

Summer Training
At
Intern Partner

Date
From **1 June 2020** to **31 July 2020**

A Project Report
**A study on Behaviours & Perception of Indian smartphone users
related to hand hygiene for the prevention of COVID-19 transmission.**

Submitted by
Deepali Kumari

**MBA Hospital and Health Management
2019-21**



Acknowledgements:

I would like to acknowledge and thank the following important people who have supported me, not only during the project.

Firstly, I would like to express my gratitude to my mentor Alok Mathur, a professor at IIHMR University Jaipur, for his unwavering support, guidance and insight throughout this research project.

I would also like to thank Inter Partner for giving me a chance during this pandemic to undergo online summer internship training with them on the topic A study on Behaviors & Perception of Indian smartphone users related to hand hygiene for the prevention of COVID-19 transmission. And also for their support, guidance throughout this research project.

And Finally, I would like to thank all people who have participated in the survey and has helped me in collecting data, and also have believed in me.

Thank you to all people who help me to complete this report directly or indirectly.

ABSTRACT:

Background: COVID-19 is the disease caused by a newly discovered novel coronavirus. In several countries around the world with common symptoms like fever, dry cough, loss of taste or smell, sore throat, difficulty breathing or shortness of breath, chest pain and tiredness, respiratory infections. This coronavirus is spread from person to person through small droplets from the nose or mouth, which are expelled when a person with COVID-19 coughs, sneezes or speaks. The outbreak of COVID-19 has an unprecedented impact worldwide and it has affected everyone around it. India along with other countries has faced many similar challenges in the containment of the virus through strict measures.

Methodology: This study aims to know the change in handwashing behaviours & perception, attitudes and motivating factors regarding hand washing during the peak period of the COVID-19 pandemic through the use of a cross-sectional survey model. The data has been collected from various ministerial websites (MOHFW, India, My Gov) and through primary data collection.

Objectives: To determine the Behaviours & Perception of Indian smartphone users related to hand hygiene for the prevention of COVID-19 transmission.

Result: People in India has increased their frequency of hand hygiene practices during the pandemic with significant gender & residence differences existing in the behaviour and perception related to hand hygiene as a means of disease prevention.

Also, it was observed that the perception of having High risk of COVID-19 has changed in their handwashing behaviour.

Suggestion: According to the data, there is an issue in encountered information as some of the participants have not seen/heard any information regarding handwashing as a prevention strategy for Coronavirus. There is a need to educate participants regarding the importance of handwashing strategy for prevention of Coronavirus.

Table of Contents

ACRONYMS/ ABBREVIATIONS.....	6
ABOUT INTER PARTNER.....	8
ABOUT COVID-19.....	9
OBJECTIVE	12
METHODOLOGY	12
PARAMETERS TAKEN FOR COMPARISON.....	13
DATA COLLECTION METHOD:.....	14
DEMOGRAPHIC DATA OF PARTICIPANTS:	15
FINDINGS	17
DISCUSSION	25
CONCLUSION.....	27
SUGGESTION.....	27
REFERENCES	28
ANNEXURE.....	30

LIST OF TABLES

Table 1: Definitions for districts for various zones	11
Table 2: Parameters taken for comparison	13
Table 3: Demographic data of participants State-wise	15
Table 4: Demographic data of the participants Residence-wise	15
Table 5: Demographic data of the participants Qualification-wise	16
Table 6: Demographic data of the participants Employment-wise	16
Table 7: Comparison of the bases of different parameters:	25

LIST OF FIGURE

Figure 1: COVID-19 cases in India during March	10
Figure 2: Heard about the new Coronavirus disease	17
Figure 3: Seen/Heard any information regarding handwashing as a prevention strategy for Coronavirus	18
Figure 4: Consider Hand hygiene to be an effective means of preventing the spread of Virus ..	19
Figure 5: Wash hands with soap/ sanitizer per day before the pandemic	20
Figure 6: Wash hands with soap/sanitizer per day during the pandemic	21
Figure 7: Belief to become infected with COVID-19.....	22
Figure 8: Recently experienced any flu-like symptoms	23
Figure 9: Acquaintance experiences any flu-like symptoms recently	24

ACRONYMS/ ABBREVIATIONS

CAPI	COMPUTER ASSISTED PERSONAL INTERVIEWING
ICMR	INDIAN COUNCIL OF MEDICAL RESEARCH
MERS	MIDDLE EAST RESPIRATORY SYNDROME
MHA	MINISTRY OF HOME AFFAIRS
MOHFW	MINISTRY OF HEALTH AND FAMILY WELFARE
NABH	NATIONAL ACCREDITATION BOARD FOR HOSPITALS & HEALTHCARE
NDMA	NATIONAL DISASTER MANAGEMENT AUTHORITY
NGO	NON-GOVERNMENTAL ORGANIZATION
SARS	SEVERE ACUTE RESPIRATORY SYNDROME
WHO	WORLD HEALTH ORGANIZATION

INTRODUCTION

ABOUT INTER PARTNER

Intern Partner is a specialized consultancy group that works in research postgraduate education and training in the health sector. The intern partner aims to create insight among students and provide evidence and inputs for developing their strategies.

The Inter Partner offers internship, research and consultancy in the field of hospital management health management pharmaceutical management, rural management, and a variety of field related to the health sector.

The team's members of intern partners and research staff constitute an enabling environment for learning, professional growth and development.

The terms of Intern Partner members are multi-disciplinary that represents public health, management, economics, statistics, demography, social and behavioural sciences rural development, and pharmaceutical sector.

