



# International Journal of Modern Pharmaceutical Research

[www.ijmpronline.com](http://www.ijmpronline.com)

## A RESEARCH ON A SURVEY OF MEDICAL DEVICES

Gagan Chawla<sup>1\*</sup>, Arun Kumar Pal<sup>2</sup> and Jaydev Mandal<sup>3</sup>

<sup>1</sup>Lecture, Apex College of Pharmacy, Bilashpur, Rampur, Utter Pradesh, India.

<sup>2</sup>Assistant Professor, Apex College of Pharmacy, Bilashpur, Rampur, Utter Pradesh, India.

<sup>3</sup>Lecture, Apex College of Pharmacy, Bilashpur, Rampur, Utter Pradesh, India.

Received on: 15/08/2023

Revised on: 05/09/2023

Accepted on: 25/09/2023

**\*Corresponding Author**

**Gagan Chawla**

Lecture, Apex College of Pharmacy, Bilashpur, Rampur, Utter Pradesh, India.

### ABSTRACT

An outstanding accomplishment is the quick creation of the medicinal device against COVID-19. The global population is effectively up against a number of barriers, from production to distribution, deployment, and acceptance. Due to the growing awareness of and need for home medical equipment, numerous manufacturers have joined the market. For international manufacturers of medical devices, India offers a large market opportunity. The existing low per-person expenditure rate on medical equipment is anticipated to fuel significant growth for the Indian medical device market. Maintaining public confidence in home-use medical devices during COVID-19 would be crucial since the expansion of the medical device business in India poses difficulties with competition law (antitrust). The review article's objectives are to increase public awareness of frequently used medical devices during the COVID-19 epidemic and to gauge Indians' faith in home-useable medical equipment. Medical gadget makers will struggle to meet the needs of the health centre in the event of a global pandemic due to inadequate storage. Since the quality of COVID-19 items is crucial in the current situation, the sale of some of the most significant medical devices has increased, making it more difficult for the medical device industry to meet demand with high-quality products. Although it can be challenging to supply enough medical supplies during a pandemic, they are working to adjust to the situation. After realizing the necessity of raising awareness and gaining a thorough understanding of the handling, production, and sale of medical instruments during COVID-19 at home, this was done. Additionally, distributors and producers of medical equipment see this situation as a chance to increase their sales. This review article will help researchers during COVID-19 increase their understanding and boost public confidence in medical technologies.

### KEYWORD

- Medical devices
- COVID-19 ·Awareness
- Trust ·Quality equipment
- Regulations
- Household devices

### INTRODUCTION

The COVID-19 epidemic has brought to light the crucial role that medical equipment plays in providing patients with necessary healthcare services.<sup>[1]</sup> In the care of COVID-19 patients, medical devices such as ventilators, oxygen concentrators, and monitoring apparatus have proved to be essential. Medical devices will remain critical to healthcare in the post-COVID age since they are essential for the diagnosis, treatment, and monitoring of a variety of medical disorders.<sup>[1,2]</sup> The growing demand for telemedicine and remote monitoring solutions, which rely on medical devices to give accurate and trustworthy data, illustrates the significance of medical equipment.<sup>[3]</sup>

The COVID-19 pandemic has, in general, brought attention to how crucial medical devices are in providing patients with necessary healthcare services.<sup>[5]</sup> The necessity for ongoing investment and innovation in this field to enhance patient outcomes and lower healthcare costs.<sup>[4]</sup>

Medical devices are essential tools for managing various health conditions, and they can play a crucial role in promoting self-care and improving the quality of life of patients. Here are some reasons why medical devices are important for use at home: (1) Monitoring Health. (2) Early Detections of Diseases. (3) Managing Chronic Conditions (4) Convenience (5) Peace of Mind.<sup>[5]</sup>

An inflatable cuff that is wrapped around the upper arm, a pressure gauge or electronic display, and a pump or bulb are the typical components of a sphygmomanometer. The user or healthcare provider inflates the cuff to a pressure that momentarily halts the blood flow through the artery. A stethoscope or electronic sensor is then used to listen to the sound of blood flowing through the artery as the pressure in the cuff is gradually released. Systolic and diastolic blood pressure measures are based on when the sound of blood starts and stops.<sup>[4]</sup>

A medical tool called an oximeter is used to gauge a person's blood's oxygen saturation levels. When persons with respiratory disorders or when undergoing specific medical procedures are involved, it is frequently used in healthcare facilities and at home to monitor oxygen levels.<sup>[6,7]</sup>

A thermometer is a medical device used to measure a person's body temperature. It is commonly used in healthcare settings and at home to monitor fever or other changes in body temperature.<sup>[4]</sup>

A glucometer, also known as a blood glucose meter, is a medical device used to measure the concentration of

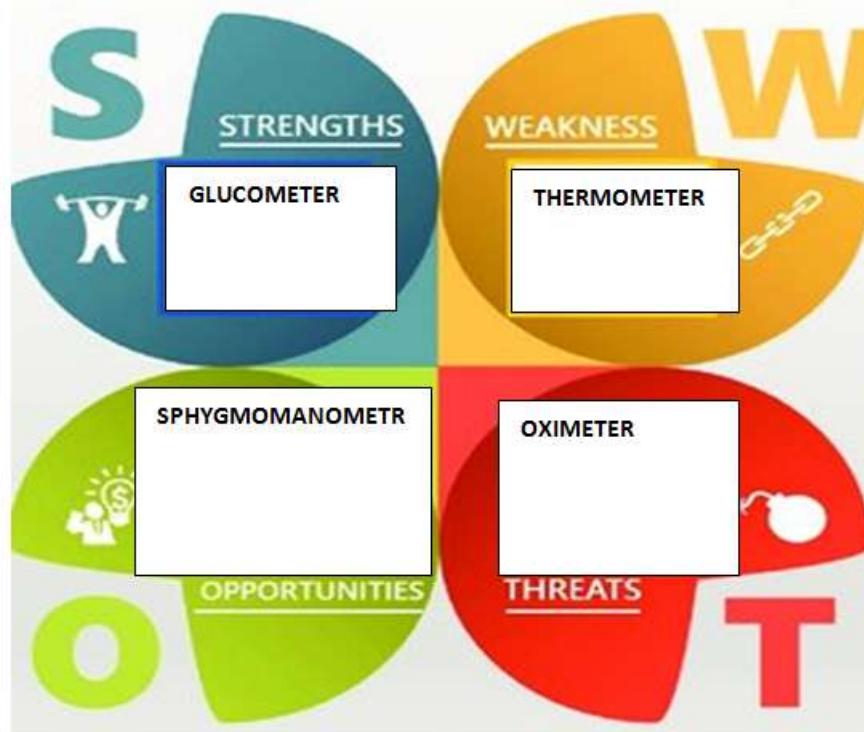
glucose (sugar) in a person's blood. It is commonly used by people with diabetes to monitor their blood sugar levels and adjust their medication or lifestyle as necessary.<sup>[8]</sup>

### Rational of Work

A key trend in healthcare is the use of medical equipment at home, which is being propelled by technological improvements, cost-effectiveness, and the rising need for patient-centric treatment. The purpose of this study is to investigate the effects and advantages of the expanding usage of medical equipment at home. We can better comprehend how this trend is reshaping healthcare delivery and enhancing patient outcomes by analysing the current environment, difficulties, and opportunities.

