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Measurement of body temperature, peripheral oxygen saturation of arterial hemoglobin and pulse rate of teaching staff, non-teaching staff and PG students and their data analysis category wise and classification wise

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Abstract

Normal human body temperature (normothermia, euthermia) is the typical temperature range found in humans. The normal human body temperature range is typically stated as 36.5–37.5°C (97.7–99.5°F). Human body temperature varies. It depends on sex, age, time of day, exertion level, health status (such as illness and menstruation), what part of the body the measurement is taken at, state of consciousness (waking, sleeping, sedated), and emotions. Body temperature is kept in the normal range by a homeostatic function known as thermoregulation, in which adjustment of temperature is triggered by the central nervous system. Taking a human's temperature is an initial part of a full clinical examination. Oxygen saturation is the fraction of oxygen-saturated haemoglobin relative to total haemoglobin (unsaturated + saturated) in the blood. The human body requires and regulates a very precise and specific balance of oxygen in the blood. Normal arterial blood oxygen saturation levels in humans are 96–100 percent. If the level is below 90 percent, it is considered low and called hypoxemia. Arterial blood oxygen levels below 80 percent may compromise organ function, such as the brain and heart, and should be promptly addressed. Continued low oxygen levels may lead to respiratory or cardiac arrest. In medicine, a pulse represents the tactile arterial palpation of the cardiac cycle (heartbeat) by trained fingertips. The pulse may be palpated in any place that allows an artery to be compressed near the surface of the body, such as at the neck (carotid artery), wrist (radial artery), at the groin (femoral artery), behind the knee (popliteal artery), near the ankle joint (posterior tibial artery), and on foot (dorsalis pedis artery). Pulse (or the count of arterial pulse per minute) is equivalent to measuring the heart rate. The heart rate can also be measured by listening to the heart beat by auscultation, traditionally using a stethoscope and counting it for a minute. The radial pulse is commonly measured using three fingers. Pulse oximetry is a noninvasive method for monitoring a person's blood oxygen saturation. Peripheral oxygen saturation (SpO2) readings are typically within 2% accuracy of the more accurate (and invasive) reading of arterial oxygen saturation (SaO2) from arterial blood gas analysis. But the two are correlated well enough that the safe, convenient, noninvasive, inexpensive pulse oximetry method is valuable for measuring oxygen saturation in clinical use. A standard pulse oximeter passes two wavelengths of light through tissue to a photodetector. Taking advantage of the pulsate flow of arterial blood, it measures the change in absorbance over the course of a cardiac cycle, allowing it to determine the absorbance due to arterial blood alone, excluding unchanging absorbance due to venous blood, skin, bone, muscle, fat, and, in many cases, nail polish. The two wavelengths measure the quantities of bound (oxygenated) and unbound (non-oxygenated) hemoglobin, and from their ratio, the percentage of bound hemoglobin is computed. Present Paper deals with measurement of body temperature, peripheral oxygen saturation of arterial hemoglobin (SpO2) and pulse rate of 112 Teaching Staff, Non-Teaching Staff and Postgraduate Students of Brijlal Biyani Science College, Amravati. And their data analysis has been done on category wise and classification wise.

Keywords: Body Temperature, Peripheral Oxygen Saturation of Arterial Hemoglobin (SpO2), Pulse Rate, Pulse Oximetry, Body Temperature status, SpO2 % status and Pulse Rate Status.

Introduction

Temperature: Normal human body temperature (normothermia, euthermia) is the typical temperature range found in humans. The normal human body temperature range is typically stated as 36.5–37.5°C (97.7–99.5°F)[1,2]. The lowest temperature occurs about two hours before the person normally wakes up. Additionally, temperatures change according to activities and external factors[3].

Normal human body temperature varies slightly from person to person and by the time of day. Consequently, each type of measurement has a range of normal temperatures. The range for normal human body temperatures, taken orally, is 36.8 ± 0.5°C (98.2 ± 0.9°F)[4]. This means that any oral temperature between 36.3 and 37.3°C (97.3 and 99.1°F) is likely to be normal[5].

The normal human body temperature is often stated as 36.5–37.5°C (97.7–99.5°F). In adults a review of the literature has

found a wider range of 33.2–38.2°C (91.8–100.8°F) for normal temperatures, depending on the gender and location measured[6].

Table-1: Temperature by measurement technique[6].

Method	Women	Men
Oral	33.2–38.1 °C (91.8–100.6 °F)	35.7–37.7 °C (96.3–99.9 °F)
Rectal	36.8–37.1 °C (98.2–98.8 °F)	36.7–37.5 °C (98.1–99.5 °F)
Tympanic	35.7–37.5 °C (96.3–99.5 °F)	35.5–37.5 °C (95.9–99.5 °F)
Axillary	35.5–37.0 °C (95.9–98.6 °F)	

Reported values vary depending on how it is measured: oral (under the tongue): 36.8±0.4 °C (98.2±0.72 °F), internal (rectal, vaginal): 37.0°C (98.6°F)[7]. While some people think of these averages as representing normal or ideal measurements, a wide range of temperatures has been found in healthy people[8].

Different methods used for measuring temperature produce different results. The temperature reading depends on which part of the body is being measured. The typical daytime temperatures among healthy adults are as follows: i. Temperature in the anus (rectum/rectal), vagina, or in the ear (tympanic) is about 37.5°C (99.5°F)[9] ii. Temperature in the mouth (oral) is about 36.8 °C (98.2 °F)[4] iii. Temperature under the arm (axillary) is about 36.5°C (97.7°F)[9].

Generally, oral, rectal, gut, and core body temperatures, although slightly different, are well-correlated. Oral temperatures are influenced by drinking, chewing, smoking, and breathing with the mouth open. Mouth breathing, cold drinks or food reduce oral temperatures; hot drinks, hot food, chewing, and smoking raise oral temperatures[10].

Fever: A temperature *setpoint* is the level at which the body attempts to maintain its temperature. When the setpoint is raised, the result is a fever. Most fevers are caused by infectious disease and can be lowered, if desired, with antipyretic medications. An early morning temperature higher than 37.3°C (99.1°F) or a late afternoon temperature higher than 37.7°C (99.9°F) is normally considered a fever, assuming that the temperature is elevated due to a change in the hypothalamus's setpoint. Lower thresholds are sometimes appropriate for elderly people. The normal daily temperature variation is typically 0.5°C (0.90°F), but can be greater among people recovering from a fever[7]. If temperature is raised, but the setpoint is not raised, then the result is hyperthermia.

Hyperthermia: Hyperthermia occurs when the body produces or absorbs more heat than it can dissipate. It is usually caused by prolonged exposure to high temperatures. The heat-regulating mechanisms of the body eventually become overwhelmed and unable to deal effectively with the heat, causing the body temperature to climb uncontrollably. Hyperthermia at or above about 40°C (104°F) is a life-threatening medical emergency that requires immediate treatment. Common symptoms include headache, confusion, and fatigue. If sweating has resulted in dehydration, then the affected person may have dry, red skin. In a medical setting, mild hyperthermia is commonly called *heat exhaustion* or *heat prostration*; severe hyperthermia is called *heat stroke*. Heatstroke may come on suddenly, but it usually follows the untreated milder stages. Treatment involves cooling and rehydrating the body; fever-reducing drugs are useless for this condition.

Hypothermia: In hypothermia, body temperature drops below that required for normal metabolism and bodily functions. In humans, this is usually due to excessive exposure to cold air or water, but it can be deliberately induced as a medical treatment. Symptoms usually appear when the body's core temperature drops by 1–2°C (1.8–3.6°F) below normal temperature.

Table-2: Temperature classification.

Hypothermia	<35.0 °C (95.0 °F)[1]
Normal	36.5–37.5 °C (97.7–99.5 °F)[2,3]
Fever	>37.5 or 38.3 °C (99.5 or 100.9 °F)[4,5]
Hyperthermia	>37.5 or 38.3 °C (99.5 or 100.9 °F)[4,5]
Hyperpyrexia	>40.0 or 41.0 °C (104.0 or 105.8 °F)[6,7]

Oxygen saturation: Oxygen saturation is the fraction of oxygen-saturated haemoglobin relative to total haemoglobin (unsaturated + saturated) in the blood. The human body requires and regulates a very precise and specific balance of oxygen in the blood. Normal arterial blood oxygen saturation levels in humans are 96–100 percent[11].

In medicine, oxygen saturation, commonly referred to as "sats", measures the percentage of hemoglobin binding sites in the bloodstream occupied by oxygen[12].

Oxygen saturation can be measured in different tissues: i. Venous oxygen saturation (SvO2) is the percentage of oxygenated hemoglobin returning to the right side of the heart. It can be measured to see if oxygen delivery meets the tissues' demands. SvO2 typically varies between 60% and 80%[13]. A lower value indicates that the body is in lack of oxygen, and ischemic diseases occur. This measurement is often used under treatment with a heart lung machine (extracorporeal circulation), and can give the perfusionist an idea of how much flow the patient needs to stay healthy. ii. Tissue oxygen saturation (StO2) can be measured by near infrared spectroscopy. Although the measurements are still widely discussed, they give an idea of tissue oxygenation in various conditions. iii. Peripheral oxygen

saturation (SpO2) is typically measured at a fingertip using a pulse oximeter. Pulse oximetry is a method used to estimate the percentage of oxygen bound to hemoglobin in the blood[14].

An SaO2 (arterial oxygen saturation) value below 90% causes hypoxia (which can also be caused by anemia). Hypoxia due to low SaO2 is indicated by cyanosis, but oxygen saturation does not directly reflect tissue oxygenation. The affinity of hemoglobin to oxygen may impair or enhance oxygen release at the tissue level. Oxygen is more readily released to the tissues (i.e., hemoglobin has a lower affinity for oxygen) when pH is decreased, body temperature is increased, arterial partial pressure of carbon dioxide ($PaCO_2$) is increased, and 2,3-DPG levels (a byproduct of glucose metabolism also found in stored blood products) are increased. When the hemoglobin has greater affinity for oxygen, less is available to the tissues. Conditions such as increased pH, decreased temperature, decreased PaCO2, and decreased 2,3-DPG will increase oxygen binding to the hemoglobin and limit its release to the tissue[15].

Pulse: In medicine, a pulse represents the tactile arterial palpation of the cardiac cycle (heartbeat) by trained fingertips. The pulse may be palpated in any place that allows an artery to be compressed near the surface of the body, such as at the neck (carotid artery), wrist (radial artery), at the groin (femoral artery), behind the knee (popliteal artery), near the ankle joint (posterior tibial artery), and on foot (dorsalis pedis artery). Pulse (or the count of arterial pulse per minute) is equivalent to measuring the heart rate. The heart rate can also be measured by listening to the heart beat by auscultation, traditionally using a stethoscope and counting it for a minute. The radial pulse is commonly measured using three fingers. This has a reason: the finger closest to the heart is used to occlude the pulse pressure, the middle finger is used get a crude estimate of the blood pressure, and the finger most distal to the heart (usually the ring finger) is used to nullify the effect of the ulnar pulse as the two arteries are connected via the palmar arches (superficial and deep). The study of the pulse is known as sphygmology.

The pulse is an expedient tactile method of determination of systolic blood pressure to a trained observer. Diastolic blood pressure is non-palpable and unobservable by tactile methods, occurring between heartbeats.

Pressure waves generated by the heart in systole move the arterial walls. Forward movement of blood occurs when the boundaries are pliable and compliant. These properties form enough to create a palpable pressure wave.

The heart rate may be greater or lesser than the pulse rate depending upon physiologic demand. In this case, the heart rate is determined by auscultation or audible sounds at the heart apex, in which case it is not the pulse. The pulse deficit (difference between heart beats and pulsations at the periphery) is determined by simultaneous palpation at the radial artery and auscultation at the PMI, near the heart apex. It may be present in case of premature beats or atrial fibrillation.

Pulse velocity, pulse deficits and much more physiologic data are readily and simplistically visualized by the use of one or more arterial catheters connected to a transducer and oscilloscope. This invasive technique has been commonly used in intensive care since the 1970s.

The rate of the pulse is observed and measured by tactile or visual means on the outside of an artery and is recorded as beats per minute or BPM.

