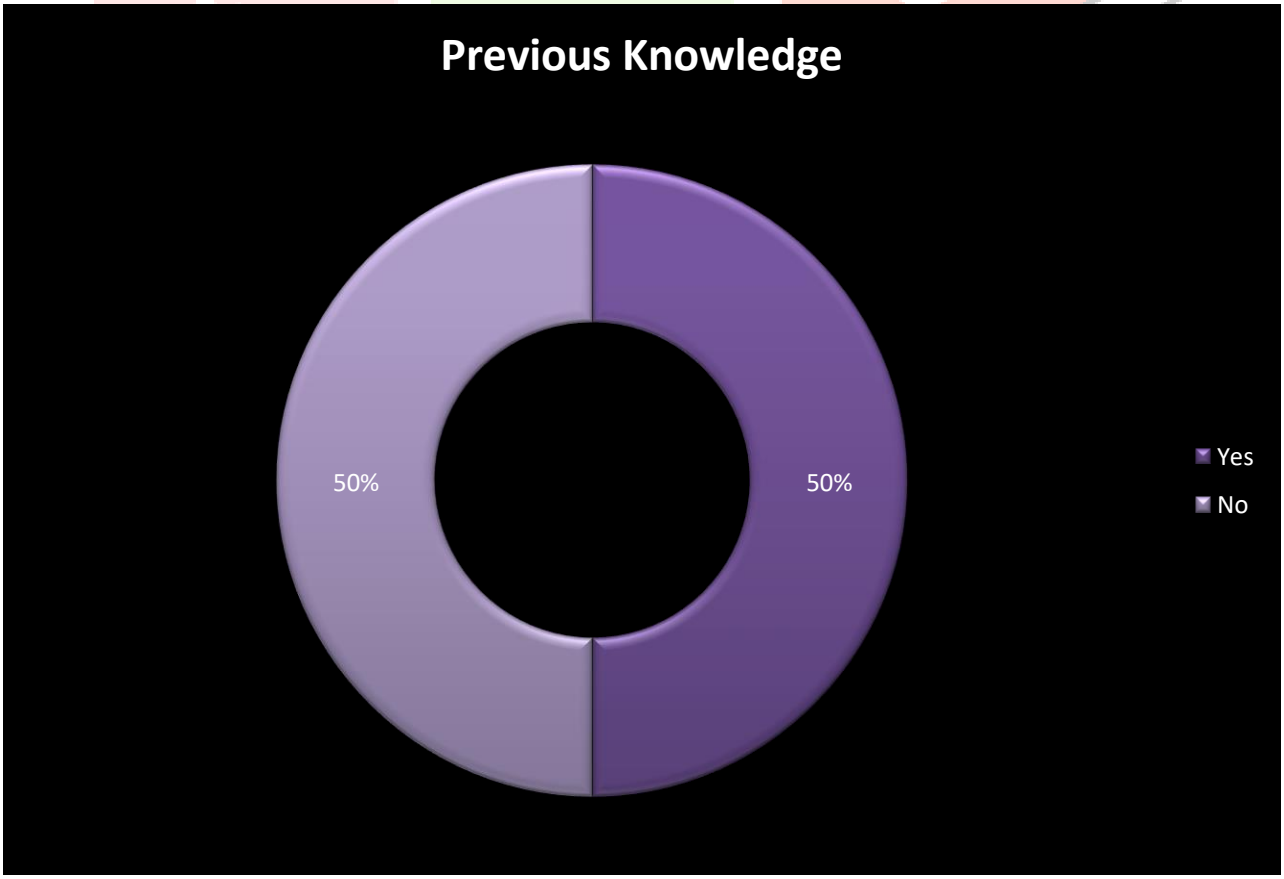


FIGURE : 5

THE PIE DIAGRAM REPRESENTS THE SOURCE OF INFORMATION OF DEGREE STUDENTS

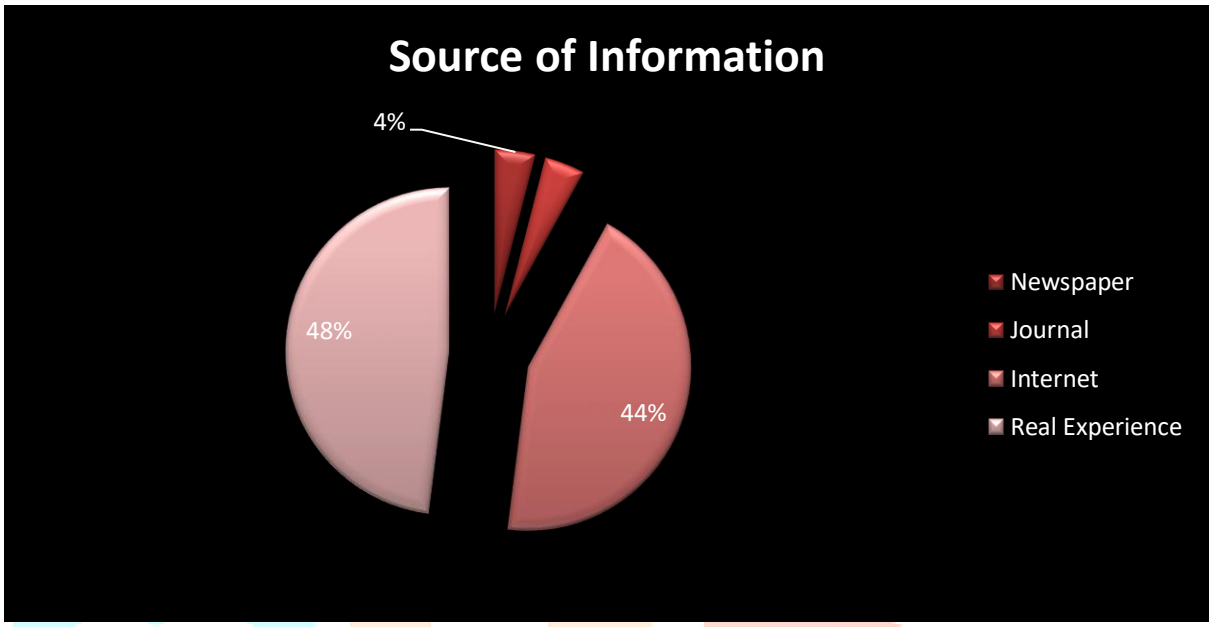


FIGURE - 6