Healthcare delivery is changing as a result of the rising usage of medical equipment at home, which has many advantages for both patients and healthcare systems. By carrying out this project, we hope to offer useful insights into this developing trend, its effects, and recommended practises. The results of this study will help develop methods for maximising the use of medical equipment at home, which will improve patient outcomes and increase patient satisfaction.

### Swot Analysis of Medical Devices



#### Glucometer

##### Strengths

- Accuracy: Glucometers are known for their high level of accuracy in measuring blood glucose levels, making them a reliable tool for diabetes management.

- Convenience: Glucometers are small and portable, making it easy for people to carry them around and test their blood glucose levels anytime and anywhere.
- User-friendly: Glucometers are designed to be easy to use, with clear instructions and simple displays, making them accessible to a wide range of users.

4. Fast results: Glucometers provide quick results, which is essential for people who need to monitor their blood glucose levels regularly.

#### **Weaknesses**

1. Cost: The cost of a glucometer and test strips can be a significant expense for people with diabetes, especially those who require frequent testing.
2. Maintenance: Glucometers require regular maintenance, including cleaning and calibration, which can be time-consuming and inconvenient for some users.
3. Invasiveness: Some people may find the process of pricking their fingers to obtain a blood sample for testing to be uncomfortable or unpleasant.

#### **Opportunities**

1. Technological advancements: Advances in technology are continually improving glucometers, including new features such as wireless connectivity, cloud-based data storage, and mobile applications.
2. Growing diabetes population: With the rise in diabetes rates worldwide, there is an increasing demand for glucometers and related diabetes management tools.
3. Expansion into new markets: There is potential for glucometer manufacturers to expand into new markets, such as developing countries where diabetes rates are increasing rapidly.

#### **Threats**

1. Competition: There is significant competition in the market for glucometers, with many established brands and new entrants constantly emerging.
2. Regulatory changes: Changes in regulatory requirements or government policies could affect the manufacture, distribution, and sale of glucometers and related products.
3. Alternative technologies: Other technologies, such as continuous glucose monitoring systems, may offer more comprehensive and continuous blood glucose monitoring, potentially reducing the demand for glucometers.

#### **Oximeter**

##### **Strengths**

1. Accuracy: Oximeters are known for their high level of accuracy in measuring blood oxygen saturation levels, making them a valuable tool in monitoring respiratory function.
2. Convenience: Oximeters are portable and can be easily used at home, in hospitals, or in other clinical settings.
3. Cost-effective: Oximeters are relatively inexpensive compared to other medical devices, making them accessible to a wider range of people.
4. Non-invasive: Oximeters do not require a needle or any other invasive procedure to measure blood

oxygen saturation levels, making them more comfortable and less risky for patients.

##### **Weaknesses**

1. Technical limitations: Oximeters can be affected by external factors such as motion artifacts, poor perfusion, and ambient light, which can lead to inaccurate readings.
2. Inability to diagnose: Oximeters can only measure blood oxygen saturation levels and cannot diagnose the underlying cause of any respiratory issues.
3. Dependence on batteries: Oximeters rely on batteries for power, which can run out unexpectedly and cause inconvenience.
4. Not suitable for certain patients: Patients with dark skin pigmentation, nail polish, or poor circulation may have difficulty obtaining accurate readings from an oximeter.

##### **Opportunities**

1. Increased demand: The COVID-19 pandemic has increased the demand for oximeters as a tool for monitoring respiratory function, and this trend is likely to continue.
2. Technological advancements: Continued advancements in technology may lead to the development of more accurate and reliable oximeters.
3. Expansion into new markets: Oximeters have traditionally been used in healthcare settings, but there may be opportunities to expand into other markets, such as fitness or sports.

##### **Threats**

1. Competition: There are many companies producing oximeters, which can make it difficult to stand out in the market.
2. Price pressure: With the increasing demand for oximeters, there may be pressure to reduce prices, which could impact profitability.
3. Regulatory changes: Changes in regulations or requirements for medical devices could impact the development, manufacture, or sale of oximeters.
4. Economic downturns: Economic downturns could lead to decreased demand for oximeters, particularly in markets where they are not essential medical equipment.

#### **Thermometer**

##### **Strengths**

1. Accuracy: Thermometers are known for their accuracy in measuring temperature.
2. Easy to use: Thermometers are user-friendly and can be used by anyone without special training.
3. Quick results: Thermometers provide quick results, making them an ideal tool for medical professionals who need to take multiple readings in a short amount of time.

4. Availability: Thermometers are widely available in the market, making them easily accessible to consumers.

### **Weaknesses**

1. Limited functionality: Thermometers can only measure temperature and cannot perform other functions.
2. Fragility: Thermometers can break easily, making them prone to damage if not handled with care.
3. Dependence on battery: Most digital thermometers require batteries, which need to be replaced regularly.

### **Opportunities**

1. Technological advancements: With the advancement of technology, new and improved thermometers can be developed with additional features such as Bluetooth connectivity and data storage capabilities.
2. Increasing demand: The demand for thermometers is expected to increase, especially in the medical sector, due to the ongoing COVID-19 pandemic.
3. Growing awareness: With the increasing awareness about health and hygiene, more people are likely to purchase thermometers for personal use.

### **Threats**

1. Competition: The thermometer market is highly competitive, with several established players and new entrants constantly introducing new products.
2. Price sensitivity: Consumers may be price-sensitive when it comes to purchasing thermometers, which can affect sales.
3. Changes in regulations: Changes in regulations or standards for medical devices can impact the sale and distribution of thermometers.

### **Sphygmomanometer**

#### **Strengths**

1. Accurate measurement of blood pressure readings
2. Widely used and accepted by medical professionals
3. Simple and easy to use
4. Available in a variety of designs and types to meet different patient needs

#### **Weaknesses**

1. Requires proper calibration and training to ensure accurate readings.
2. Manual sphygmomanometers can be difficult to use for some individuals.
3. Can be time-consuming to take blood pressure readings, especially when multiple readings are needed.

### **Opportunities**

1. Increasing demand for home-based medical devices for self-monitoring of blood pressure.

2. Development of digital sphygmomanometers that offer features such as automatic recording and tracking of readings.
3. Growth potential in emerging markets where healthcare infrastructure is developing.