The pulse may be further indirectly observed under light absorbances of varying wavelengths with assigned and inexpensively reproduced mathematical ratios. Applied capture of variances of light signal from the blood component hemoglobin under oxygenated vs. deoxygenated conditions allows the technology of pulse oximetry.

Table-3: Normal pulse rates at rest, in beats per minute (BPM).

Newborn (0–3 months)	Infants (3–6 months)	Infants (6–12 months)	Children (1–10 years)	Children over 10 years & adults, including seniors	Well-trained adult athletes
99–149	89–119	79–119	69–129	59–99	39–59

The pulse rate can be used to check overall heart health and fitness level. Generally lower is better, but bradycardias can be dangerous. Symptoms of a dangerously slow heartbeat include weakness, loss of energy and fainting.

Pulse oximetry: Pulse oximetry is a noninvasive method for monitoring a person's blood oxygen saturation. Peripheral oxygen saturation (SpO2) readings are typically within 2% accuracy (within 4% accuracy in 95% of cases) of the more accurate (and invasive) reading of arterial oxygen saturation (SaO2) from arterial blood gas analysis[16]. But the two are correlated well enough that the safe, convenient, noninvasive, inexpensive pulse oximetry method is valuable for measuring oxygen saturation in clinical use.

A standard pulse oximeter passes two wavelengths of light through tissue to a photodetector. Taking advantage of the pulsate flow of arterial blood, it measures the change in absorbance over the course of a cardiac cycle, allowing it to determine the absorbance due to arterial blood alone, excluding unchanging absorbance due to venous blood, skin, bone, muscle, fat, and, in many cases, nail polish[17]. The two wavelengths measure the quantities of bound (oxygenated) and unbound (non-oxygenated) hemoglobin, and from their ratio, the percentage of bound hemoglobin is computed.

The most common approach is transmissive pulse oximetry. In this approach, one side of a thin part of the patient's body, usually a fingertip or earlobe, is illuminated, and the photodetector is on the other side. Fingertips and earlobes have disproportionately high blood flow relative to their size, in order to keep warm, but this will be lacking in hypothermic patients[16]. Other convenient sites include an infant's foot or an unconscious patient's cheek or tongue.

Reflectance pulse oximetry is a less common alternative, placing the photodetector on the same surface as the illumination. This method does not require a thin section of the person's body and therefore may be used almost anywhere on the body, such as the forehead, chest, or feet, but it still has some limitations. Vasodilation and pooling of venous blood in the head due to compromised venous return to the heart can cause a combination of arterial and venous pulsations in the forehead region and lead to spurious SpO2 results. Such conditions occur while undergoing anaesthesia with endotracheal intubation and mechanical ventilation or in patients in the Trendelenburg position[18].

The pulse oximeter may be incorporated into a multiparameter patient monitor. Most monitors also display the pulse rate. Portable, battery-operated pulse oximeters are also available for transport or home blood-oxygen monitoring[19].

Mechanism: A blood-oxygen monitor displays the percentage of blood that is loaded with oxygen. More specifically, it measures what percentage of hemoglobin, the protein in blood that carries oxygen, is loaded. Acceptable normal SaO2 ranges for patients without pulmonary pathology are from 95 to 99 percent. For a person breathing room air at or near sea level, an estimate of arterial pO2 can be made from the blood-oxygen monitor "saturation of peripheral oxygen" (SpO2) reading.

Mode of operation: Numeric ratio between the pulsatile and baseline absorbance ("perfusion index") can be used to evaluate perfusion[20].

$$\mathrm{SpO_2} = \frac{\mathrm{HbO_2}}{\mathrm{HbO_2 + Hb}}$$

where HbO2 is oxygenated hemoglobin (oxyhemoglobin) and Hb is deoxygenated hemoglobin.

Present Paper deals with measurement of body temperature, peripheral oxygen saturation of arterial hemoglobin (SpO2) and pulse rate of 112 Teaching Staff, Non-Teaching Staff and Postgraduate Students of Brijlal Biyani Science College, Amravati. For measurement of Body Temperature, Hicks Digital Thermometer Model: Dmt-102 is used. For measurement of Functional Oxygen Saturation of Arterial Hemoglobin (SpO2) and Pulse Rate FINGERTIP Pulse Oximeter Product Number: C101A2 is used which measures human Hemoglobin Saturation and heart rate through finger. And their data analysis has been done on category wise and classification wise.

Methodology

Measurement of Body Temperature: Measurement of Body Temperature of 112 Teaching Staff, Non-Teaching Staff and Postgraduate Students is done on 25th April 2024 from 7 am to 6 pm. For measurement of Body Temperature, Hicks Digital Thermometer Model: Dmt-102 as shown in Figure-1 is used which measures body Temperature.

Hicks Digital Thermometer Model: Dmt-102: This Digital Thermometer is manufactured according to the standard of EN12470-3:2000, ASTM and complies with the requirements of IEC60601-1-2 : 2001 and ISO9001 : 2000 and ISO13485:2003 certified. Normal body temperature can vary from 97^0F to 99.0^0F. The generally accepted normal temperature as 98.6^0F (37.0^0C). Usually body temperature is lower in the morning than in the afternoon. Normal temperature also varies according to the location of temperature reading. While the oral temperature follows the guide line previously describe, rectal temperature is 1^0F higher approx. conversely, axillary (under arm) temperature will be 1^0F lower approx.

Sites used for measurement - Under the arm (axillary temperature).

Measurement of Peripheral Oxygen Saturation of Arterial Hemoglobin (SpO2) and Pulse Rate: Measurement of Functional Oxygen Saturation of Arterial Hemoglobin (SpO2) and Pulse Rate of 112 Teaching Staff, Non-Teaching Staff and Postgraduate Students is done on 25th April 2024 from 7 am to 6 pm. For measurement of Functional Oxygen Saturation of Arterial Hemoglobin (SpO2) and Pulse Rate FINGERTIP Pulse Oximeter Product Number: C101A2 as shown in figure 6 is used which measures human Hemoglobin Saturation and heart rate through finger.

FINGERTIP Pulse Oximeter Product Number : C101A2: The Pulse Oximeter, based on all digital technology, is intended for noninvasive spot check measurement of functional oxygen saturation of arterial hemoglobin (SpO2). Advanced DSP algorithm can minish the influence of motion artifact and improve measurement accuracy of low perfusion. The Oximeter can be used to measure human Hemoglobin Saturation and heart rate through finger.

It is light weight for carrying and Easy-To-Use. SpO2 Measurement Range 70-99 %, Pulse Rate Measurement Range 30 BPM - 240 BPM. It is suitable for use hospitals, home, patient care, sports healthcare, heart failure, chronic obstructive pulmonary diseases, bronchial asthma, etc.

Table-4: Measurement of Body Temperature, Peripheral Oxygen Saturation of Arterial Hemoglobin (SpO2) And Pulse Rate of Teaching Staff, Non-Teaching Staff and Postgraduate Students.

Case No	Male / Female	Age	Body Temp ^{0}F	SpO2 %	PR bpm
Teaching Staff Members					
1	Female	59	95.0	97	66
2	Male	58	94.9	99	76
3	Female	56	93.7	96	65
4	Female	56	97.2	98	74
5	Female	54	95.4	99	87
6	Female	53	96.7	99	113
7	Female	50	96.7	98	74
8	Female	49	98.2	99	76
9	Female	49	96.4	98	75
10	Male	48	96.4	98	96
11	Female	48	95.3	99	77
12	Female	47	97.9	98	97
13	Male	46	95.7	98	85
14	Female	45	95.4	98	71
15	Female	42	98.0	98	108
16	Female	41	96.9	99	75
17	Female	39	97.3	99	76
18	Female	38	97.9	99	89
19	Female	35	97.2	98	85
20	Male	35	95.8	98	74
21	Female	34	95.1	99	98
22	Female	33	95.9	98	83
23	Female	32	95.7	98	94
24	Female	32	97.3	98	96
25	Female	30	94.6	98	77
26	Female	29	95.7	99	98
27	Male	30	97.3	99	94
28	Female	29	96.2	99	95
29	Female	29	95.1	99	94
30	Female	27	95.6	98	87
31	Male	27	97.2	99	105
32	Female	26	95.9	98	109
33	Female	25	96.0	99	105
34	Female	24	98.0	99	81
Non Teaching Staff Members - Technical staff					
35	Male	69	98.3	98	100
36	Male	54	95.5	99	79
37	Male	53	97.2	96	77
38	Male	52	96.0	99	83
39	Male	50	94.9	97	96
40	Male	50	94.7	98	86
41	Male	49	95.1	99	96
42	Male	49	96.2	98	106
43	Male	47	97.8	98	74
44	Male	45	96.8	97	66
45	Male	43	96.8	96	77
46	Male	43	95.3	98	104
47	Female	43	97.0	98	99
48	Female	42	95.4	96	88
49	Male	41	97.3	99	106
50	Male	41	96.8	98	100
51	Male	40	97.6	98	80
52	Male	40	95.0	99	76
53	Male	38	98.7	99	91
54	Male	37	97.9	97	88
55	Male	34	97.3	98	83
56	Male	32	97.4	99	82
57	Male	30	97.4	98	89
58	Female	30	97.5	98	90
59	Male	27	96.5	99	82
60	Male	23	97.4	99	72
61	Male	22	97.5	97	113
62	Male	20	96.7	99	74

Non Teaching Staff Members - Laboratory Attendant					
63	Female	56	96.8	98	76
64	Male	56	97.3	99	112
65	Male	56	94.4	99	82
66	Male	53	94.2	99	76
67	Female	52	96.8	98	89
68	Male	52	96.7	98	90
69	Male	52	97.5	98	85
70	Female	51	91.5	97	100
71	Male	51	96.0	95	66
72	Male	50	95.7	98	87
73	Female	48	97.5	98	95
74	Female	48	97.3	99	82
75	Male	46	97.6	98	108
76	Male	45	97.4	98	94
77	Male	43	95.2	98	67
78	Female	36	96.8	99	87
79	Male	36	95.5	98	88
80	Female	33	97.7	98	91
81	Female	33	95.6	98	100
82	Male	32	97.0	98	101
83	Female	28	96.6	94	57
84	Male	28	94.4	98	95
Post Graduate Students – Chemistry Department					
85	Male	29.0	96.6	99	77
86	Female	27.0	98.3	98	96
87	Female	26	96.9	99	93
88	Female	25.5	93.7	99	66
89	Male	24.0	95.1	98	72
90	Male	24.0	95.0	98	93
91	Male	23.0	95.0	98	115
92	Female	23.0	96.0	98	102
93	Female	23.0	96.5	98	80
94	Female	23.0	97.1	98	61
95	Female	23.0	99.0	98	107
96	Female	22.0	95.1	98	73
97	Female	23.0	98.2	97	77
98	Male	23.0	96.2	98	87
99	Female	22.5	96.4	98	80
100	Female	22.5	97.8	98	71
101	Female	22.5	95.1	98	74
102	Male	22.0	93.8	99	55
103	Female	22.0	96.8	99	93
104	Female	22.0	98.8	98	75
105	Female	22.0	98.0	98	78
106	Male	22.0	95.9	98	101
107	Female	22.0	95.6	98	54
108	Female	22.0	96.7	96	77
109	Female	22.0	98.0	98	75
110	Female	23.0	95.8	98	100
111	Female	22.0	95.3	98	91
112	Female	21	96.5	98	95

Results and Discussion

Measurement of Body Temperature: Sites used for measurement - Under the arm (axillary temperature).

Table-5: Temperature classification.

Hypothermia	<95.9 °F
Normal	95.9 – 98.6 °F
Hyperthermia	98.7 - 100.9 °F
Hyperpyrexia	>100.9 °F

Table-6: Interpretation of Body Temperature - Case No. 1-112.