THE COLUMN DIAGRAM REPRESENTS THE TYPE OF FAMILY OF DEGREE STUDENTS

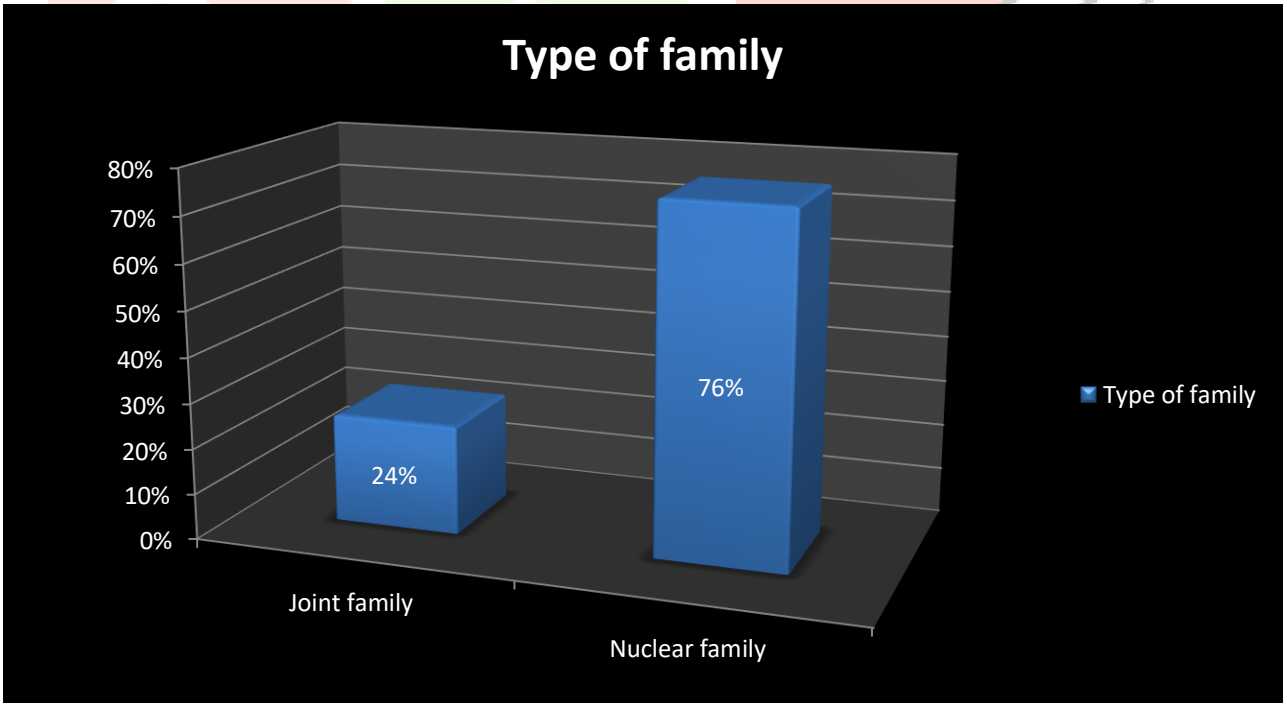


FIGURE - 7
THE CONE DIAGRAM REPRESENTS THE AREA OF RESIDENCY OF DEGREE STUDENTS.