### **Threats**

1. Competition from other blood pressure monitoring devices such as wrist monitors and smart watches.
2. Cost may be a barrier for some individuals or healthcare systems.
3. Increased regulatory scrutiny of medical devices could lead to stricter requirements for accuracy and safety.

### **LITERATURE REVIEW**

1. A study conducted by Jayadevan et al. (2021) examined the feasibility of home-based monitoring of COVID-19 patients using pulse oximeters. The study found that home-based monitoring using pulse oximeters was feasible and helped in the early detection of hypoxia, thereby reducing the need for hospitalization.
2. A study by Patil et al. (2021) examined the use of home-based spirometry in patients recovering from COVID-19. The study found that home-based spirometry was useful in detecting and monitoring pulmonary function in patients recovering from COVID-19.
3. A review conducted by Hashmi et al. (2021) examined the use of telemonitoring in patients with chronic heart failure. The review found that telemonitoring was effective in reducing hospitalization rates, mortality rates, and improving quality of life in patients with chronic heart failure.
4. A study published in The Lancet in May 2020, researchers analyzed data from 12 hospitals in China and found that the use of medical devices, such as ventilators and extracorporeal membrane oxygenation machines, increased significantly during the COVID-19 pandemic.
5. A systematic review published in June 2020 in the Journal of Medical Systems examined the impact of COVID-19 on the use of medical devices in hospitals. The review found that the pandemic has led to an increased demand for medical devices, particularly those used for respiratory support and monitoring.
6. A study published in the Journal of Clinical Monitoring and Computing in August 2020, researchers analyzed data from a hospital in the United States and found that the use of medical devices for respiratory support increased by more than 300% during the COVID-19 pandemic.
7. A study published in the Journal of Hospital Infection in October 2020 examined the impact of the COVID-19 pandemic on the use of medical devices in intensive care units (ICUs) in the United Kingdom. The study found that the pandemic has led to a significant increase in the use of medical

- devices in ICUs, particularly those used for respiratory support.
8. A review published in the Journal of Medical Devices in January 2021, the authors examined the impact of the COVID-19 pandemic on the use of medical devices in various healthcare settings. The review found that the pandemic has led to an increased demand for medical devices, particularly those used for respiratory support and remote monitoring.
  9. The systematic review by Moynihan et al. (2021) examines the impact of the COVID-19 pandemic on the utilization of healthcare services. The review covers 98 studies from 33 countries and finds that the pandemic has led to a decrease in the utilization of both essential and non-essential healthcare services, including routine care and elective procedures. The review also identifies factors that have contributed to the decline in utilization, such as fears of contracting the virus, disruptions to healthcare systems, and changes in healthcare-seeking behavior. The authors highlight the need for strategies to mitigate the long-term impact of the pandemic on healthcare utilization and outcomes.
  10. Saini et al. (2021) conducted a literature review on people's trust in home use medical devices during the COVID-19 pandemic in India. The review covers 13 studies and finds that there has been an increase in the use of home-based medical devices during the pandemic due to factors such as reduced access to healthcare facilities, fear of infection, and convenience. The review also identifies factors that influence people's trust in these devices, such as the accuracy of the device, ease of use, and availability of support from healthcare providers. The authors suggest that increasing public awareness and education about the benefits and limitations of home-based medical devices could improve people's trust and uptake of these devices in India.
  11. Gereffi's (2020) literature review explores the impact of the COVID-19 pandemic on global value chains, focusing specifically on medical supplies. The review highlights the vulnerabilities and challenges that the pandemic has exposed in global value chains, including supply chain disruptions, shortages of critical medical supplies, and inadequate coordination and collaboration among stakeholders. The review also discusses the potential implications of these challenges for the future of global value chains and calls for greater investment in resilience, flexibility, and diversification of supply chains. The author suggests that the lessons learned from the pandemic can inform strategies for strengthening global value chains in the long term.
4. State/Territory  
 5. Locality  
 6. Personal Qualification  
 7. Have you used any medical devices during or after your COVID-19 treatment?  
 8. Are you or any of your family member diabetic?  
 9. Did you find these medical devices to be effective in managing your COVID-19 symptoms?  
 10. Do you have glucometer at home ?  
 11. If yes then which brand of glucometer you use  
 12. Do you oftenly check your blood glucose level ?  
 13. How have medical devices helped in your post-COVID recovery process?  
 14. What medical devices have you used at home during the pandemic?  
 15. Do you have blood pressure instrument at your home?  
 16. Do you or your family members have Blood pressure issues ?  
 17. If yes then which brand of blood pressure instrument you use ?  
 18. Do you oftenly check your or their blood pressure level ?  
 19. Which type of blood pressure instrument you have?  
 20. Have you faced any challenges in accessing or obtaining these medical devices for use at home?  
 21. Do you have Thermometer ?  
 22. Which type of Thermometer you use ?  
 23. If yes then which brand of thermometer you use ?  
 24. Do you oftenly check your or their temperature ?  
 25. What improvements do you think could be made to these medical devices to make them more effective or user-friendly for home use?  
 26. Do you have oximeter ?  
 27. If yes then which brand of oximeter you use ?  
 28. Do you oftenly use oximeter ?  
 29. Do you feel comfortable using these medical devices at home, or would you prefer to receive treatment in a healthcare facility?  
 30. How do you check your Body vitals ?  
 31. How often do you check your body vitals?  
 32. When do you check your body vitals?  
 33. If any additional comments / suggestions.?  
 34. What improvements do you think could be made to these medical devices to make them more effective or user-friendly for home use?

**Out of these questions we selected some of the questions to make the survey convenient, less time taking and efficient?**

1. Name
2. Age Group
3. Gender
4. State/Territory
5. Locality
6. Personal Qualification
7. Do you have glucometer at home ?
8. If yes then which brand of glucometer you use
9. Do you oftenly check your blood glucose level ?
10. Are you or any of your family member diabetic ?

## MATERIAL AND METHODOLOGY

### Selection of Questions

1. Name
2. Age Group
3. Gender

11. Do you have blood pressure instrument at your home?
12. Do you or your family members have Blood pressure issues ?
13. If yes then which brand of blood pressure instrument you use ?
14. Do you oftenly check your or their blood pressure level ?
15. Which type of blood pressure instrument you have?
16. Do you have Thermometer ?
17. Which type of Thermometer you use ?
18. If yes then which brand of thermometer you use ?
19. Do you oftenly check your or their temperature ?
20. Do you have oximeter ?
21. If yes then which brand of oximeter you use ?
22. Do you oftenly use oximeter ?
23. When do you check your body vitals?
24. How do you check your Body vitals ?
25. How often do you check your body vitals?
26. If any additional comments / suggestions.
27. For easy circulation of questions we created Google Form

#### **Creation of Google Form**

## **IMPACT OF COVID ON MEDICAL DEVICES USAGE**

I would love to know about your responses for you or your loved ones.

\* Indicates required question

### 1. Name \*

\_\_\_\_\_

### 2. Age Group \*

Mark only one oval.