Case No	Male / Female	Age	Body Temp 0F	Body Temp Status
1	Female	59	95	Hypothermia
2	Male	58	94.9	Hypothermia
3	Female	56	93.7	Hypothermia
4	Female	56	97.2	Normal
5	Female	54	95.4	Hypothermia

6	Female	53	96.7	Normal
7	Female	50	96.7	Normal
8	Female	49	98.2	Normal
9	Female	49	96.4	Normal
10	Male	48	96.4	Normal
11	Female	48	95.3	Hypothermia
12	Female	47	97.9	Normal
13	Male	46	95.7	Hypothermia
14	Female	45	95.4	Hypothermia
15	Female	42	98	Normal
16	Female	41	96.9	Normal
17	Female	39	97.3	Normal
18	Female	38	97.9	Normal
19	Female	35	97.2	Normal
20	Male	35	95.8	Hypothermia
21	Female	34	95.1	Hypothermia
22	Female	33	95.9	Normal
23	Female	32	95.7	Hypothermia
24	Female	32	97.3	Normal
25	Female	30	94.6	Hypothermia
26	Female	29	95.7	Hypothermia
27	Male	30	97.3	Normal
28	Female	29	96.2	Normal
29	Female	29	95.1	Hypothermia
30	Female	27	95.6	Hypothermia
31	Male	27	97.2	Normal
32	Female	26	95.9	Normal
33	Female	25	96	Normal
34	Female	24	98	Normal
35	Male	69	98.3	Normal
36	Male	54	95.5	Hypothermia
37	Male	53	97.2	Normal
38	Male	52	96	Normal
39	Male	50	94.9	Hypothermia
40	Male	50	94.7	Hypothermia
41	Male	49	95.1	Hypothermia
42	Male	49	96.2	Normal
43	Male	47	97.8	Normal
44	Male	45	96.8	Normal
45	Male	43	96.8	Normal
46	Male	43	95.3	Hypothermia
47	Female	43	97	Normal
48	Female	42	95.4	Hypothermia
49	Male	41	97.3	Normal
50	Male	41	96.8	Normal
51	Male	40	97.6	Normal
52	Male	40	95	Hypothermia
53	Male	38	98.7	Hyperthermia
54	Male	37	97.9	Normal
55	Male	34	97.3	Normal
56	Male	32	97.4	Normal
57	Male	30	97.4	Normal
58	Female	30	97.5	Normal
59	Male	27	96.5	Normal
60	Male	23	97.4	Normal
61	Male	22	97.5	Normal
62	Male	20	96.7	Normal
63	Female	56	96.8	Normal
64	Male	56	97.3	Normal
65	Male	56	94.4	Hypothermia
66	Male	53	94.2	Hypothermia
67	Female	52	96.8	Normal
68	Male	52	96.7	Normal
69	Male	52	97.5	Normal
70	Female	51	91.5	Hypothermia
71	Male	51	96	Normal
72	Male	50	95.7	Hypothermia
73	Female	48	97.5	Normal

74	Female	48	97.3	Normal
75	Male	46	97.6	Normal
76	Male	45	97.4	Normal
77	Male	43	95.2	Hypothermia
78	Female	36	96.8	Normal
79	Male	36	95.5	Hypothermia
80	Female	33	97.7	Normal
81	Female	33	95.6	Hypothermia
82	Male	32	97	Normal
83	Female	28	96.6	Normal
84	Male	28	94.4	Hypothermia
85	Male	29	96.6	Normal
86	Female	27	98.3	Normal
87	Female	26	96.9	Normal
88	Female	25.5	93.7	Hypothermia
89	Male	24	95.1	Hypothermia
90	Male	24	95	Hypothermia
91	Male	23	95	Hypothermia
92	Female	23	96	Normal
93	Female	23	96.5	Normal
94	Female	23	97.1	Normal
95	Female	23	99	Hyperthermia
96	Female	22	95.1	Hypothermia
97	Female	23	98.2	Normal
98	Male	23	96.2	Normal
99	Female	22.5	96.4	Normal
100	Female	22.5	97.8	Normal
101	Female	22.5	95.1	Hypothermia
102	Male	22	93.8	Hypothermia
103	Female	22	96.8	Normal
104	Female	22	98.8	Hyperthermia
105	Female	22	98	Normal
106	Male	22	95.9	Normal
107	Female	22	95.6	Hypothermia
108	Female	22	96.7	Normal
109	Female	22	98	Normal
110	Female	23	95.8	Hypothermia
111	Female	22	95.3	Hypothermia
112	Female	21	96.5	Normal

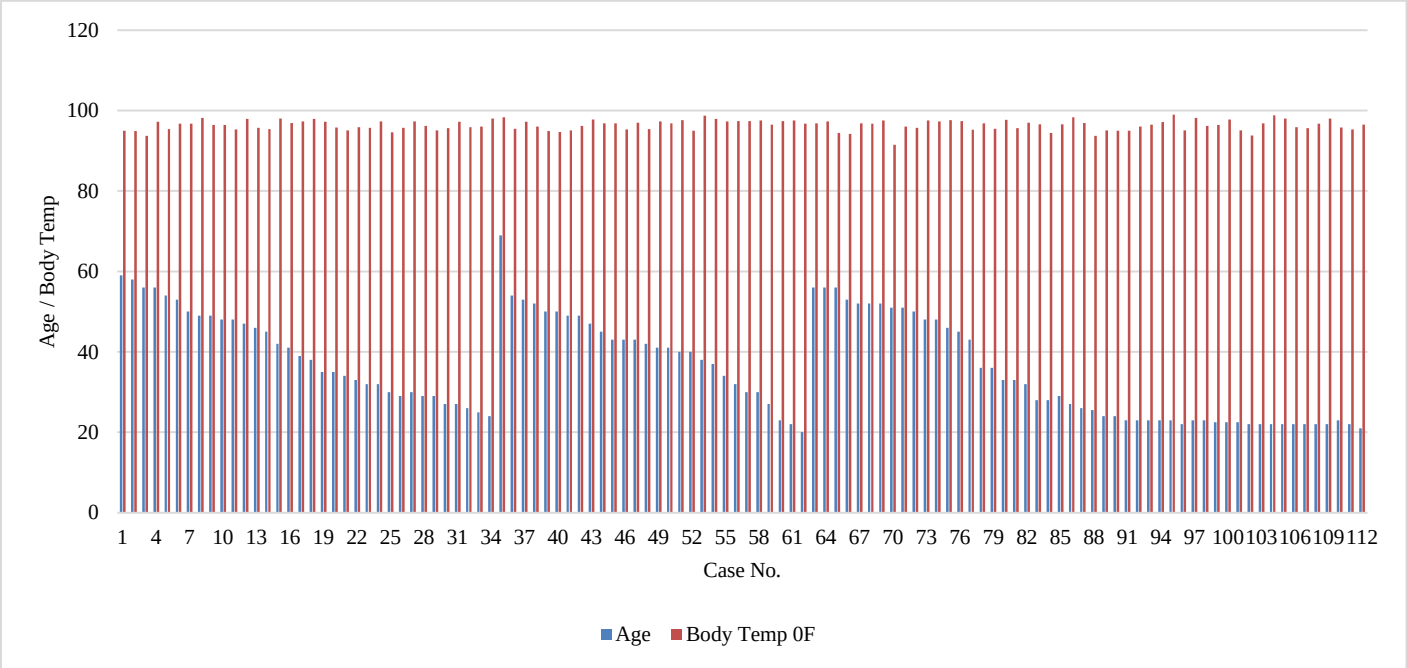

Figure-1: Body Temperature – Case No. 1 to 112.

Table-7: Interpretation of Body Temperature – Female wise.

Case No.	Female	Age	Body Temp ^0F	Body Temp Status
112	Female	21	96.5	Normal
96	Female	22	95.1	Hypothermia
103	Female	22	96.8	Normal
104	Female	22	98.8	Hyperthermia
105	Female	22	98	Normal
107	Female	22	95.6	Hypothermia
108	Female	22	96.7	Normal
109	Female	22	98	Normal
111	Female	22	95.3	Hypothermia
99	Female	22.5	96.4	Normal
100	Female	22.5	97.8	Normal
101	Female	22.5	95.1	Hypothermia
92	Female	23	96	Normal
93	Female	23	96.5	Normal
94	Female	23	97.1	Normal
95	Female	23	99	Hyperthermia
97	Female	23	98.2	Normal
110	Female	23	95.8	Hypothermia
34	Female	24	98	Normal
33	Female	25	96	Normal
88	Female	25.5	93.7	Hypothermia
32	Female	26	95.9	Normal
87	Female	26	96.9	Normal
30	Female	27	95.6	Hypothermia
86	Female	27	98.3	Normal
83	Female	28	96.6	Normal
26	Female	29	95.7	Hypothermia
28	Female	29	96.2	Normal
29	Female	29	95.1	Hypothermia
25	Female	30	94.6	Hypothermia
58	Female	30	97.5	Normal
23	Female	32	95.7	Hypothermia
24	Female	32	97.3	Normal
22	Female	33	95.9	Normal
80	Female	33	97.7	Normal
81	Female	33	95.6	Hypothermia
21	Female	34	95.1	Hypothermia
19	Female	35	97.2	Normal
78	Female	36	96.8	Normal
18	Female	38	97.9	Normal
17	Female	39	97.3	Normal
16	Female	41	96.9	Normal
15	Female	42	98	Normal
48	Female	42	95.4	Hypothermia
47	Female	43	97	Normal
14	Female	45	95.4	Hypothermia
12	Female	47	97.9	Normal
11	Female	48	95.3	Hypothermia
73	Female	48	97.5	Normal
74	Female	48	97.3	Normal
8	Female	49	98.2	Normal
9	Female	49	96.4	Normal
7	Female	50	96.7	Normal
70	Female	51	91.5	Hypothermia
67	Female	52	96.8	Normal
6	Female	53	96.7	Normal
5	Female	54	95.4	Hypothermia
3	Female	56	93.7	Hypothermia
4	Female	56	97.2	Normal
63	Female	56	96.8	Normal
1	Female	59	95	Hypothermia

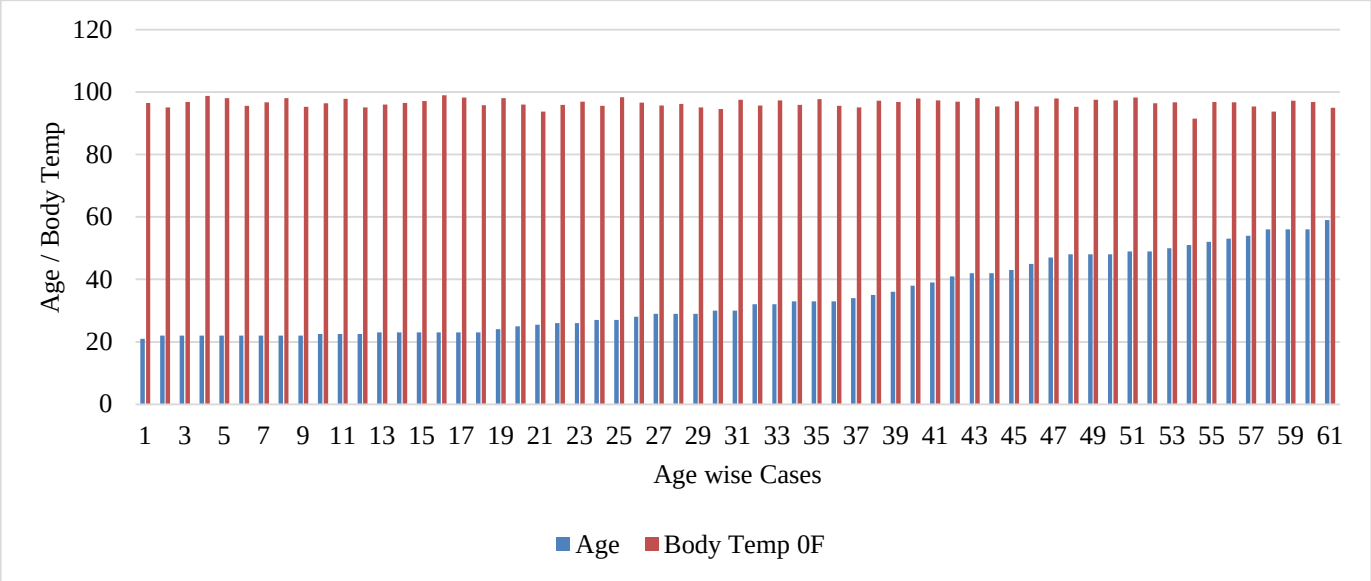

Figure-2: Body Temperature – Female wise.

Table-8: Interpretation of Body Temperature – Male wise.