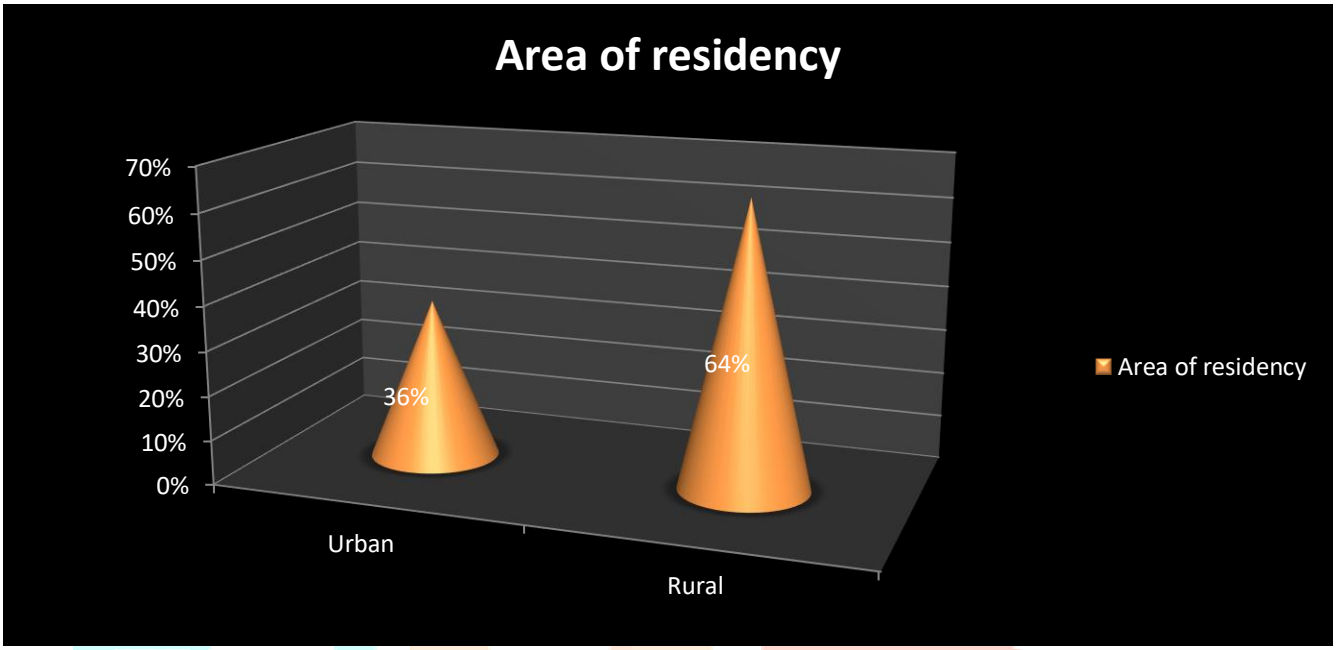
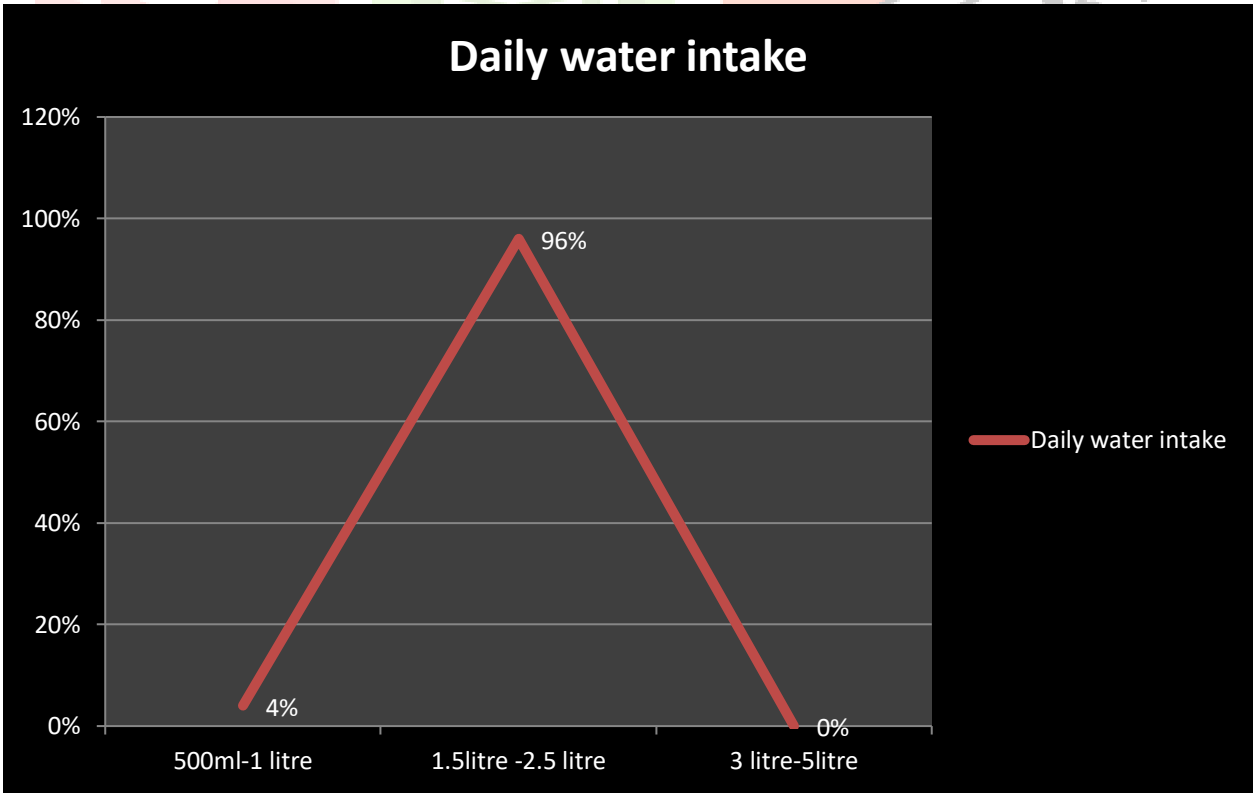