- 15-25
- 26-35
- 36-45
- Above 45

### 3. Gender \*

Mark only one oval.

- Male
- Female
- Transgender

**4. State/Territory \***

Mark only one oval.

- Uttrakhand
- Uttar Pradesh
- NCR
- Other

**5. Locality \***

Mark only one oval.

- Rudrapur
- Haldwani
- Kichha
- Bareily
- Hilly area
- Other: \_\_\_\_\_

**6. Personal Qualification \***

Mark only one oval.

- Under graduate
- Graduate
- Post graduate
- Pharmacy profession

**7. Are you or any of your family member diabetic ? \***

Mark only one oval.

- Yes
- No

**8. Do you have glucometer at home ? \***

Mark only one oval.

- Yes
- No

**9. If yes then which brand of glucometer you use ?**

Mark only one oval.

- Dr Morepen
- Accu-check
- Accusure
- Other

**10. Do you oftenly check your blood glucose level ? \***

Mark only one oval.

- Yes
- No

**11. Do you or your family members have Blood pressure issues ? \****Mark only one oval.*

- Yes  
 No

**12. Do you have blood pressure instrument at your home? \****Mark only one oval.*

- Yes  
 No

**13. If yes then which brand of blood pressure instrument you use ?***Mark only one oval.*

- Diamond  
 Omron  
 Rossmax  
 Dr.Morepen  
 Other

**14. Do you oftenly check your or their blood pressure level ? \****Mark only one oval.*

- Yes  
 No

**15. Which type of blood pressure instrument you have?***Mark only one oval.*

- Digital  
 Manual

**16. Do you have Thermometer ? \****Mark only one oval.*

- Yes  
 No

**17. Which type of Thermometer you use ?***Mark only one oval.*

- Digital  
 Manual

**18. If yes then which brand of thermometer you use ?***Mark only one oval.*

- Dr Trust  
 Omron  
 Vandelay  
 Other

**19. Do you oftenly check your or their temperature ? \****Mark only one oval.*

- Yes  
 No

**20. Do you have oximeter ? \****Mark only one oval.*

- Yes  
 No

**21. If yes then which brand of oximeter you use ?***Mark only one oval.*

- Dr. Trust  
 Dr. Vaku  
 Beurer  
 Other

**22. Do you oftenly use oximeter ? \****Mark only one oval.*

- Yes  
 No

**23. When do you check your body vitals ? \****Mark only one oval.*

- Whenever feeling uneasy  
 Regular basis  
 After doctor's advice

**24. How do you check your Body vitals ? \****Mark only one oval.*

- By Yourself  
 By Professional

**25. How often do you check your body vitals? \****Mark only one oval.*

- More than 2 times a day  
 In 2 to 3 days  
 In a week  
 When feel necessary

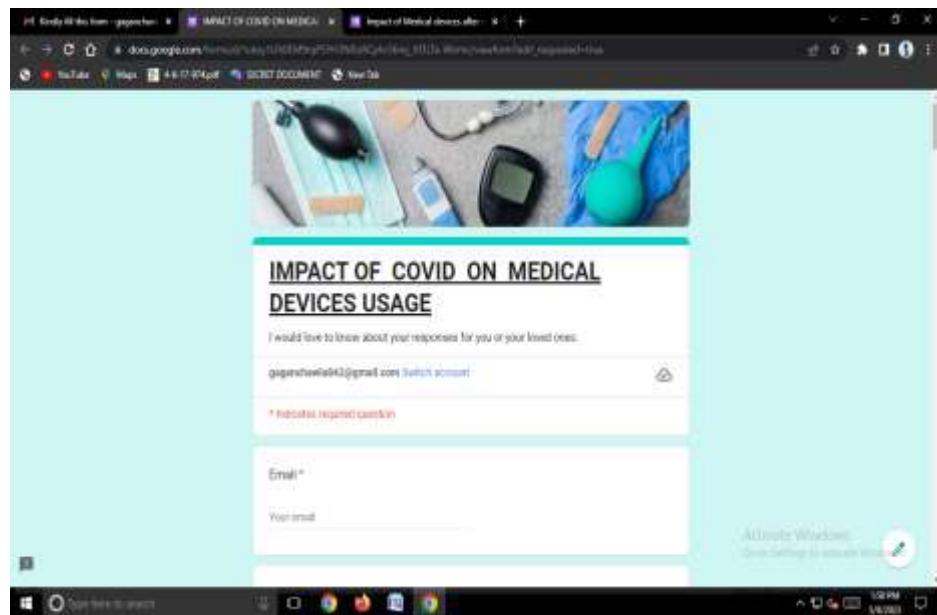
**26. If any additional comments / suggestions,**

---

---

---

---



[https://docs.google.com/forms/d/1uksy1Uh0EM9rqP5YH3NXoRCphr36mj\\_Xf3LTe-Wirmc/viewform?edit\\_requested=true](https://docs.google.com/forms/d/1uksy1Uh0EM9rqP5YH3NXoRCphr36mj_Xf3LTe-Wirmc/viewform?edit_requested=true)

#### Distribution of Google Forms

We circulated the Google form among the following.

1. Friends
2. Family
3. College faculty
4. College juniors/seniors

#### 5. Neighbours

By the help of our Google form Link:-

[https://docs.google.com/forms/d/1uksy1Uh0EM9rqP5YH3NXoRCphr36mj\\_Xf3LTe-Wirmc/viewform?edit\\_requested=true](https://docs.google.com/forms/d/1uksy1Uh0EM9rqP5YH3NXoRCphr36mj_Xf3LTe-Wirmc/viewform?edit_requested=true)