Case No.	Male	Age	Body Temp ^{0}F	Body Temp Status
62	Male	20	96.7	Normal
61	Male	22	97.5	Normal
102	Male	22	93.8	Hypothermia
106	Male	22	95.9	Normal
60	Male	23	97.4	Normal
91	Male	23	95	Hypothermia
98	Male	23	96.2	Normal
89	Male	24	95.1	Hypothermia
90	Male	24	95	Hypothermia
31	Male	27	97.2	Normal
59	Male	27	96.5	Normal
84	Male	28	94.4	Hypothermia
85	Male	29	96.6	Normal
27	Male	30	97.3	Normal
57	Male	30	97.4	Normal
56	Male	32	97.4	Normal
82	Male	32	97	Normal
55	Male	34	97.3	Normal
20	Male	35	95.8	Hypothermia
79	Male	36	95.5	Hypothermia
54	Male	37	97.9	Normal
53	Male	38	98.7	Hyperthermia
51	Male	40	97.6	Normal
52	Male	40	95	Hypothermia
49	Male	41	97.3	Normal
50	Male	41	96.8	Normal
45	Male	43	96.8	Normal
46	Male	43	95.3	Hypothermia
77	Male	43	95.2	Hypothermia
44	Male	45	96.8	Normal
76	Male	45	97.4	Normal
13	Male	46	95.7	Hypothermia
75	Male	46	97.6	Normal
43	Male	47	97.8	Normal
10	Male	48	96.4	Normal
41	Male	49	95.1	Hypothermia
42	Male	49	96.2	Normal
39	Male	50	94.9	Hypothermia
40	Male	50	94.7	Hypothermia
72	Male	50	95.7	Hypothermia
71	Male	51	96	Normal
38	Male	52	96	Normal
68	Male	52	96.7	Normal
69	Male	52	97.5	Normal
37	Male	53	97.2	Normal
66	Male	53	94.2	Hypothermia
36	Male	54	95.5	Hypothermia
64	Male	56	97.3	Normal
65	Male	56	94.4	Hypothermia
2	Male	58	94.9	Hypothermia
35	Male	69	98.3	Normal

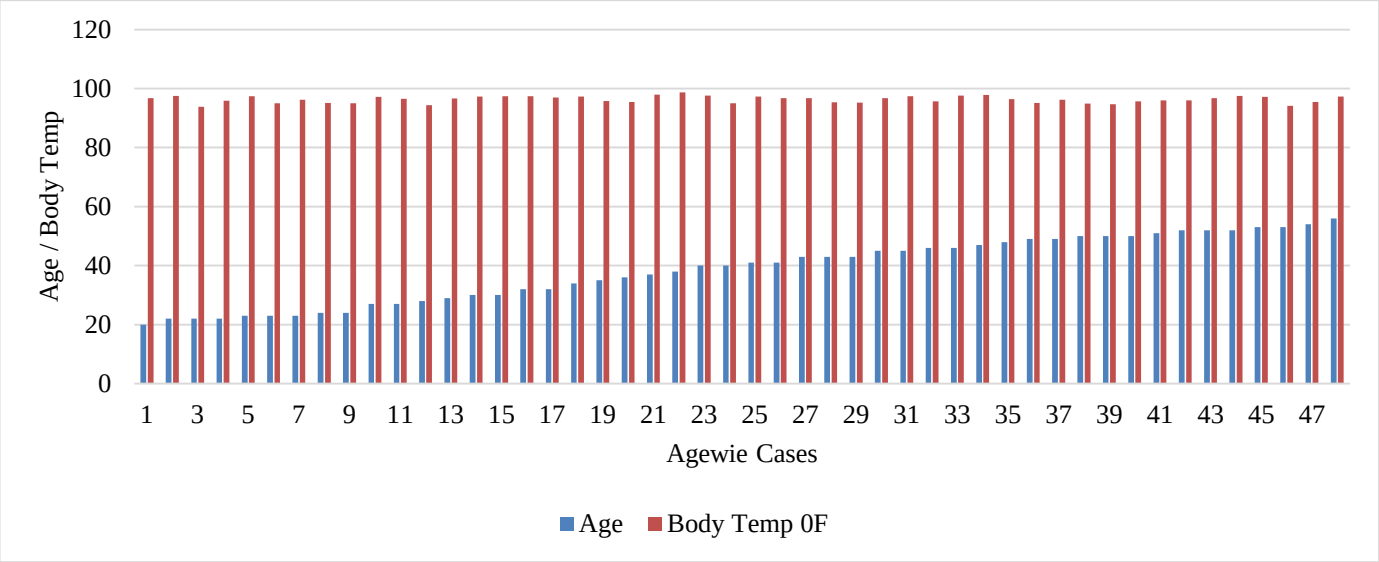

Figure-3: Body Temperature – Male wise.

Table-9: Body Temperature status of teaching staff, non-teaching staff and undergraduate students.

Body Temperature Status	Hypothermia	Normal	Hyperthermia	Hyperpyrexia	Total
Sites used for Measurement→	Under the arm (Axillary Temperature)				
Temp Classification→	< 95.9 ^{0} F	95.9 – 98.6^{0}F	98.7 – 100.9 ^{0} F	> 100.9 ^{0} F	
Teaching Staff	14	20	0	0	34
Technical Staff	07	20	01	0	28
Lab Attendant	06	16	0	0	22
PG Student	10	16	02	0	28
All Category	37	72	03	0	112
Female	20	39	02	0	61
Male	19	31	01	0	51

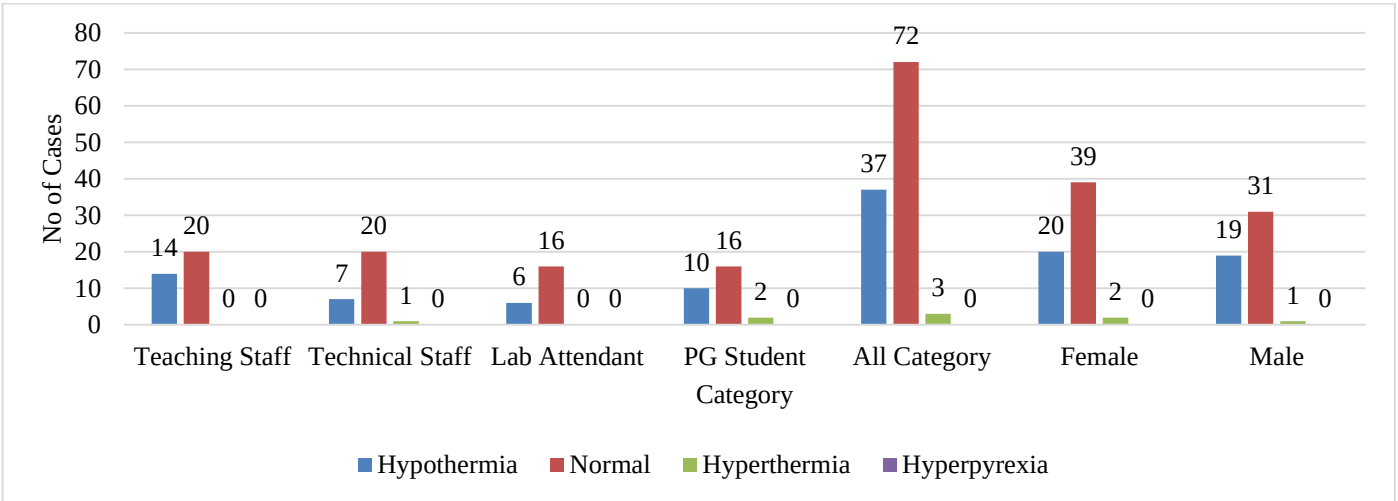

Figure-4: Body Temperature Status–Category wise.

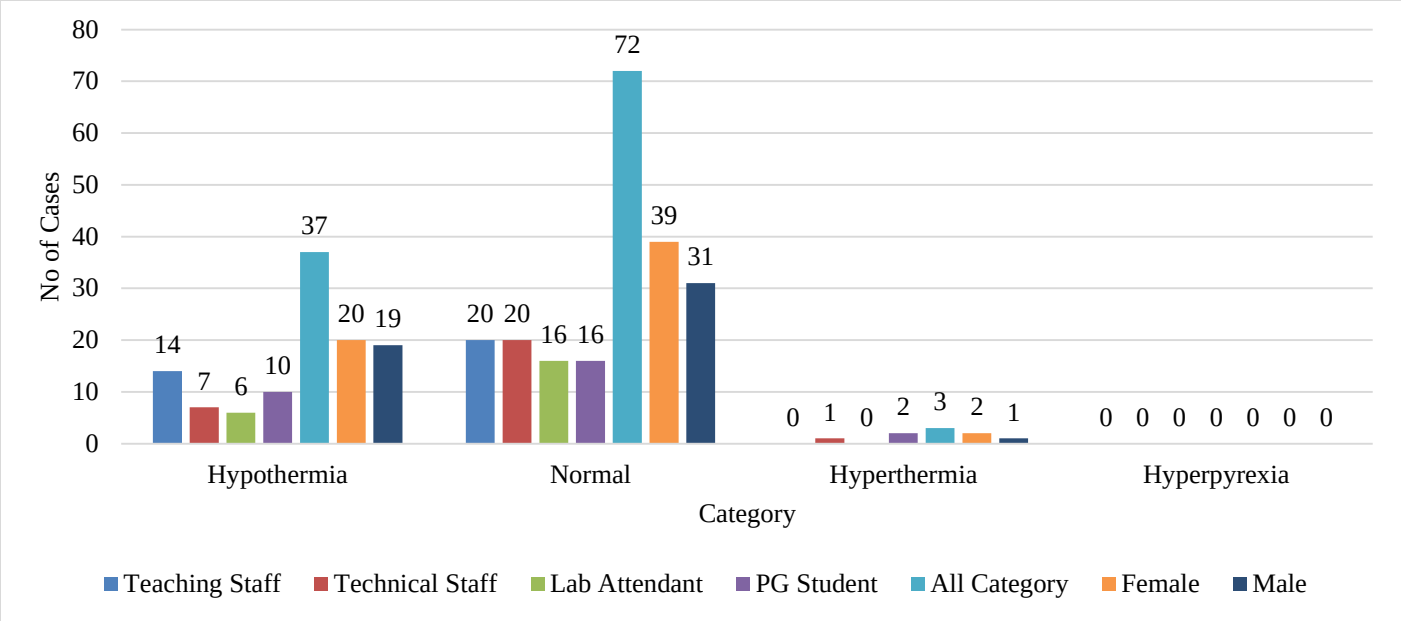

Figure-5: Body Temperature Status – Temperature classification wise.

Measurement of Peripheral Oxygen Saturation of Arterial Hemoglobin (SpO2): Normal arterial blood oxygen saturation levels in humans are 96–100 percent. Hypoxia is low oxygen levels in the tissues and hypoxemia is low oxygen levels in the blood.

Table-10: Peripheral Oxygen Saturation of Arterial Hemoglobin (SpO2) Classification.

Hypoxemia	Normal
<90 %	96 – 99 %

Table-11: Interpretation of Peripheral Oxygen Saturation of Arterial Hemoglobin (SpO2).