FIGURE - 8
THE LINE DIAGRAM REPRESENTS THE DAILY WATER INTAKE OF DEGREE STUDENTS.



SECTION –B : Analysis and interpretation of the findings to effectiveness of a structured teaching program on knowledge regarding prevention heat stroke during summer among degree students in selected college .

TABLE – 2

Distribution of mean , median , mode , standard deviation of pre-test knowledge scores on Structured teaching program on knowledge regarding prevention heat stroke during summer among degree students in selected college .

n=50

SI.NO	MEAN	MEDIAN	MODE	STANDARD DEVIATION
1.	13	13	9	4.97

Table 2 represents the distribution of pre-test knowledge scores. The pre-test knowledge scores had a mean of 13, a median of 13, a mode of 9, and a standard deviation of 4.97.

TABLE -3

Distribution of mean , median , mode , standard deviation of post-test knowledge scores on Structured teaching program on knowledge regarding prevention heat stroke during summer among degree students in selected college.

n=50

SI. NO	MEAN	MEDIAN	MODE	STANDARD DEVIATION
1.	21.74	23	24	3.19

Table 3 represents the distribution of post-test knowledge scores. The post-test knowledge scores had a mean of 21.74, a median of 23, a mode of 24, and a standard deviation of 3.19.

TABLE – 4

Frequency and percentage distribution of pre-test knowledge scores of sample regarding structured teaching program on knowledge regarding prevention heat stroke during summer among degree students in selected college.

SI.NO	LEVEL OF KNOWLEDGE	SCORE RANGE	FREQUENCY	PERCENTAGE
1.	GOOD	17-24	9	18%
2.	AVERAGE	9-16	34	68%
3.	POOR	1-8	7	14%

Table 4 reveals that 9(18%) of the students had good knowledge, 34(68%) had average knowledge and 7(14%) had poor knowledge in the pre-test.