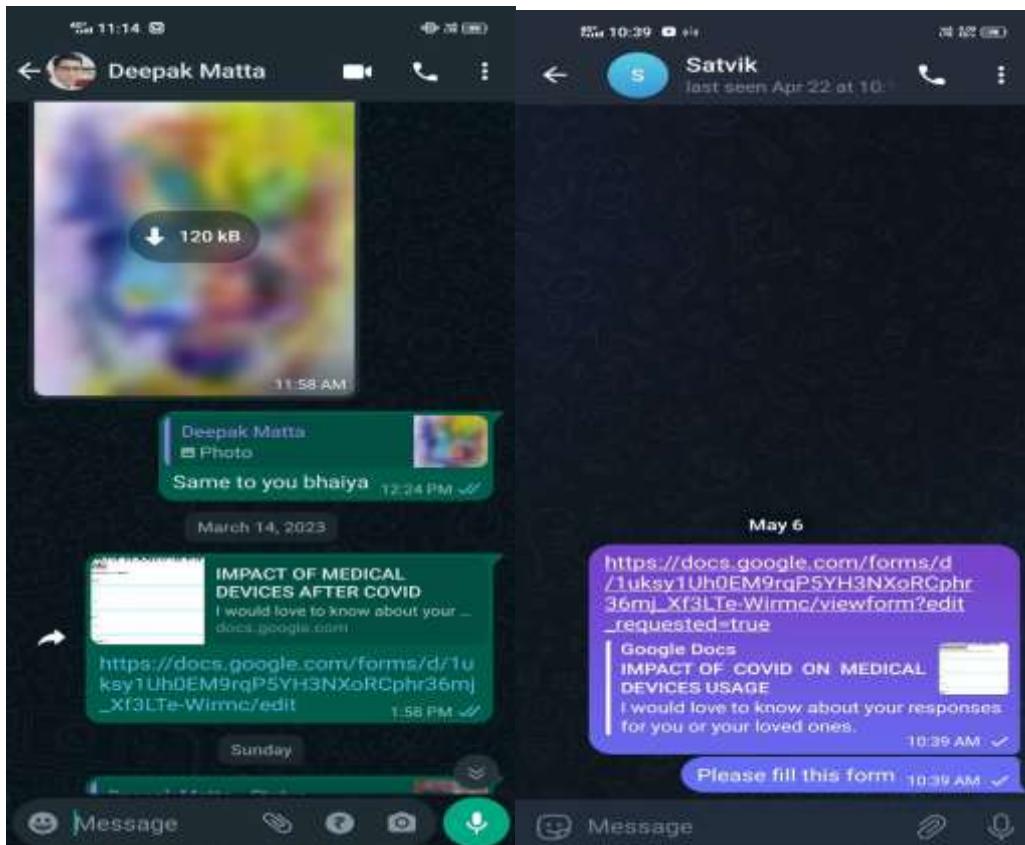


FIG 1: BY WHATSAPP.

FIG 2: BY TELEGRAM.



FIG. 3: BY MAIL.

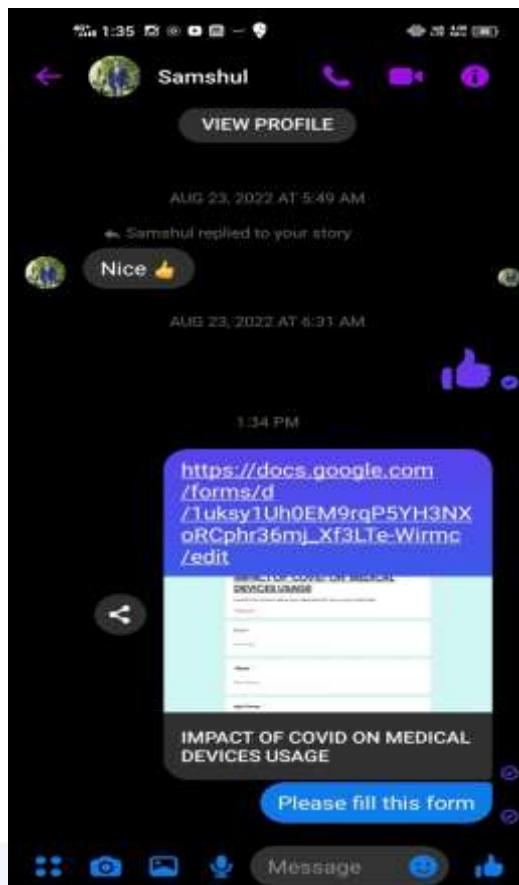


FIG. 4: BY MESSENGER.

## COLLECTION OF DATA

The screenshot shows a Google Form response summary page. It displays '390 responses' and a 'Responses' tab with 260 entries. The interface includes options to 'Link to Sheets', 'Accepting responses' (which is turned on), and buttons for 'Send' and other settings. Below the summary, a section titled 'Who has responded?' lists four email addresses: jatacallpharm@gmail.com, dnksamshul@gmail.com, neefubohra301@gmail.com, and another entry for dnksamshul@gmail.com.

Google form with responses

[https://docs.google.com/forms/d/1uksy1Uh0EM9rqP5YH3NXoRCphr36mj\\_Xf3LTewrmc/viewform?edit\\_requested=true](https://docs.google.com/forms/d/1uksy1Uh0EM9rqP5YH3NXoRCphr36mj_Xf3LTewrmc/viewform?edit_requested=true)

Based on Google form I collected the following data the people had different opinions for different questions in the survey.

After the circulation of the Google form successfully I collected **390 responses** from which I analyzed all the opinions of the people on different criteria in the survey.

**Interpretation of Data****1. Based on age group****Table 1: Based on age group.**

S. NO.	AGE GROUP	%(PERCENTAGE)	INDIVIDUALS
1.	15-25	74.1%	289
2.	26-35	17.2%	67
3.	36-45	4.9%	19
4.	ABOVE 45	3.8%	15

**2. Based on gender****Table 2: Based on gender.**

S. NO.	GENDER	%(PERCENTAGE)	INDIVIDUALS
1.	MALE	67.7%	264
2.	FEMALE	32.1%	125
3.	TRANSGENDER	0%	0

**3. Based on State territory****Table 3: Based on location.**

S. NO.	LOCATION	(PERCENTAGE)%	INDIVIDUALS
1.	UTTRAKHAND	62.3%	243
2.	UTTAR PRADESH	23.6%	92
3.	NCR	9%	35
4.	OTHERS	5.1%	20

**4. Based on Personal Qualification****Table 4: Based on personal qualification of the participants.**

S. NO.	TIME	%(PERCENTAGE)	INDIVIDUALS
1.	Under Graduate	43%	171
2.	Graduate	16.9%	66
3.	Post Graduate	6.4%	25
4.	Pharmacy Profession	32.8%	128

**5. Based on Participant or their family member are suffering from Diabetes****Table 5: Based on the suffering of Diabetes.**

S. NO.	YES/NO	%(PERCENTAGE)	INDIVIDUALS
1.	YES	38.5%	150
2.	NO	61.5%	240

**6. Based on availability of Glucometer at home****Table 6: Based on the availability of Glucometer at home.**

S. NO.	YES/NO	%(PERCENTAGE)	INDIVIDUALS
1.	YES	62.1%	242
2.	NO	37.9%	148

**7. Based on the brand of Glucometer being used.****Table 7: Based on the brand of Glucometer.**

S. NO.	BRANDS	%(PERCENTAGE)	INDIVIDUALS
1.	Dr.Morepen	41.4%	98
2.	Accu-Check	8.4%	20
3.	Accusure	24.3%	125
4.	Other	35%	83

**8. Based on Participant or their family member are suffering from Blood pressure issues-****Table 8: Based on the suffering of blood pressure.**

S. NO.	YES/NO	%(PERCENTAGE)	INDIVIDUALS
1.	YES	51.3%	200
2.	NO	48.7%	190

**9. Based on availability of blood pressure instrument at home-****Table 9: Based on the availability of blood pressure instrument at home.**