Case No	Male / Female	Age	SpO2 %	SpO2 % Status
1	Female	59	97	Normal
2	Male	58	99	Normal
3	Female	56	96	Normal
4	Female	56	98	Normal
5	Female	54	99	Normal
6	Female	53	99	Normal
7	Female	50	98	Normal
8	Female	49	99	Normal
9	Female	49	98	Normal
10	Male	48	98	Normal
11	Female	48	99	Normal
12	Female	47	98	Normal
13	Male	46	98	Normal
14	Female	45	98	Normal
15	Female	42	98	Normal
16	Female	41	99	Normal
17	Female	39	99	Normal
18	Female	38	99	Normal
19	Female	35	98	Normal
20	Male	35	98	Normal
21	Female	34	99	Normal
22	Female	33	98	Normal
23	Female	32	98	Normal
24	Female	32	98	Normal
25	Female	30	98	Normal
26	Female	29	99	Normal
27	Male	30	99	Normal
28	Female	29	99	Normal
29	Female	29	99	Normal
30	Female	27	98	Normal
31	Male	27	99	Normal
32	Female	26	98	Normal
33	Female	25	99	Normal
34	Female	24	99	Normal

35	Male	69	98	Normal
36	Male	54	99	Normal
37	Male	53	96	Normal
38	Male	52	99	Normal
39	Male	50	97	Normal
40	Male	50	98	Normal
41	Male	49	99	Normal
42	Male	49	98	Normal
43	Male	47	98	Normal
44	Male	45	97	Normal
45	Male	43	96	Normal
46	Male	43	98	Normal
47	Female	43	98	Normal
48	Female	42	96	Normal
49	Male	41	99	Normal
50	Male	41	98	Normal
51	Male	40	98	Normal
52	Male	40	99	Normal
53	Male	38	99	Normal
54	Male	37	97	Normal
55	Male	34	98	Normal
56	Male	32	99	Normal
57	Male	30	98	Normal
58	Female	30	98	Normal
59	Male	27	99	Normal
60	Male	23	99	Normal
61	Male	22	97	Normal
62	Male	20	99	Normal
63	Female	56	98	Normal
64	Male	56	99	Normal
65	Male	56	99	Normal
66	Male	53	99	Normal
67	Female	52	98	Normal
68	Male	52	98	Normal
69	Male	52	98	Normal
70	Female	51	97	Normal
71	Male	51	95	Normal
72	Male	50	98	Normal
73	Female	48	98	Normal
74	Female	48	99	Normal
75	Male	46	98	Normal
76	Male	45	98	Normal
77	Male	43	98	Normal
78	Female	36	99	Normal
79	Male	36	98	Normal
80	Female	33	98	Normal
81	Female	33	98	Normal
82	Male	32	98	Normal
83	Female	28	94	Normal
84	Male	28	98	Normal
85	Male	29.0	99	Normal
86	Female	27.0	98	Normal
87	Female	26	99	Normal
88	Female	25.5	99	Normal
89	Male	24.0	98	Normal
90	Male	24.0	98	Normal
91	Male	23.0	98	Normal
92	Female	23.0	98	Normal
93	Female	23.0	98	Normal
94	Female	23.0	98	Normal
95	Female	23.0	98	Normal
96	Female	22.0	98	Normal
97	Female	23.0	97	Normal
98	Male	23.0	98	Normal
99	Female	22.5	98	Normal
100	Female	22.5	98	Normal
101	Female	22.5	98	Normal
102	Male	22.0	99	Normal
103	Female	22.0	99	Normal
104	Female	22.0	98	Normal
105	Female	22.0	98	Normal
106	Male	22.0	98	Normal
107	Female	22.0	98	Normal
108	Female	22.0	96	Normal
109	Female	22.0	98	Normal
110	Female	23.0	98	Normal
111	Female	22.0	98	Normal
112	Female	21	98	Normal

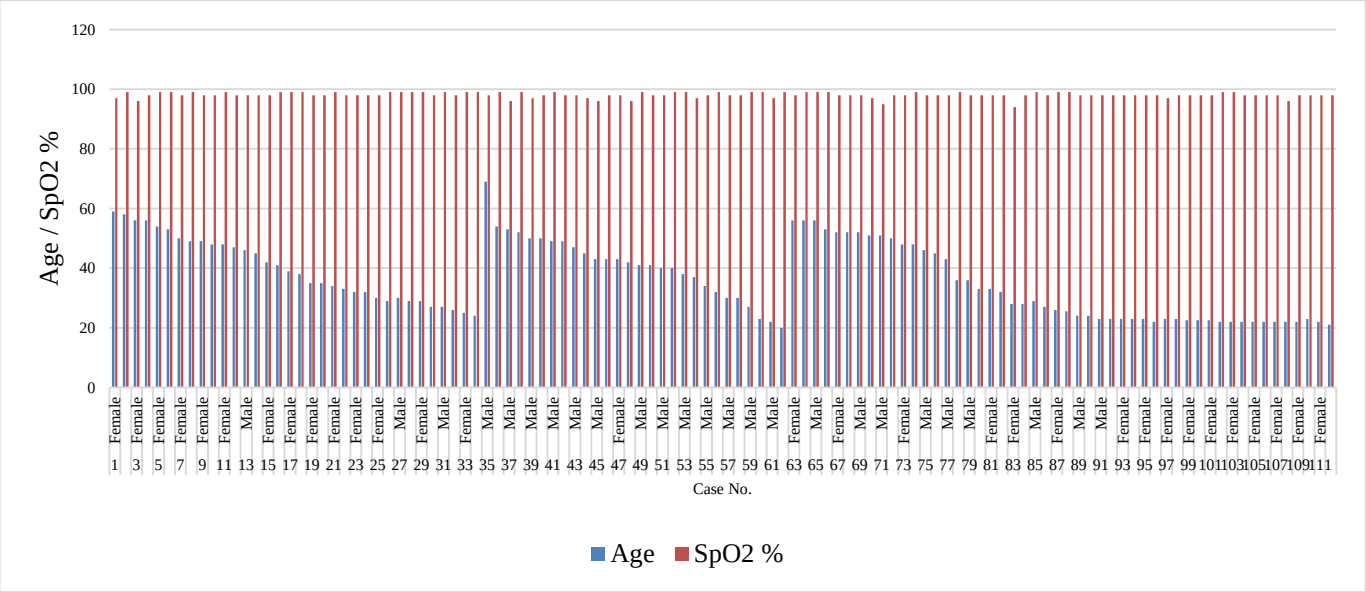

Figure-6: Measurement of SpO2 % - Case No. 1 to 112.

Table-12: SpO2 % - Female.

Case No	Male / Female	Age	SpO2 %	SpO2 % Status
112	Female	21	98	Normal
96	Female	22	98	Normal
103	Female	22	99	Normal
104	Female	22	98	Normal
105	Female	22	98	Normal
107	Female	22	98	Normal
108	Female	22	96	Normal
109	Female	22	98	Normal
111	Female	22	98	Normal
99	Female	22.5	98	Normal
100	Female	22.5	98	Normal
101	Female	22.5	98	Normal
92	Female	23	98	Normal
93	Female	23	98	Normal
94	Female	23	98	Normal
95	Female	23	98	Normal
97	Female	23	97	Normal
110	Female	23	98	Normal
34	Female	24	99	Normal
33	Female	25	99	Normal
88	Female	25.5	99	Normal
32	Female	26	98	Normal
87	Female	26	99	Normal
30	Female	27	98	Normal
86	Female	27	98	Normal
83	Female	28	94	Normal
26	Female	29	99	Normal
28	Female	29	99	Normal
29	Female	29	99	Normal
25	Female	30	98	Normal
58	Female	30	98	Normal
23	Female	32	98	Normal
24	Female	32	98	Normal
22	Female	33	98	Normal

80	Female	33	98	Normal
81	Female	33	98	Normal
21	Female	34	99	Normal
19	Female	35	98	Normal
78	Female	36	99	Normal
18	Female	38	99	Normal
17	Female	39	99	Normal
16	Female	41	99	Normal
15	Female	42	98	Normal
48	Female	42	96	Normal
47	Female	43	98	Normal
14	Female	45	98	Normal
12	Female	47	98	Normal
11	Female	48	99	Normal

73	Female	48	98	Normal
74	Female	48	99	Normal
8	Female	49	99	Normal
9	Female	49	98	Normal
7	Female	50	98	Normal
70	Female	51	97	Normal
67	Female	52	98	Normal
6	Female	53	99	Normal
5	Female	54	99	Normal
3	Female	56	96	Normal
4	Female	56	98	Normal
63	Female	56	98	Normal
1	Female	59	97	Normal

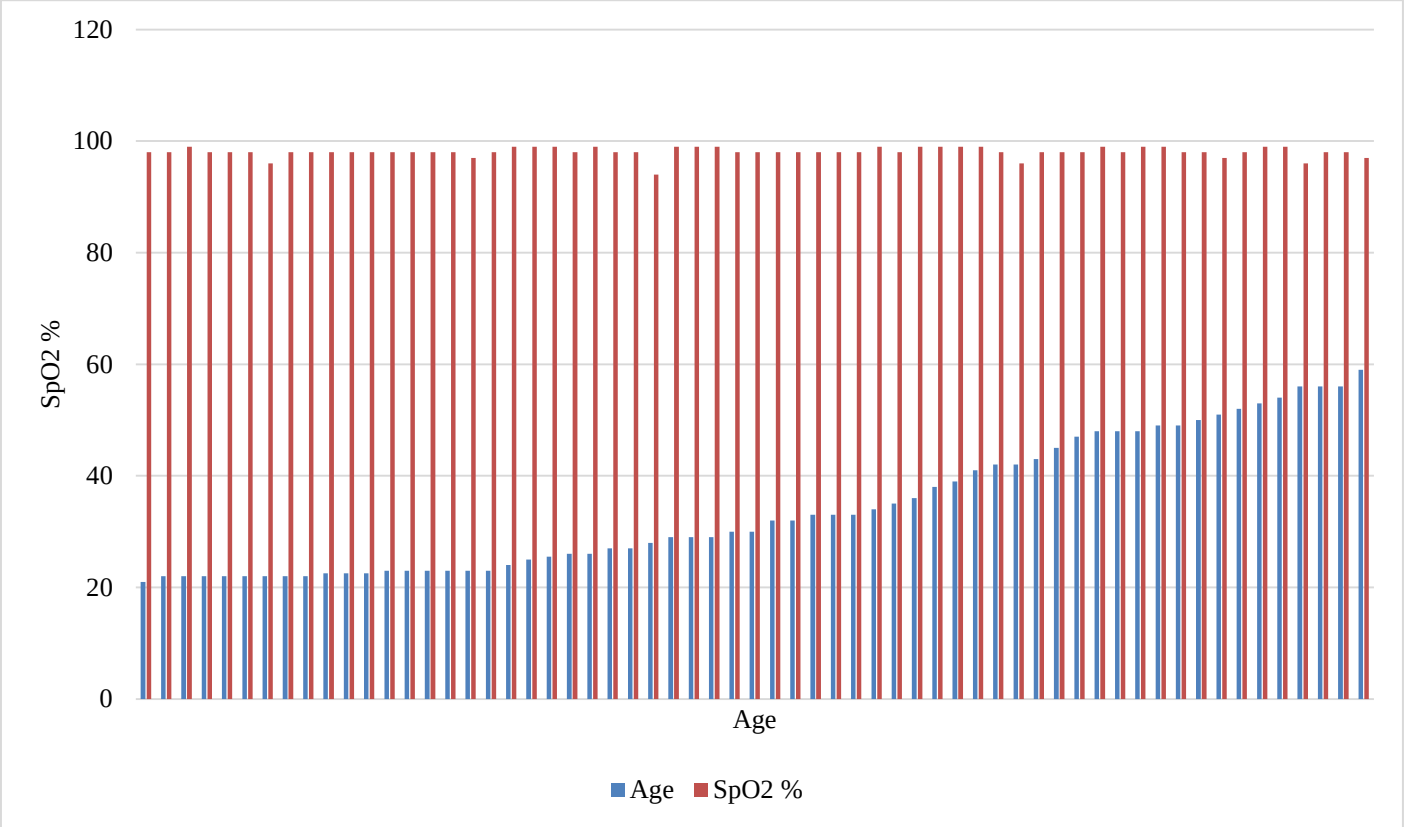

Figure-7: SpO2 % - Female.

Table-13: SpO2 % - Male.