TABLE – 5

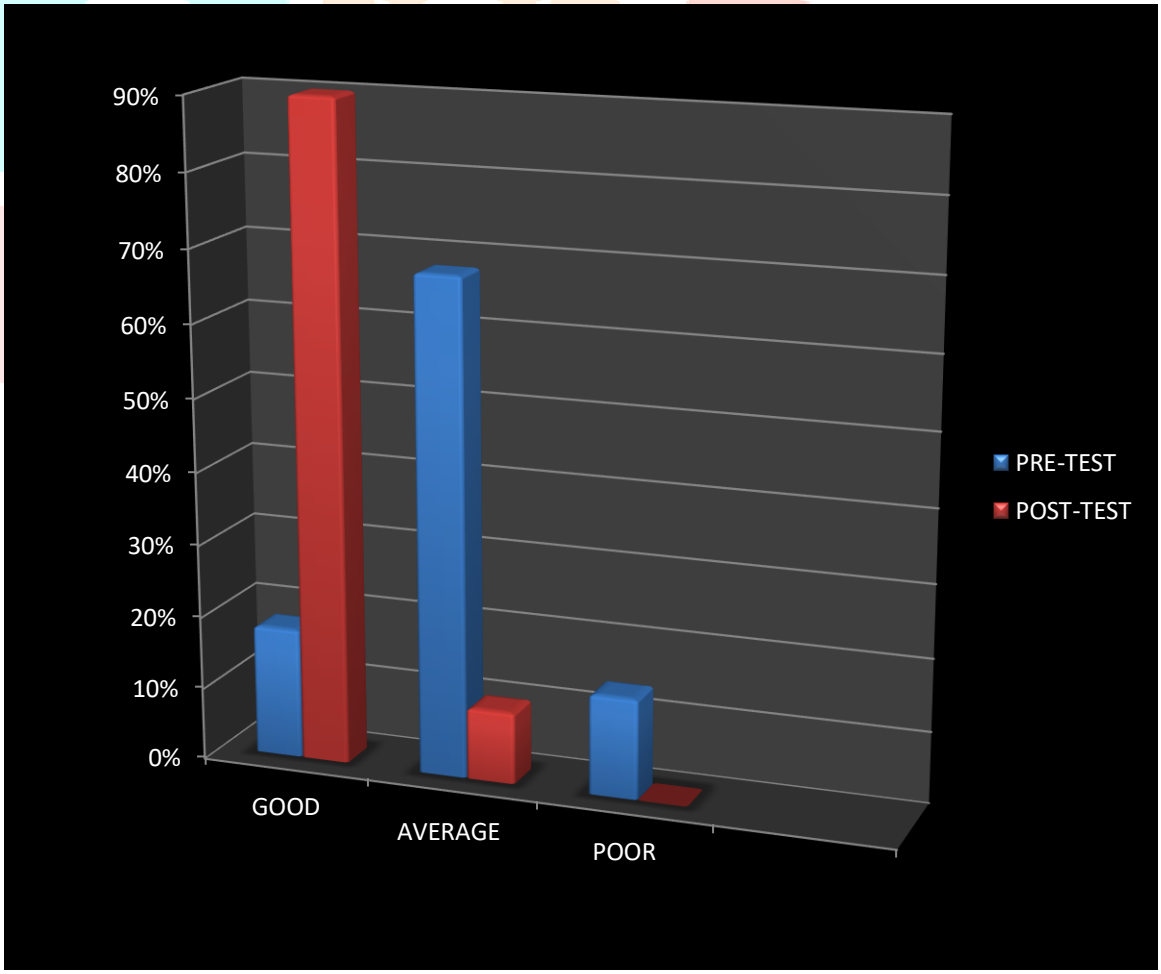
Frequency and percentage distribution of post-test knowledge scores of sample regarding structured teaching program on knowledge regarding prevention heat stroke during summer among degree students in selected college .

SI.NO	LEVEL OF KNOWLEDGE	SCORE RANGE	FREQUENCY	PERCENTAGE
1.	GOOD	17-24	45	90%
2.	AVERAGE	9-16	5	10%
3	POOR	1-8	0	0%

Table 5 reveals that 45(90%) of students had good knowledge, 5(10%) had average knowledge and none had poor knowledge in the post- test.

Hence the hypothesis is H_1: There will be significant difference between pre-test and post-test knowledge score regarding prevention of heat stroke during summer among degree students.

Frequency and percentage distribution showing that difference between pre-test and post-test knowledge scores regarding structured teaching program on knowledge prevention heat stroke during summer among degree students in selected college.



SECTION - C: Association between knowledge scores on structured teaching program on knowledge regarding prevention of heat stroke in summer among selected degree students and selected demographic variables.

TABLE :6

Association between pre-test knowledge scores on structured teaching program on knowledge regarding prevention of heat stroke in summer among selected degree students and selected demographic variables.