S. NO.	YES/NO	%(PERCENTAGE)	INDIVIDUALS
1.	YES	47.8%	97
2.	NO	52.2%	106

**10. Based on the brands of blood pressure instrument being used by -****Table 10: Based on the brands of blood pressure instrument.**

S. NO.	BRANDS	%(PERCENTAGE)	INDIVIDUALS
1.	DIAMOND	45.9%	56
2.	OMRON	44.1%	227
3.	ROSSMAX	4.1%	5
4.	Dr.MOREPEN	11.5%	14
5.	OTHER	19.7%	24

**11. Based on the type of blood pressure instrument being used-****Table 11: Based on the type of blood pressure instrument.**

S. NO.	DIGITAL/MANUAL	%(PERCENTAGE)	INDIVIDUALS
1.	DIGITAL	81.2%	108
2.	MANUAL	18.8%	25

**12. Based on the availability of Thermometer at home****Table 12: Based on the availability of thermometer at home.**

S. NO.	YES/NO	%(PERCENTAGE)	INDIVIDUALS
1.	YES	69%	269
2.	NO	31%	121

**13. Based on the type of thermometer being used-****Table 13: Based on the type of thermometer.**

S. NO.	DIGITAL/MANUAL	%(PERCENTAGE)	INDIVIDUALS
1.	DIGITAL	75.5%	241
2.	MANUAL	24.5%	78

**14. Based on the brands of thermometer used by****Table 14: Based on the brand of thermometer.**

S. NO.	BRANDS	%(PERCENTAGE)	INDIVIDUALS
1.	Dr. TRUST	68.2%	90
2.	OMRON	16.7%	22
3.	OTHER	15.2%	22

**15. Based on the availability of Oximeter at home-****Table 15: Based on the availability of Oximeter at home.**

S. NO.	YES/NO	%(PERCENTAGE)	INDIVIDUALS
1.	YES	24.3%	125
2.	NO	51.3%	264

**16. Based on the brands of Oximeter used by -****Table 16: Based on the brands of Oximeter.**

S. NO.	BRANDS	%(PERCENTAGE)	INDIVIDUALS
1.	Dr.TRUST	40.9%	88
2.	Dr.VAKU	12.6%	27
3.	BEURER	6.5%	18
4.	OTHER	40%	86

**17. Based on the routine of Body vitals Checking****Table 17: Based on the routine of Body vitals checking.**

S. NO.	ROUTINE	%(PERCENTAGE)	INDIVIDUALS
1.	Whenever feeling uneasy	50%	195

<b>2.</b>	After Doctors's advice	40.5%	158
<b>3.</b>	Regular basis	9.5%	37

#### 18. Based on the way of checking the body vitals-

**Table 18:** Based on the way of checking the body vitals

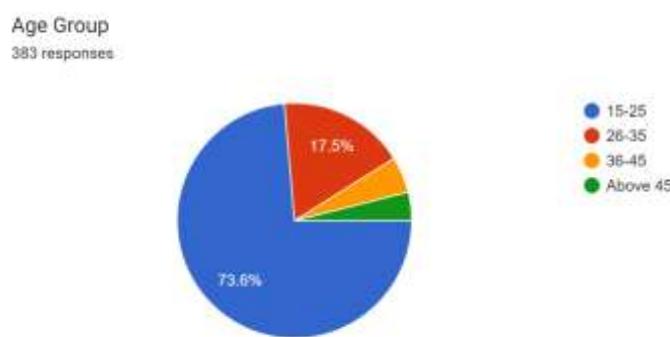
S. NO.	Ways	%(PERCENTAGE)	INDIVIDUALS
<b>1.</b>	By professionals	70.3%	274
<b>2.</b>	By yourself	29.7%	116

## RESULT

### 1. Based on the age group

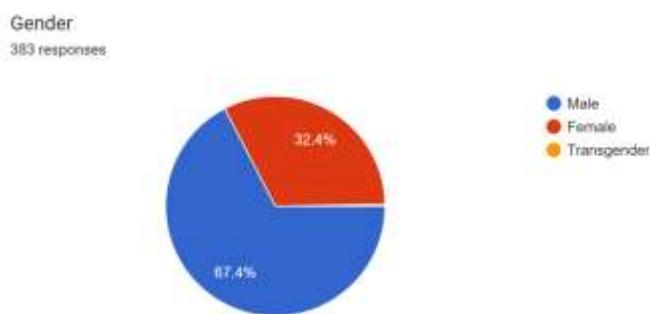
With 62.7% of the population being under the age of 30, the sample is dominated by people in their twenties. Twenty-five to forty-year-olds make up 23.5% of the

population, while thirty to forty-year-olds make up 12.2%. The modest percentage of 1.6% of people who are over 40. Overall, the results show that younger people, especially those in their twenties, are significantly more prevalent in the sample.



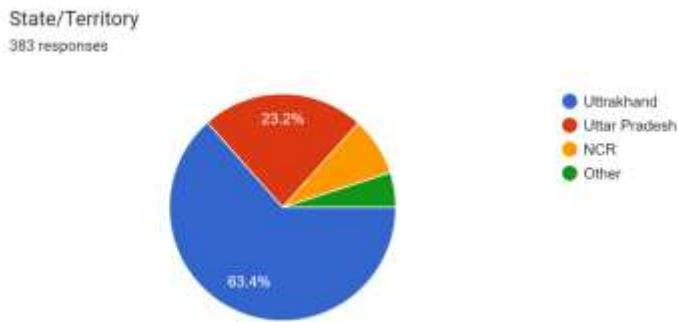
### 2. Based on Gender

The majority of participants (67.7%) are male, while 32.1% are female. No transgender participants were included in the survey.



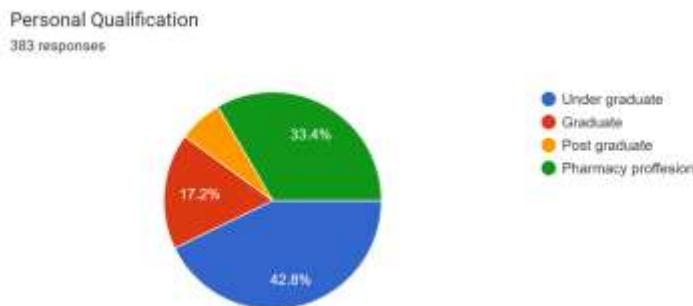
### 3. Based on State Territory

The highest number of participants (62.3%) are from Uttarakhand, followed by Uttar Pradesh (23.6%), NCR (9%), and others (5.1%).