Case No	Male / Female	Age	SpO2 %	SpO2 % Status
62	Male	20	99	Normal
61	Male	22	97	Normal
102	Male	22	99	Normal
106	Male	22	98	Normal
60	Male	23	99	Normal
91	Male	23	98	Normal
98	Male	23	98	Normal
89	Male	24	98	Normal
90	Male	24	98	Normal
31	Male	27	99	Normal
59	Male	27	99	Normal
84	Male	28	98	Normal
85	Male	29	99	Normal
27	Male	30	99	Normal
57	Male	30	98	Normal
56	Male	32	99	Normal
82	Male	32	98	Normal
55	Male	34	98	Normal
20	Male	35	98	Normal
79	Male	36	98	Normal
54	Male	37	97	Normal
53	Male	38	99	Normal
51	Male	40	98	Normal
52	Male	40	99	Normal
49	Male	41	99	Normal
50	Male	41	98	Normal
45	Male	43	96	Normal
46	Male	43	98	Normal
77	Male	43	98	Normal
44	Male	45	97	Normal
76	Male	45	98	Normal
13	Male	46	98	Normal
75	Male	46	98	Normal
43	Male	47	98	Normal
10	Male	48	98	Normal
41	Male	49	99	Normal
42	Male	49	98	Normal
39	Male	50	97	Normal
40	Male	50	98	Normal
72	Male	50	98	Normal
71	Male	51	95	Normal
38	Male	52	99	Normal
68	Male	52	98	Normal
69	Male	52	98	Normal
37	Male	53	96	Normal
66	Male	53	99	Normal
36	Male	54	99	Normal
64	Male	56	99	Normal
65	Male	56	99	Normal
2	Male	58	99	Normal
35	Male	69	98	Normal

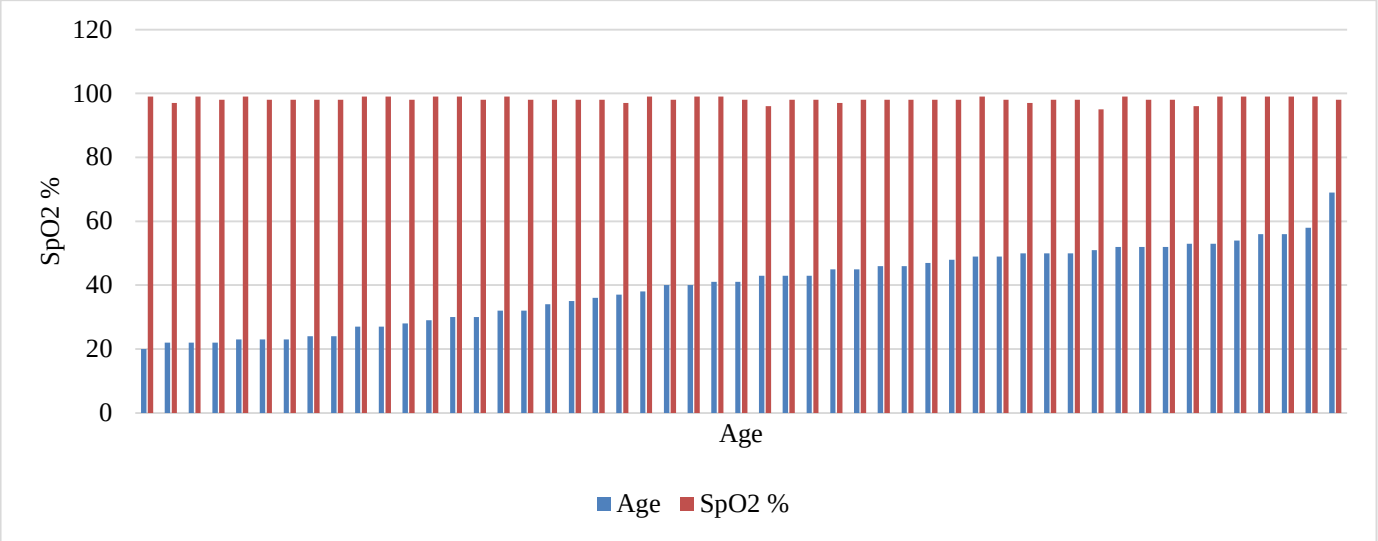

Figure-8: SpO2 % - Male.

Table-14: SpO2 % status of teaching staff, non-teaching staff and undergraduate students.

SpO2 % Status	Hypoxemia	Normal	Total
SpO2 % Classification→	< 90 %	96 – 99 %	
Teaching Staff	00	34	34
Technical Staff	00	28	28
Lab Attendant	00	22	22
PG Student	00	28	28
All Category	00	112	112
Female	00	61	61
Male	00	51	51

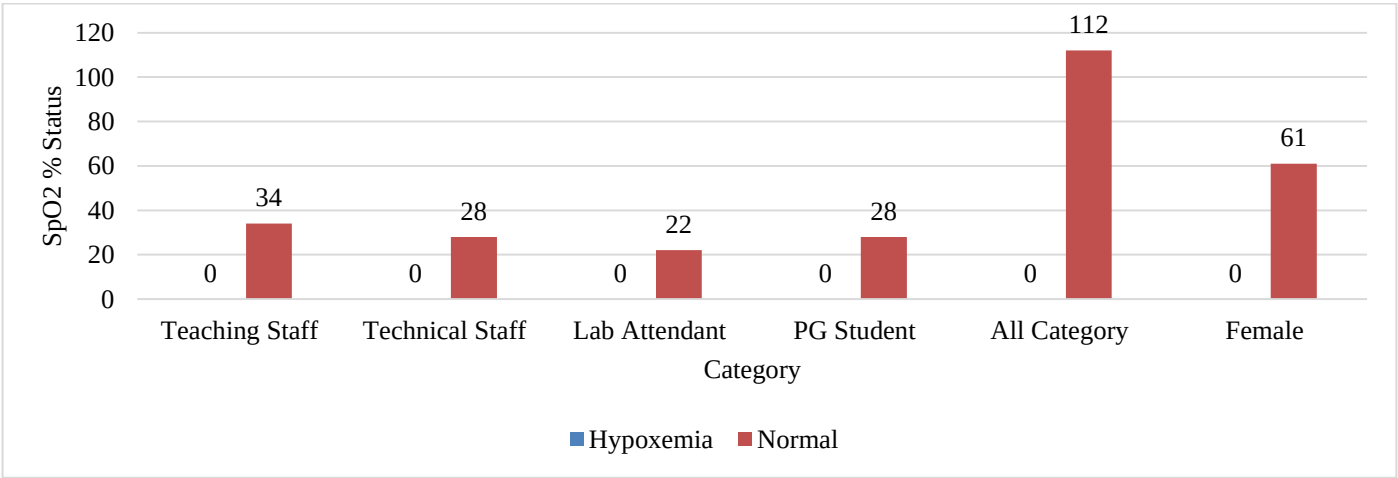

Figure-9: SpO2 % status of teaching staff, non-teaching staff and undergraduate students – Category wise.

Measurement of Pulse Rate: The pulse rate can be used to check overall heart health and fitness level. Generally lower is better, but bradycardias can be dangerous. Symptoms of a dangerously slow heartbeat include weakness, loss of energy and fainting. Bradycardia is a slower than normal heart rate (below 60 beats per minute). If you are sleeping or if you are a young, healthy adult or very fit, it can be normal to have a heart rate of 40 – 60 bpm. Bradycardia can cause you to feet faint, dizzy, short of breath, fatigued or have chest pain.

The normal pulse for healthy adult's ranges from 60 to 100 beats per minute. The pulse rate may fluctuate and increase with exercise, illness, injury, and emotions. Females ages 12 and older, in general, tend to have faster heart rates than do males. Women typically have smaller hearts than men do. As a result, each heartbeat produces less blood flow, meaning the heart needs to pump faster in order to achieve the necessary output. For most adults, a resting heart rate (RHR) between 60 and 100 beats per minute is normal and it generally increases with age, but there are many factors that can affect RHR.

Resting heart rate (RHR), also called basal heart rate, is a measure of your average heart beats per minute (bpm) while your body is at rest in a neutrally temperate environment and has not been subject to recent strain. The metric is useful for monitoring your fitness level and heart health. A lower resting heart rate is usually a good sign. The average RHR is between 60-100 bpm, according to the American Heart Association. Generally speaking, when your heart rate decreases, it means that each beat is more effective. A low RHR is a sign of a strong heart muscle that can pump enough blood to supply the body with oxygen without having to labor too hard. When your heart doesn't need to work as hard to push blood through your body to supply oxygen to your muscles, your level of fitness increases.

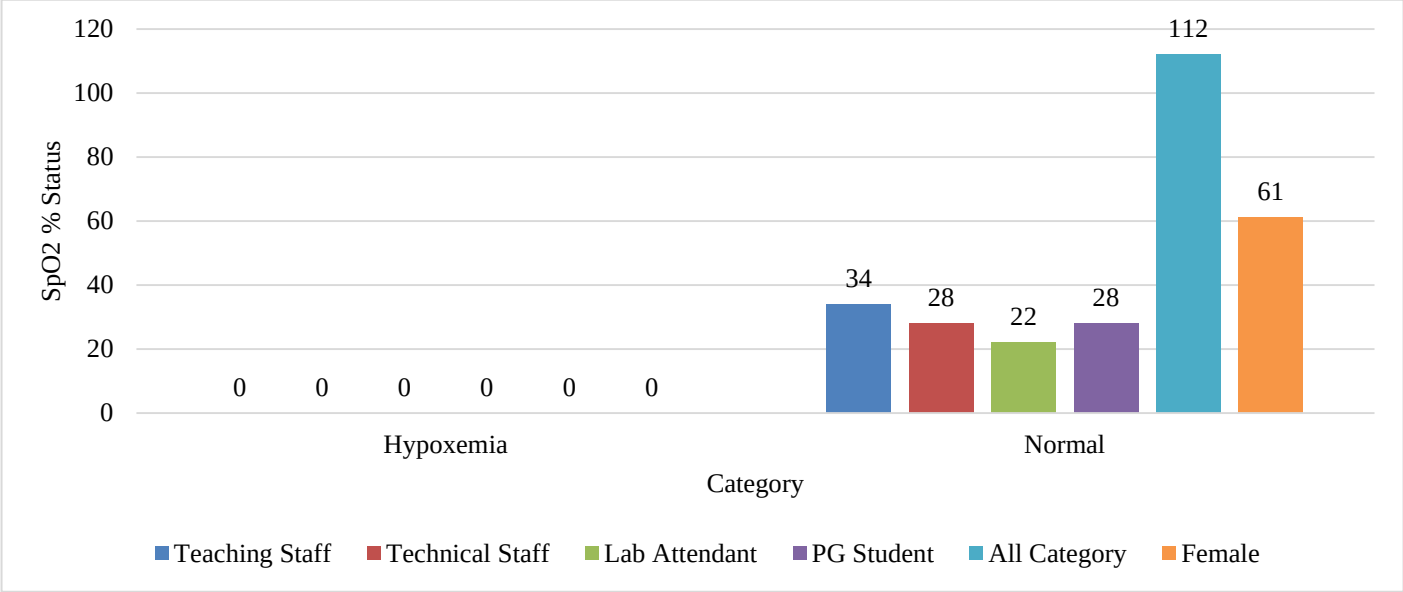

Figure-10: SpO2 % status of teaching staff, non-teaching staff and undergraduate students – SpO2 % Classification wise.

Table-15: Resting Heart Rate by age and gender (RHR by age and gender for the average adult, based on data from the US Department of Health and Human Services).

Gender	Age	Athlete	Very Good	Above Average	Average	Below Average	Poor
Female	20-39	52-59	60-65	66-73	74-81	82-88	89-98
	40-59	51-58	59-63	64-70	71-78	79-85	86-96
	60-79	52-58	59-63	64-69	70-77	78-85	86-95
Male	20-39	47-54	55-60	61-68	69-75	76-83	84-94
	40-59	46-54	55-60	61-67	68-76	77-84	85-94
	60-79	45-53	54-59	60-66	67-74	75-83	84-97

An unhealthy resting heart rate is one that is consistently above or below the normal range of 60 to 100 beats per minute. A resting heart rate that is consistently above 100 bpm may indicate a condition such as tachycardia, while a resting heart rate that is consistently below 60 bpm may indicate bradycardia. It is important to consult with a healthcare professional to determine the cause and appropriate treatment for an unhealthy resting heart rate.

Bradycardia	Normal	Tachycardia
< 60 BPM	60-100 BPM	>100 BPM

Resting heart rate can be a good indicator of health, as a lower resting heart rate generally indicates better cardiovascular fitness. However, there are many factors that can affect resting heart rate, such as age, medication use, and medical conditions, so it should not be relied upon as the sole indicator of overall health. Other factors such as blood pressure, cholesterol levels, and lifestyle habits should also be considered.

Table-16: Interpretation of Pulse Rate – Female – Age 20-39.