SL NO.	DEMOGRAPHIC VARIABLES	CHI SQUARE VALUE	DF	TABLE VALUE	SIGNIFICANCE
1.	AGE	2.159	4	9.488	NS
2.	GENDER	41.667	2	5.991	S
3.	RELIGION	0.878	6	12.592	NS
4.	PREVIOUS KNOWLEDGE	2.506	3	5.991	NS
5.	SOURCE OF INFORMATION	4.934	6	12.592	NS
6.	TYPE OF FAMILY	3.258	2	5.991	NS
7.	AREA OF RESIDENCY	0.879	2	5.991	NS
8.	DAILY WATER INTAKE	0.439	4	9.488	NS

H_2 : There will be no significant association between pre-test knowledge score with the demographic variables among degree students.

'The finding of the table 6 indicates that gender showed a statistically significant association with a pre-test knowledge scores, as calculated chi-square values (41.667) was greater than table value (5.991) at the 0.05 level of significance. However Age, Religion, Previous knowledge, Source of information,Type of family, Area of residency, Daily water intake did not show a statistically significant association with pre-test knowledge scores".

Therefore null hypothesis was rejected for gender and was not rejected for other demographic variables. So, therefore H_2 is rejected.

TABLE :7

Association between post-test knowledge scores on structured teaching program on knowledge regarding prevention of heat stroke in summer among selected degree students and selected demographic variables.

SL NO.	DEMOGRAPHIC VARIABLES	CHI SQUARE VALUE	DF	TABLE VALUE	SIGNIFICANCE
1.	AGE	0.404	4	9.488	NS
2.	GENDER	0.698	1	3.841	NS
3.	RELIGION	0.114	6	12.592	NS
4.	PREVIOUS KNOWLEDGE	0.136	1	3.841	NS
5.	SOURCE OF INFORMATION	2.083	3	7.815	NS
6.	TYPE OF FAMILY	0.189	1	3.841	NS
7.	AREA OF RESIDENCY	0.359	1	3.841	NS
8.	DAILY WATER INTAKE	0.227	4	9.488	NS

H_2 : There will be no significant association between post-test knowledge score with the demographic variables among degree students.

The findings of table-7 indicate the variables Age, Gender ,Religion, Previous knowledge, Source of information, Type of family, Area of residency, Daily water intake among degree students are not dependent to each other and the chi-square values were less than the other chi-square table value. So, therefore H_2 is rejected.

SECTIN –D: Effectiveness of structured teaching program on knowledge regarding prevention of heat stroke in summer among selected degree students by "t" test.

TABLE-8

PARAMETERS	MEAN	DIFFERENCE OF MEAN	SED	't' cal	't' table	DF
PRE-TEST	13	8.74	0.73	11.97	2.01	49
POST-TEST	21.74					

The data and table show that mean, post-test knowledge scores of the sample is significantly higher than the mean pre-test knowledge scores that 't' table value 't'=2.01 and the calculated value 't'=11.97,$p< 0.05$ which shows that calculated value is greater than the table value.

Hence there is significant gain in knowledge among selected degree in Ankola, Uttara Kannada district. So H_1 is accepted.

The data gathered were summarized in the mastersheet and both descriptive and inferential statistics were used for analysis and interpretation of the findings. The analysis and interpretation of the data focuses on the result of the study. The findings revealed that there was no significant association between knowledge regarding prevention of heat stroke and demographic variables.

LIMITATIONS OF THE STUDY

The study was conducted among a relatively small sample of 50 degree students from a single college;therefore, the finding may have limited generalizability. Purposive sampling was used, which may introduced sampling bias.the one-group pre-test and post-test design didnot include a control group. the study primarly assessed changes in knowledge and didnot evaluate long-term retention of knowledge or actual preventive practices.

RECOMMENDATIONS

On the basis of the findings of the study, the following recommendations are made:

- A similar study can be replicated with a larger sample size.
- A comparative study can be conducted among students from different colleges or educational institutions.
- Similar studies can be conducted in rural and urban communities to assess knowledge regarding heat stroke prevention.
- Experimental studies can be conducted using different teaching methods such as video-assisted teaching, self-instructional modules, or information booklets.
- Follow-up studies can be conducted to assess the long-term retention of knowledge after the Structured Teaching Programme.
- Studies can be undertaken to assess the attitude and practice regarding prevention of heat stroke among students and the general public.