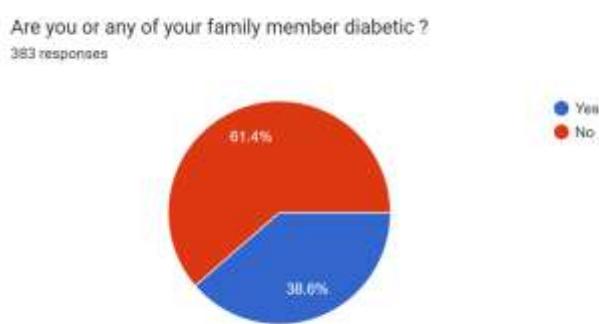
#### 4.Based on personal qualification

The highest percentage of participants (43%) have an undergraduate qualification, followed by pharmacy professionals (32.8%), graduates (16.9%), and postgraduates (6.4%).



#### 5.Based on the Diabetes

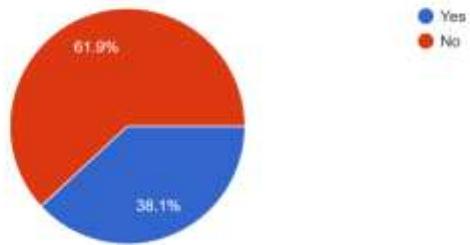
38.5% of the participants or their family members are suffering from diabetes, while 61.5% do not have diabetes.



#### 6.Based on the availability of the Glucometer

62.1% of the participants have a glucometer available at home, while 37.9% do not.

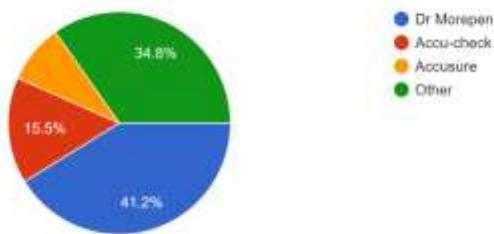
Do you have glucometer at home ?  
383 responses



#### 7.Based on the brand of Glucometer being used

Dr.Morepen is the most commonly used brand of glucometer (41.4%), followed by Accusure (24.3%), Accu-Check (8.4%), and other brands (35%).

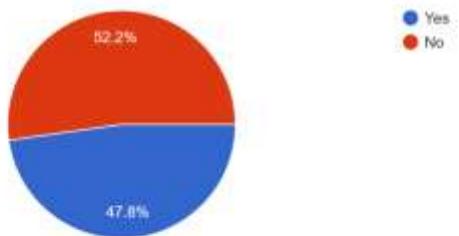
If yes then which brand of glucometer you use ?  
233 responses



#### 8.Based on the Checking of blood glucose level

Among the individuals 52.7% individuals oftenly check their blood glucose level and 47.8% not.

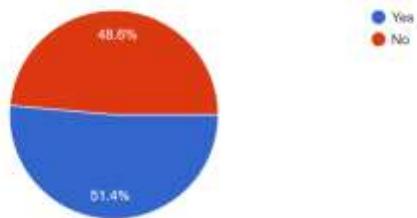
Do you oftenly check your blood glucose level ?  
383 responses



#### 9.Based on the individuals suffering from blood pressure issues

51.3% of the participants or their family members are suffering from blood pressure issues, while 48.7% do not have blood pressure issues.

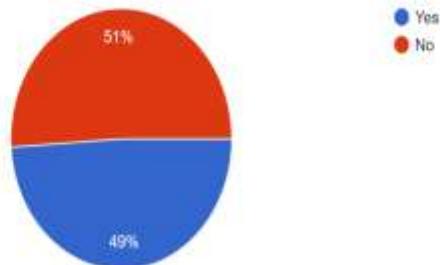
Do you or your family members have Blood pressure issues?  
383 responses



#### **10.Based on the availability of blood pressure instrument**

47.8% of the participants have a blood pressure instrument available at home, while 52.2% do not.

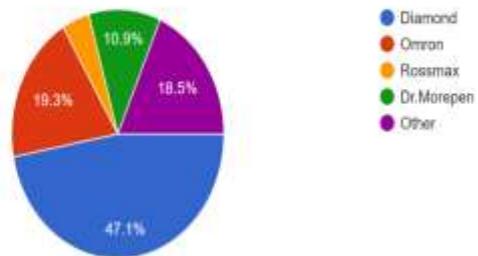
Do you have blood pressure instrument at your home?  
196 responses



#### **11.Based on the brands of blood pressure instrument**

The most commonly used brand of blood pressure instrument is Omron (44.1%), followed by Diamond (45.9%), Dr. Morepen (11.5%), Rossmax (4.1%), and other brands (19.7%).

If yes then which brand of blood pressure instrument you use?  
119 responses

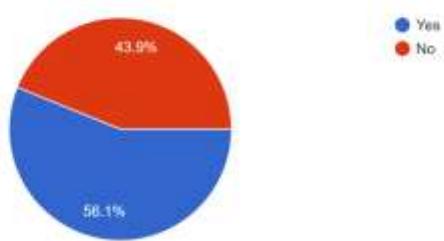


#### **12.Based on the Checking of the blood pressure issues**

56% of the participants checks the blood pressure level, while 43.9% do not.

Do you oftenly check your or their blood pressure level ?

196 responses

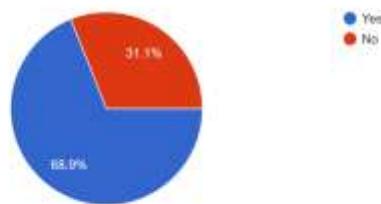


### 13.Based on the availability of thermometer

69% of the participants have a thermometer available at home, while 31% do not.

Do you have Thermometer ?

383 responses

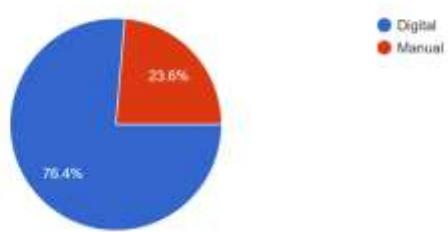


### 14.Based on the type of thermometer

The majority of participants (75.5%) use a digital thermometer, while 24.5% use a manual one.

Which type of Thermometer you use ?

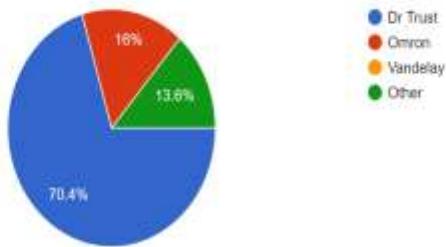
313 responses



### 15.Based on the brand of thermometer

Dr.TRUST is the most commonly used brand of thermometer (68.2%), followed by Omron (16.7%) and other brands (15.2%).

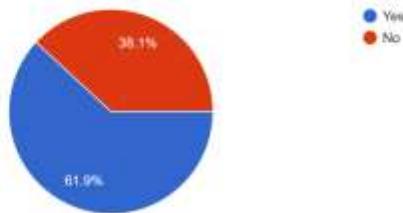
If yes then which brand of thermometer you use ?  
125 responses



#### 16.Based on oftenly checking of the body temperatures

The majority of the participants (61.9%) check their body temperature, while (36.1%) do not.