Case No	Male / Female	Age	PR bpm	Pulse Rate Status
112	Female	21	95	Poor
96	Female	22	73	Above Average
103	Female	22	93	Poor
104	Female	22	75	Average
105	Female	22	78	Average
107	Female	22	54	Athlete
108	Female	22	77	Average
109	Female	22	75	Average
111	Female	22	91	Poor
99	Female	22.5	80	Average
100	Female	22.5	71	Above Average
101	Female	22.5	74	Average
92	Female	23	102	Poor
93	Female	23	80	Average
94	Female	23	61	VeryGood
95	Female	23	107	Poor
97	Female	23	77	Average
110	Female	23	100	Poor
34	Female	24	81	Average
33	Female	25	105	Poor
88	Female	25.5	66	Above Average
32	Female	26	109	Poor
87	Female	26	93	Poor
30	Female	27	87	Below Average
86	Female	27	96	Poor
83	Female	28	57	Athlete
26	Female	29	98	Poor
28	Female	29	95	Poor
29	Female	29	94	Poor
25	Female	30	77	Average
58	Female	30	90	Poor
23	Female	32	94	Poor
24	Female	32	96	Poor
22	Female	33	83	Below Average
80	Female	33	91	Poor
81	Female	33	100	Poor
21	Female	34	98	Poor
19	Female	35	85	Below Average
78	Female	36	87	Below Average
18	Female	38	89	Poor
17	Female	39	76	Average

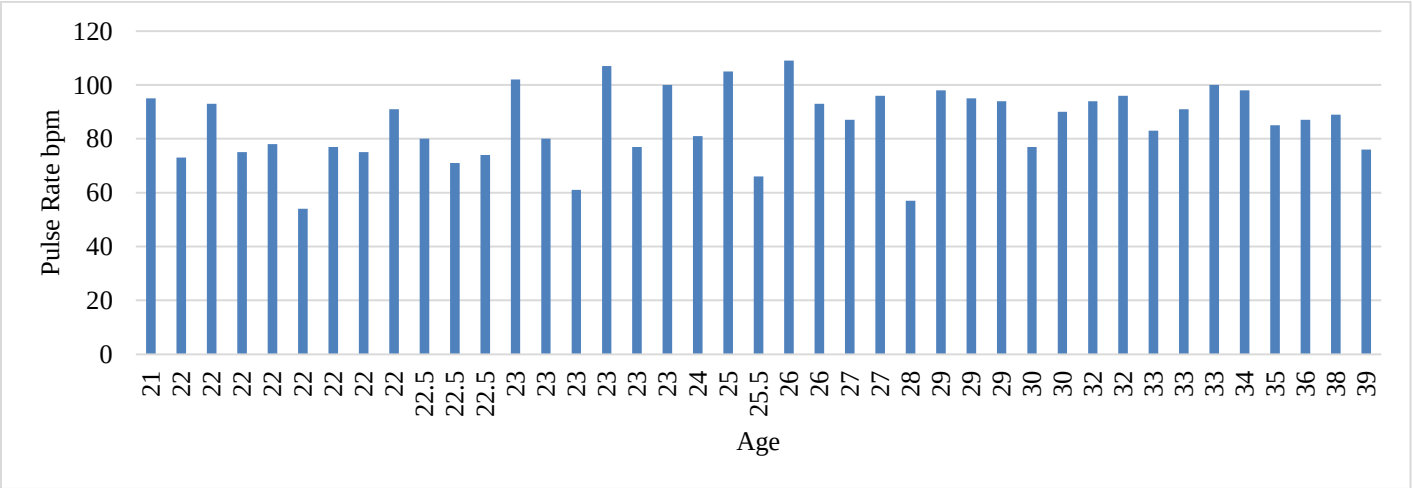

Figure-11: Pulse Rate - Female -Age 20-39.

Table-17: Interpretation of Pulse Rate – Female – Age 40-59.

Case No	Male / Female	Age	PR bpm	Pulse Rate Status
16	Female	41	75	Average
15	Female	42	108	Poor
48	Female	42	88	Poor
47	Female	43	99	Poor
14	Female	45	71	Average
12	Female	47	97	Poor
11	Female	48	77	Average
73	Female	48	95	Poor
74	Female	48	82	Below Average
8	Female	49	76	Average
9	Female	49	75	Average
7	Female	50	74	Average
70	Female	51	100	Poor
67	Female	52	89	Poor
6	Female	53	113	Poor
5	Female	54	87	Poor
3	Female	56	65	Above Average
4	Female	56	74	Average
63	Female	56	76	Average
1	Female	59	66	Above Average

Table-18: Interpretation of Pulse Rate – Male – Age 20-39.

Case No	Male / Female	Age	PR bpm	Pulse Rate Status
62	Male	20	74	Average
61	Male	22	113	Poor
102	Male	22	55	VeryGood
106	Male	22	101	Poor
60	Male	23	72	Average
91	Male	23	115	Poor
98	Male	23	87	Poor
89	Male	24	72	Average
90	Male	24	93	Poor
31	Male	27	105	Poor
59	Male	27	82	Below Average
84	Male	28	95	Poor
85	Male	29	77	Below Average
27	Male	30	94	Poor
57	Male	30	89	Poor
56	Male	32	82	Below Average
82	Male	32	101	Poor
55	Male	34	83	Below Average
20	Male	35	74	Average
79	Male	36	88	Poor
54	Male	37	88	Poor
53	Male	38	91	Poor

Table-19: Interpretation of Pulse Rate – Male – Age 40-59.

Case No	Male / Female	Age	PR bpm	Pulse Rate Status
51	Male	40	80	Below Average
52	Male	40	76	Average
49	Male	41	106	Poor
50	Male	41	100	Poor
45	Male	43	77	Below Average
46	Male	43	104	Poor
77	Male	43	67	Above Average
44	Male	45	66	Above Average
76	Male	45	94	Poor
13	Male	46	85	Poor
75	Male	46	108	Poor
43	Male	47	74	Average
10	Male	48	96	Poor
41	Male	49	96	Poor
42	Male	49	106	Poor
39	Male	50	96	Poor
40	Male	50	86	Poor
72	Male	50	87	Poor
71	Male	51	66	Above Average
38	Male	52	83	Below Average
68	Male	52	90	Poor
69	Male	52	85	Poor
37	Male	53	77	Below Average
66	Male	53	76	Average
36	Male	54	79	Below Average
64	Male	56	112	Poor
65	Male	56	82	Below Average
2	Male	58	76	Average

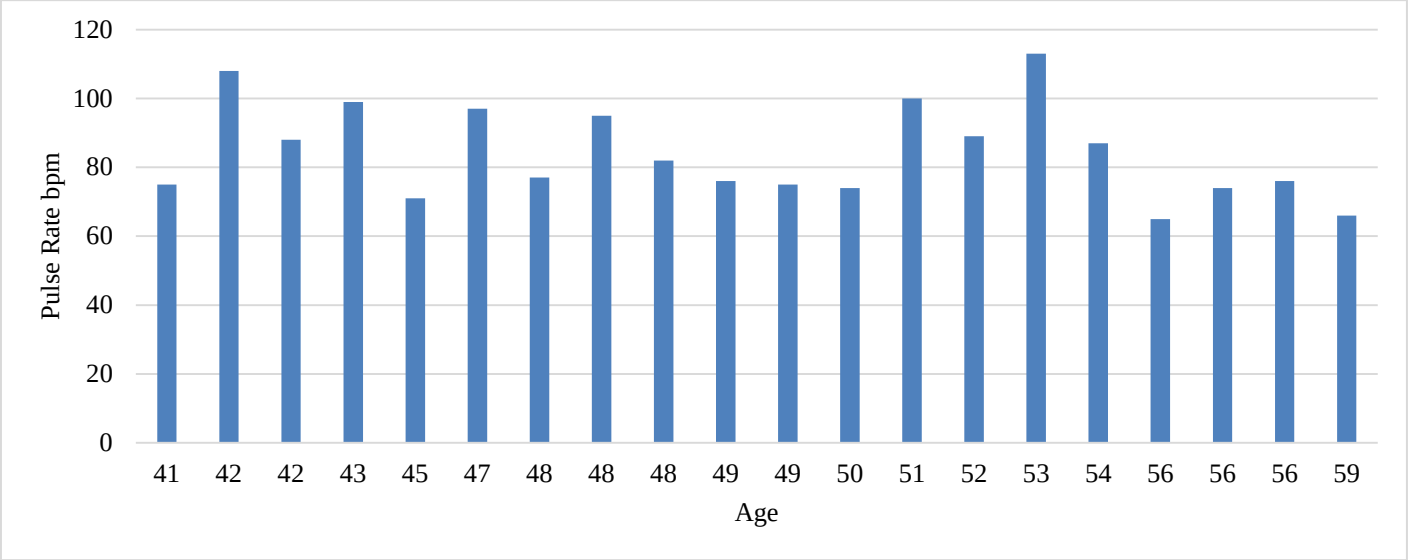

Figure-12: Pulse Rate - Female -Age 40-59.

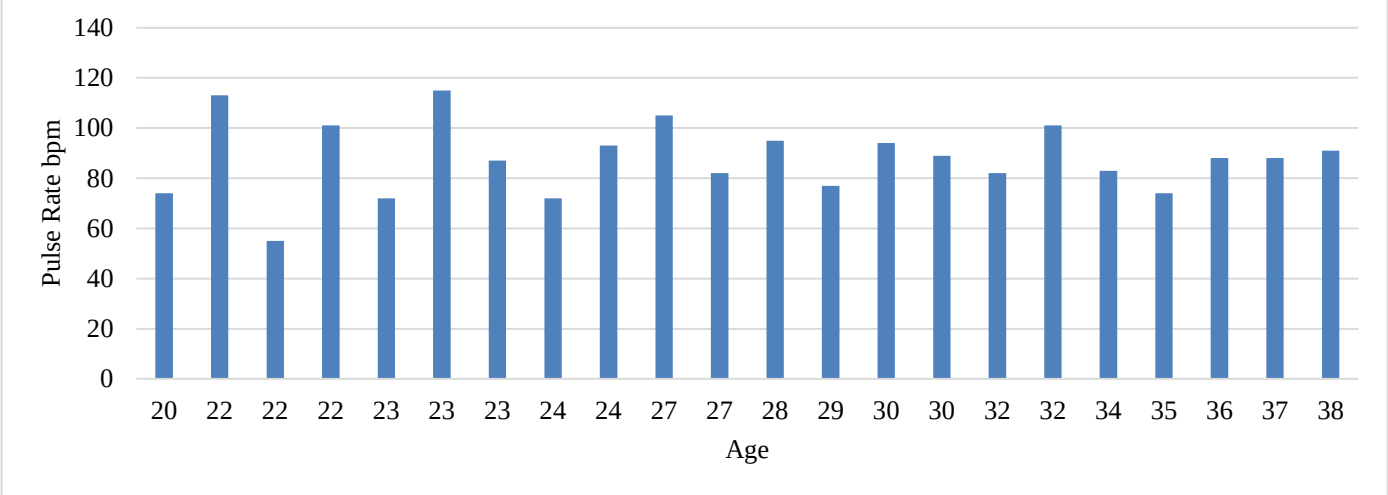

Figure-13: Pulse Rate - Male -Age 20-39.

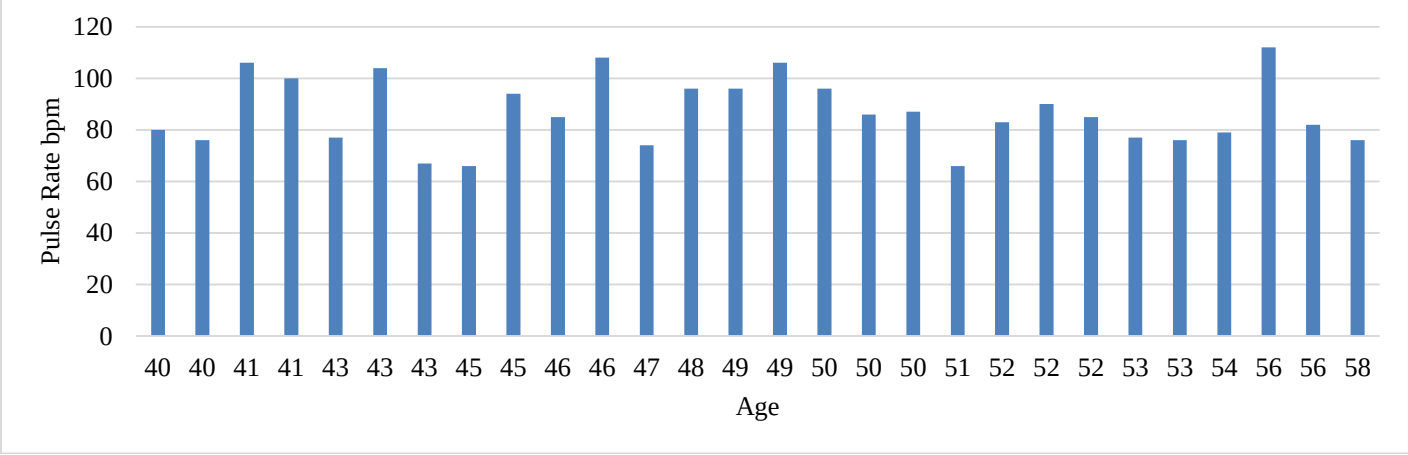

Figure-14: Pulse Rate - Male -Age 40-59.