REFERENCES

1. World Health Organization (WHO) – Climate Change and Health
https://www.who.int/news-room/fact-sheets/climate-change-and-health?utm_source=chatgpt.com
2. MedlinePlus – Heat Stroke / Heat Emergencies
https://www.medlineplus.gov/ency/article/000056.htm?utm_source=chatgpt.com
3. United Nations – Climate Action
https://www.un.org/climatechange/?utm_source=chatgpt.com
4. India Meteorological Department (IMD) – Heat Wave Information
https://mausam.imd.gov.in/survey_app/survey.php?survey=hw_gp
5. Ray S, Jogdeo BA, Sujita Devi N, Karkar MJ – Cureus (2025)
https://www.cureus.com/articles/349984-identifying-knowledge-gaps-regarding-heat-stroke-among-an-adult-sample-in-pune-india-a-descriptive-analysis#!/
6.World Health Organization (WHO) – Climate change and health
https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
7.India Meteorological Department (IMD) – Heat Wave Information
https://mausam.imd.gov.in
8. NDMA Heat wave guidlines

https://ndma.gov.in
9.WHO heat and health
https://www.who.int/health-topics/heat
10. CDC- heat stress and heat stroke
https://www.cdc.gov/niosh/topics/heatstress/
11. Nationa centre for Deases Control (INDIA)
https://ncdc.mohfw.gov.in
12. Ministry of Health and Family welfare (India)
https://www.mohfw.gov.in
13. Ray SK, Jogdeo BA, Devi NS, Karkar MJ. Identifying knowledge gaps regarding heat stroke among an adult sample in Pune, India: A descriptive analysis. Cureus. 2025;17(4):e82963. Doi:10.7759/cureus.82963. Available from: https://pubmed.ncbi.nlm.nih.gov/40416226/

14. Xu Y, Chen J, Du J, Jin Y. Knowledge, attitudes, and practices among the general community population toward heatstroke. Front Public Health. 2024;12:1373025. Doi:10.3389/fpubh.2024.1373025. Available from: https://pubmed.ncbi.nlm.nih.gov/38855448/

15.Li J, Xu X, Ding G, Zhao Y, Zhao R, Xue F, Li J, Gao J, Yang J, Jiang B, Liu Q. A cross-sectional study of heat wave-related knowledge, attitude, and practice among the public in the Licheng District of Jinan City, China. Int J Environ Res Public Health. 2016;13(7):648. Doi:10.3390/ijerph13070648. Available from: https://pubmed.ncbi.nlm.nih.gov/27367715/

16. Yoshioka T., et al. Knowledge, attitudes, and preventive practices regarding heat-related illnesses among university students in Japan: A cross-sectional study. Available from URL: https://pubmed.ncbi.nlm.nih.gov/41676950/ Cited on: August 2026.

17. Kudo T., et al. A cross-sectional survey among university students in Japan to assess awareness and preventive measures regarding heatstroke. Cited on: August 2026. Available from URL: https://www.jstage.jst.go.jp/

18. Sadhana, et al. Knowledge, attitude and practice regarding heatstroke prevention among adults in Jharkhand: A cross-sectional study. Journal of KCD. 2026. Available from URL: https://www.msjonline.org/index.php/ijrms/article/view/16528?utm_

19. Borgia N.M. Knowledge of high school athletic coaches regarding prevention, recognition, and treatment of heat illness: A descriptive study. Old Dominion University. 2007. Available from URL:

https://odu.edu/hms_etds/74/?utm_

20.Yamashita N, Kume M, Satake T, Yoshida T. Subjective perceived risk factors of exertional heat exhaustion-related symptoms in male collegiate athletes in Japan: A case-control study. Int J Biometeorol. 2023;67(4):649-659. Doi:10.1007/s00484-023-02442-2.

https://www.jstage.jst.go.jp/article/ddt/18/1/18_2023.01094/_article/-char/en?utm_

21.Buller DB, Adjei I, Agarwal R, Peterson SR, Escoffery C, Buller MK, et al. Systematic review and narrative synthesis of behavioral interventions to improve heat-related illness prevention in community and occupational populations. https://springer.com/article/10.1186/s12889-025-25499-7

22. Fujita H, Nishida Y, Tanaka H. Knowledge about Heatstroke and Anti-Heatstroke Measures among University Physical Education/Sports Teachers. Japanese Journal of Physical Fitness and Sports Medicine. https://www.jstage.jst.go.jp/article/jpeshe/16/0/16_43/_article/-char/ja/

23.Abareen S. A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge and Prevention of Heat Stroke among Adolescents Studying in Selected High Schools at Gulbarga. Rajiv Gandhi University of Health Sciences; 2014. Available from

https://www.ijanm.com/HTMLPaper.aspx?Journal=International+Journal+of+Advances+in+Nursing+Management%3BPID%3D2014-2-1-8&utm