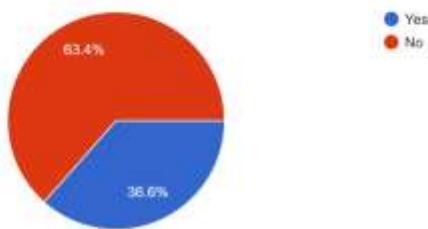
Do you oftenly check your or their temperature ?  
383 responses



#### 17.Based on the availability of the oximeter

The majority of the participants (63.4%) were not having the oximeter at their home where as 36.6% were having it.

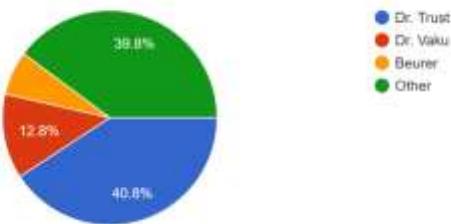
Do you have oximeter ?  
383 responses



#### 18.Based on the brands of oximeter used

Dr.TRUST is the most commonly used brand of oximeter (40.9%), followed by Dr.VAKU (12.6%), BEURER (6.5%), and other brands (40%).

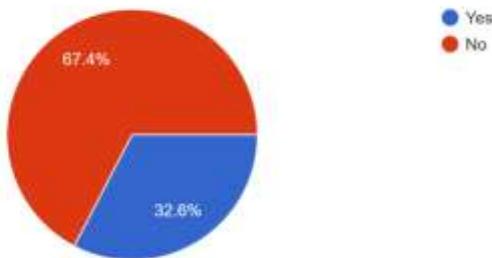
If yes then which brand of oximeter you use ?  
211 responses



#### 19.Based on the oftenly use of oximeter

The majority of the population (67.4%) who were having oximeter do not use oftenly whereas 32.6% do check.

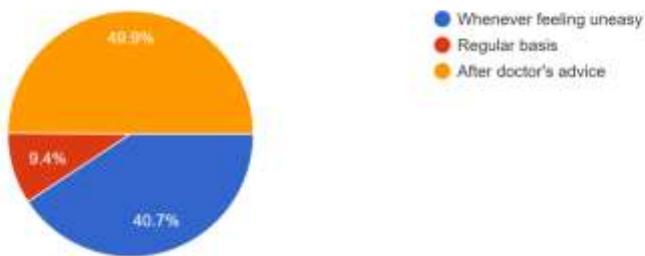
Do you oftenly use oximeter ?  
383 responses



#### 20.Based on the checking of Body vitals

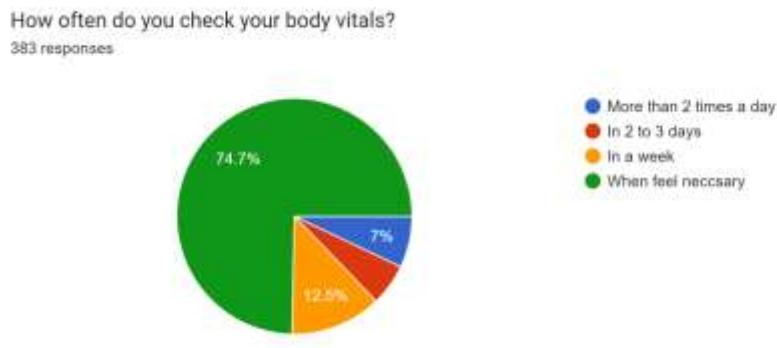
50% of the participants check their body vitals whenever they feel uneasy, 40.5% do it after a doctor's advice, and 9.5% do it on a regular basis.

When do you check your body vitals ?  
383 responses



#### 21.Based on the often checking of body vitals

The majority of the population (74.7%) check their body vitals onlt when they feel necessary, follow up by(12.6%) in a week and only (7%) checks it more than 2 times a day and remaining checks it in a week.



## REFERENCES

1. Garg, A., et al. Impact of COVID-19 on medical devices: a review. *Journal of Medical Devices*, 2021; 15(1): 010801. doi: 10.1115/1.4048552.
2. Saini, G., Budhwar, V., & Choudhary, M. Review on people's trust on home use medical devices during Covid-19 pandemic in India. *Diabetes & metabolic syndrome*, 2021; 15(1): 159-162.
3. Langer, T., et al. Increased use of respiratory support during the COVID-19 pandemic: an observational study in a single center ICU. *Journal of Clinical Monitoring and Computing*, 2020; 1-7. doi: 10.1007/s10877-020-00594-1.
4. [https://www.mayoclinic.org/diseases-conditions/fever/in-depth/thermometers/art-20046737]
5. Suntharalingam, G., et al. Covid-19 in critical care: epidemiology of the first epidemic wave across England, Wales and Northern Ireland. *Journal of Hospital Infection*, 2020; 105(3): 419-425. doi: 10.1016/j.jhin.2020.07.046
6. Jayadevan, R., et al. Feasibility of home-based monitoring of COVID-19 patients using pulse oximeters: a pilot study. *Journal of Clinical Monitoring and Computing*, 2021; 1-6. doi: 10.1007/s10877-021-00765-4.
7. Hashmi, A., et al. Telemonitoring in patients with heart failure during COVID-19: a systematic review. *Heart Failure Reviews*, 2021; 26: 235-243. doi: 10.1007/s10741-020-10044-x.
8. Gereffi, G. What does the COVID-19 pandemic teach us about global value chains? The case of medical supplies. *Journal of International Business Policy*, 2020; 3(3): 287-301.
9. Patil, H., et al. Role of home-based spirometry in patients recovering from COVID-19. *Journal of Clinical Monitoring and Computing*, 2021; 1-7. doi: 10.1007/s10877-021-00743-w.
10. [https://www.heart.org/en/health-topics/high-blood-pressure/understanding-blood-pressure-readings/how-to-monitor-and-record-your-blood-pressure]
11. Ranney, M. L., et al. Impact of COVID-19 on healthcare workers' purchases of medical devices: a systematic review and meta-analysis. *Journal of Medical Systems*, 2020; 44: 155. doi: 10.1007/s10916-020-01581-0.
12. [https://www.diabetes.org/diabetes/medication-management/blood-glucose-testing-and-control/blood-glucose-meters]
13. Moynihan, R., Sanders, S., Michaleff, Z. A., Scott, A. M., Clark, J., To, E. J., Jones, M., Kitchener, E., Fox, M., Johansson, M., Lang, E., Duggan, A., Scott, I., & Albarqouni, L. Impact of COVID-19 pandemic on utilisation of healthcare services: a systematic review. *BMJ open*, 2021; 11(12): e045343.
14. Wu, Z., et al. Changes of clinical features of patients with COVID-19 in China during the outbreak. *The Lancet*, 2020; 395(10223): 743-742. doi: 10.1016/S0140-6736(20)30205-3.