Table-20: Interpretation of Pulse Rate – Male – Age 60-79.

Case No	Male / Female	Age	PR bpm	Pulse Rate Status
35	Male	69	100	Poor

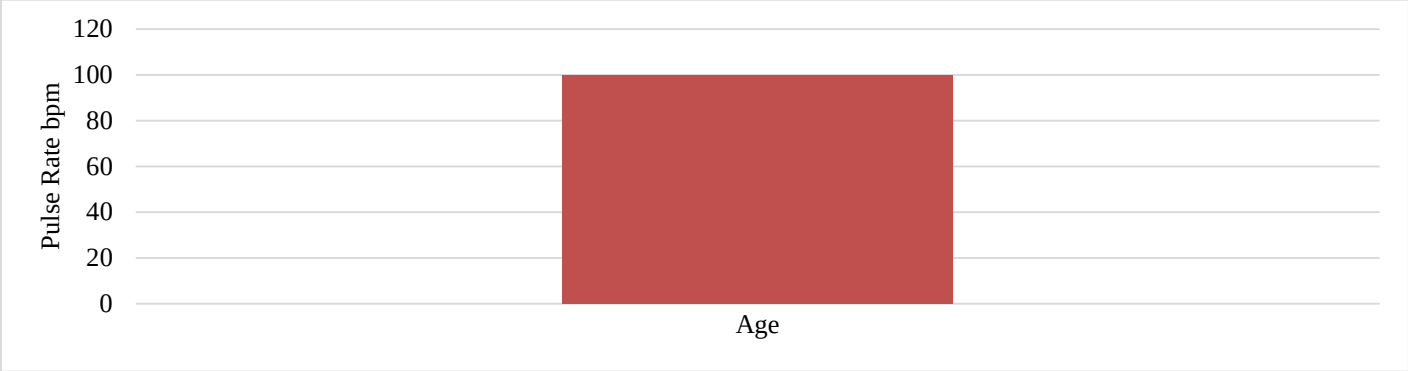

Figure-15: Pulse Rate - Male -Age 60-79.

Table-21: Pulse Rate Statusof teaching staff, non-teaching staff and undergraduate students.

Gender	Age	Athlete	Very Good	Above Average	Average	Below Average	Poor	Total
Female	20-39	02	01	03	11	04	20	41
	40-59	00	00	02	08	01	09	20
	60-79	00	00	00	00	00	00	00
Male	20-39	00	01	00	04	04	13	22
	40-59	00	00	03	04	06	15	28
	60-79	00	00	00	00	00	01	01
	Total	02	02	08	27	15	58	112

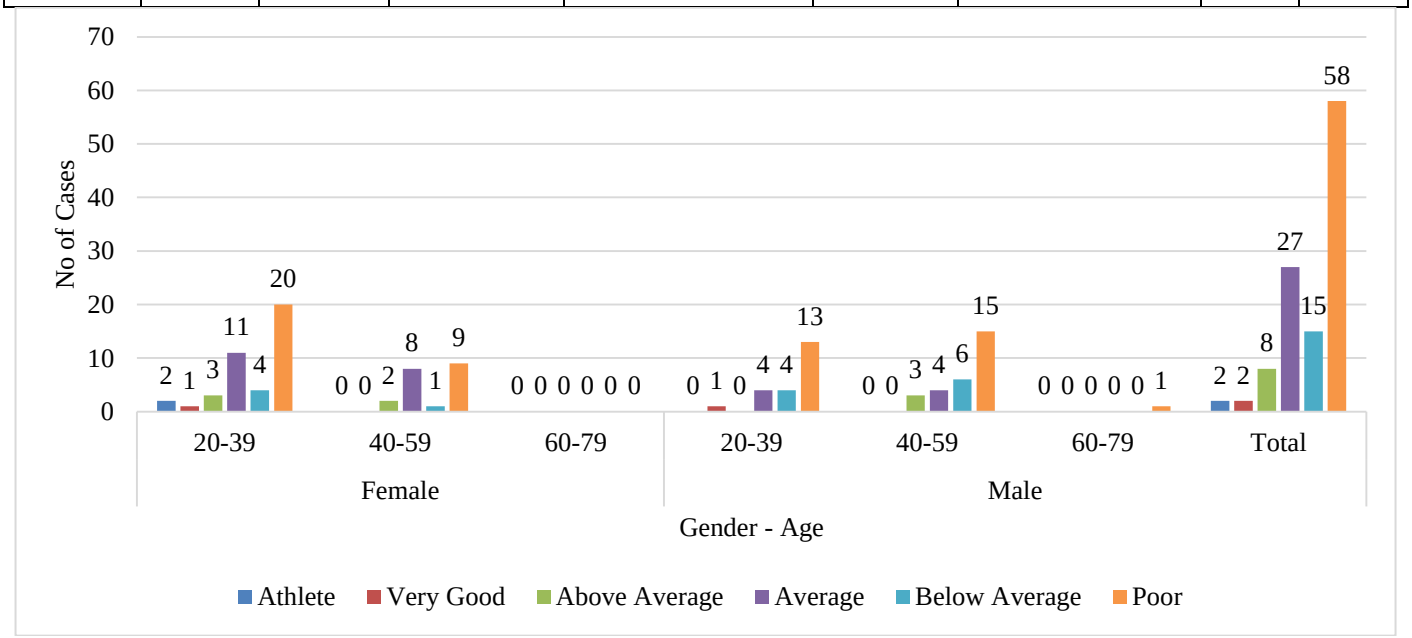

Figure-16: Pulse Rate Status – Gender and Age wise.

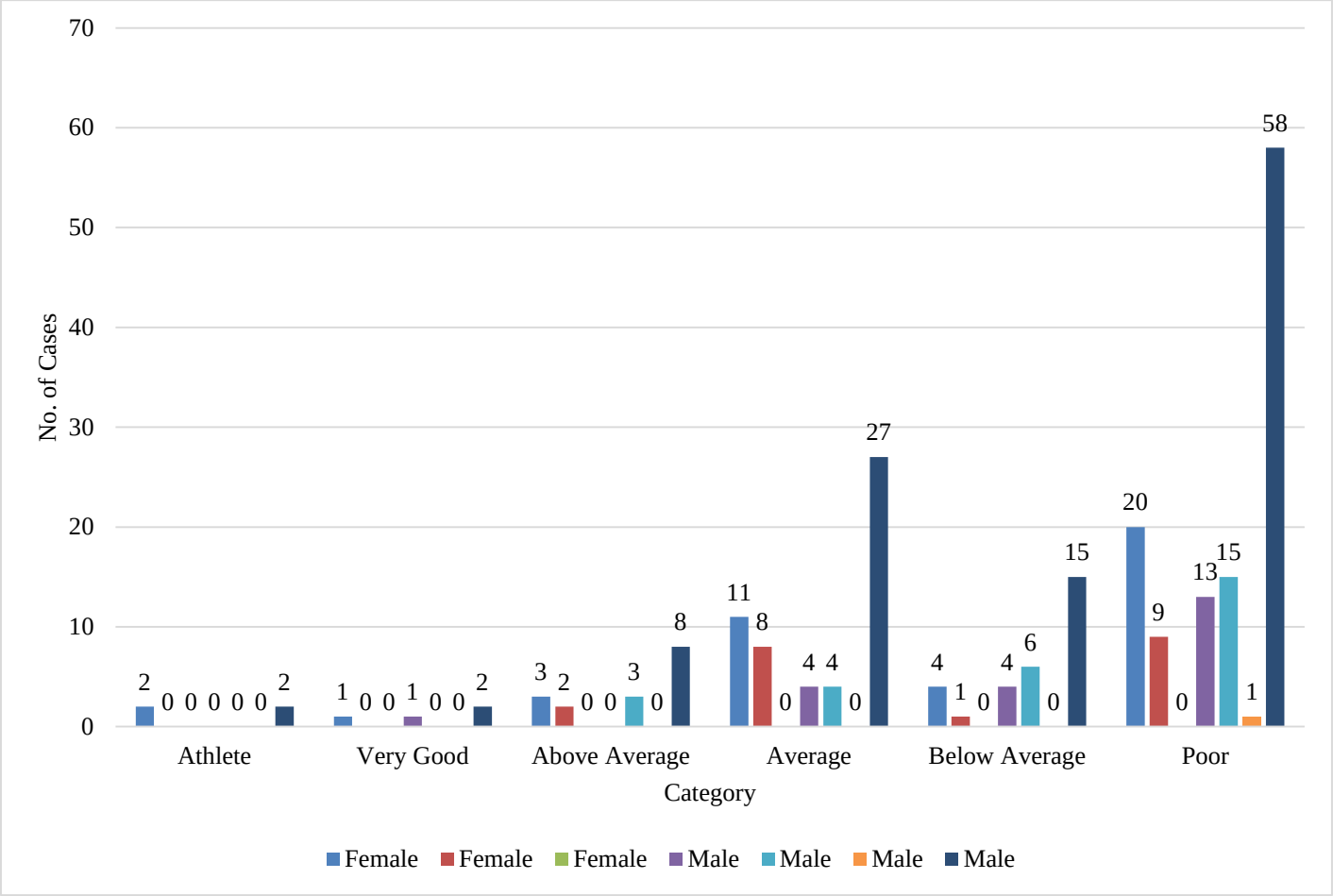

Figure-17: Pulse Rate Status – Classification wise.

Conclusion

Table-22: Measurement of Body Temperature.

Body Temperature Status	Hypothermia	Normal	Hyperthermia	Hyperpyrexia	Total
Sites used for Measurement→	Under the arm (Axillary Temperature)				
Temp Classification→	< 95.9 ^{0} F	95.9–98.6^{0}F	98.7 – 100.9^{0}F	> 100.9 ^{0} F	
Teaching Staff	14	20	0	0	34
Technical Staff	07	20	01	0	28
Lab Attendant	06	16	0	0	22
PG Student	10	16	02	0	28
All Category	37	72	03	0	112
Female	20	39	02	0	61
Male	19	31	01	0	51

Table-23: Measurement of Peripheral Oxygen Saturation of Arterial Hemoglobin (SpO2).

SpO2 % Status	Hypoxemia	Normal	Total
SpO2 % Classification→	< 90 %	96 – 99 %	
Teaching Staff	00	34	34
Technical Staff	00	28	28
Lab Attendant	00	22	22
PG Student	00	28	28
All Category	00	112	112
Female	00	61	61
Male	00	51	51

Table-24: Measurement of Pulse Rate.

Gender	Age	Athlete	Very Good	Above Average	Average	Below Average	Poor	Total
Female	20-39	02	01	03	11	04	20	41
	40-59	00	00	02	08	01	09	20
	60-79	00	00	00	00	00	00	00
Male	20-39	00	01	00	04	04	13	22
	40-59	00	00	03	04	06	15	28
	60-79	00	00	00	00	00	01	01
	Total	02	02	08	27	15	58	112

The assessment of physiological parameters among teaching staff, non-teaching staff, and postgraduate students demonstrated an overall stable health profile. Axillary body temperature measurements indicated that the majority of participants were within the normal range, with negligible instances of mild hyperthermia and no cases of hyperpyrexia. Peripheral oxygen saturation (SpO_2) levels were normal in all subjects, reflecting adequate oxygenation and absence of hypoxemia.

Pulse rate evaluation revealed that most participants fell within average to poor categories, suggesting variability in cardiovascular fitness. These findings highlight satisfactory baseline physiological health in the study population, while emphasizing the importance of regular physical activity and lifestyle interventions to improve cardiorespiratory fitness.

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