24.Mustafa A, Khan HM, Hussan J, Khan SZ, InamUllah M. Knowledge, attitude and practices regarding heat stroke in general public of Islamabad and Rawalpindi. J Khyber Coll Dent. 2018;8(1):41-43. Doi:10.33279/jkcd.v8i01.381.https://www.journalofkcd.com/kcd/article/view/381?utm

25.Bouchama A., Casa D.J., et al. Classic and Exertional Heatstroke. Nature Reviews Disease Primers. 2022;8(1). Cited on: August 2026.https://ncbi.nlm.nih.gov/35115565/

26. Carmona R., Spector J.T. Effectiveness of a participatory heat education program among outdoor agricultural workers: A parallel comparison-group intervention study. International Journal of Environmental Research and Public Health. 2022. Available from https://pmc.ncbi.nlm.nih.gov/articles/PMC9573936/?

27. Lebaji Y., et al. Knowledge, Prevention, and Practice of Heat Strokes Among the Public in the United Arab Emirates (UAE). International Journal of Medical Students. 2022. Available from URL: https://pubmed.ncbi.nlm.nih.gov/3635884/.https://ijms.info/IJMS/article/view/1269?utm

28 Chandra A., Khandekar N., Maringanti A. Towards a Climate-Health Approach in Indian Healthcare: Perspectives of Specialist Doctors on Health Impacts of Extreme Heat in Hyderabad. International Journal of Environmental Research and Public Health. 2023;20(10):5898. https://www.sciencedirect.com/science/article/pii/S2667278223000688?utm_

29. Vicedo-Cabrera A.M., Sera F., Guo Y., et al. The burden of heat-related mortality attributable to recent human-induced climate change. Nature Climate Change. 2021;11(6):492–500. Available from https://www.nature.com/articles/s41558-021-01058-x?utm

30.Das JK, Kumari B, Rahman AR, Azhar M, Khan S, Masood U, Karan D, et al. Evaluation of community-based heat adaptation interventions: a systematic review. BMJ Public Health. 2025;3(2):e002332. Doi:10.1136/bmjph-2024-002332.https://bmjpublichealth.bmj.com/content/3/2/e002332

31. Ireland D., Johnston F.H., Knott J.C. Heat and Worker Health. Medical Journal of Australia. 2023. . Cited on: August 2026. https://pubmed.ncbi.nlm.nih.gov/3756228**2/**

32. Razzak J.A., et al. Impact of Community Education on Heat-Related Health Outcomes and Heat Literacy Among Low-Income Communities in Karachi, Pakistan. Cluster-Randomized Controlled Trial. 2022. Available from https://www.sciencedirect.com/science/article/pii/S0167629623000772?utm_source=chatgpt.com

33. Yasobant S., et al. Impact of Heat on Human and Animal Health in India. Landscape Review. 2025. Available from https://link.springer.com/article/10.1007/s10389-025-02422-3?utm_so

34Sayili U., et al. The Heat Wave Knowledge, Awareness, Practice and Behavior Scale: Scale Development, Validation and Reliability. PLoS ONE. 2022;17(12):e0279259. Available from URL: https://journals.plos.org/plosone/article?id=10.1371%2Fjournal.pone.0279259&utm_source=chatgpt.com

35 Eabenson, et al. Heat Waves and Health: An Observational Study on Heat-Related Illnesses among Medical Students in North Karnataka. International Journal of Community Medicine and Public Health. 2026. Available from https://pmc.ncbi.nlm.nih.gov/articles/PMC11773483/?utm_source=chatgpt.com

36. Schmid K., et al. Heat-Related Health Literacy Scale: Development and Validation of a Psychometric Instrument. BMC Public Health. 2024. Available from https://pubmed.ncbi.nlm.nih.gov/35101860/

37. Sorensen C.J., et al. Prevention of Heat-Related Illness among Workers. New England Journal of Medicine. 2022;387(24):2263–2274. Available from36https://pubmed.ncbi.nlm.nih.gov/35101860/

38.Ju H, Kim KR, Lee JY. Heat stress and thermoregulatory behavior of Seoul and Busan residents: comparisons of 2021 and 2022. J Korean Soc Living Environ Syst. 2023;30(3):296-309. Doi:10.21086/ksles.2023.6.30.3.296

https://academic.oup.com/heapro/article/41/1/daag020/8474809?utm

39. Schneider S., et al. Too Hot to Handle? Heat-Illness Knowledge Gaps and Prevention Shortfalls Among German Sports Coaches. Journal of Public Health. 2025. Available from https://www.ijcmph.com/index.php/ijcmph/article/view/15558?utm_source=chatgpt.com .