Provide different services like Pharmaceutical Market analysis, Consulting in Procurement and supply chain, Certificate courses in Health/ Hospital/ Pharmaceutical/ Rural, Consulting in Health-related projects, Management Research, Education and training, Consultancy in Fundamental Market analysis, Internship and dissertation to healthcare professionals (Health/ Hospital/Pharmaceutical/Rural), Tread Analysis, Design and conduct Management training for health sector, Design product portfolio for Pharm Companies, NGO Management and Networking, NABH Accreditation(Pipeline).

Intern partner has completed 53 projects, have 26 active clients and 157 happy clients. They have collaborations with various healthcare institutions.

ABOUT COVID-19

The First coronavirus outbreak was documented in Wuhan, Hubei Province, China in December 2019. These coronaviruses are a family of viruses which may cause illness in animals and humans. There are two types of stain which researchers called "L" & "S" began appearing in several countries around the world with common symptoms like fever, dry cough, loss of taste or smell, sore throat, difficulty breathing or shortness of breath, chest pain and tiredness, respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). Any person can catch COVID-19 from others who have the virus. Primarily this virus spreads from person to person through small droplets from the nose or mouth, which is expelled when a person with COVID-19 coughs, sneezes or speaks.

WHO declared this outbreak as a Public Health Emergency of International Concern on 30 January 2020 and on 11 February 2020, a name for the new coronavirus disease was announced as COVID-19. According to WHO practising hand and respiratory hygiene is important at all times and is the best way to protect others and yourself possible maintain at least a 1- meter distance between yourself and others.

In India, thermal screening of passengers arriving from china started from 21 January and on 30 January 2020, the first case was confirmed in the student who had returned to Kerala's Thrissur district for a vacation from Wuhan University in China. At the end of January screening of passengers arriving from different countries also started. New cases were discovered during February. The ICMR said that airport screening alone will be insufficient.

COVID-19 cases in India (v-t-e)						
Deaths Recoveries Active cases						
	Jan 30	Feb 2–21	Mar 2–31	Apr 1–30	May 1–31	Jun 1–12
	Last 21 days					
Date	# of cases			# of deaths		
2020-03-02	5 (+67%)			0 (n.a.)		
2020-03-03	6 (+20%)			0 (n.a.)		
2020-03-04	28 (+367%)			0 (n.a.)		
2020-03-05	30 (+7.1%)			0 (n.a.)		
2020-03-06	31 (+3.3%)			0 (n.a.)		
2020-03-07	34 (+9.7%)			0 (n.a.)		
2020-03-08	39 (+15%)			0 (n.a.)		
2020-03-09	44 (+13%)			0 (n.a.)		
2020-03-10	50 (+14%)			0 (n.a.)		
2020-03-11	60 (+20%)			0 (n.a.)		
2020-03-12	74 (+23%)			1 (n.a.)		
2020-03-13	81 (+9.5%)			2 (+100%)		
2020-03-14	84 (+3.7%)			2 (=)		
2020-03-15	110 (+31%)			2 (=)		
2020-03-16	114 (+3.6%)			2 (=)		
2020-03-17	137 (+20%)			3 (+50%)		
2020-03-18	151 (+10%)			3 (=)		
2020-03-19	173 (+15%)			4 (+33%)		
2020-03-20	223 (+29%)			4 (=)		
2020-03-21	315 (+41%)			4 (=)		
2020-03-22	360 (+14%)			7 (+75%)		
2020-03-23	468 (+30%)			9 (+29%)		
2020-03-24	519 (+11%)			10 (+11%)		
2020-03-25	606 (+17%)			10 (=)		
2020-03-26	694 (+15%)			16 (+60%)		
2020-03-27	834 (+20%)			19 (+19%)		
2020-03-28	918 (+10%)			19 (=)		
2020-03-29	1,024 (+12%)			27 (+42%)		
2020-03-30	1,251 (+22%)			32 (+19%)		
2020-03-31	1,397 (+12%)			35 (+9.4%)		

Source: MoHFW

As no vaccine for COVID-19 had been developed so on 24 March India Prime Minister Narendra Modi declared lockdown phase 1 that is for 21 days from 25 March to 14 April 2020. Indian government attempted to moderate the spread of disease by reducing transmission. Infected individuals were identified, isolated, and treated while on the other hand initiated media and other services to educate the general public about preventive behaviours that reduce the risk of transmission. Behaviours included washing hands regularly with sanitizer/soap and running water, sneezing into a tissue, use to mask and gloves, and maintain social distance. On 30 March the number of the active case was 1251 and the number of deaths was 32. The second phase was followed from 15 April to 3 May 2020. Later by 30 April 2020 rate of cases peaked to 33610 and the total number of deaths 1075 in India. Phase 3 was from 4 May to 17 May 2020 and followed by phase fourth that is form 18 May to 31 May. And phase fifth that was only for containment zones from 1 June 2020 ongoing 3 days scheduled to end on 30 June 2020 was also known as unlock 1.0. Unlock 2.0

Phase II began on 1 July under the guidelines and instructions of the MHA and the NDMA and lockdown measures was only imposed in containment zones.

The Government classified different zone on the bases of their severity.

Table 1: Definitions for districts for various zones:

Zone	Classification
Red zone (Hotspots)	the districts with high doubling rate and high number of active cases
Orange zone	Districts with fewer cases
Green zone	Districts without confirmed cases or without new cases in the last 21 days

(Source MOHFW)

Earlier, before this pandemic, multiple studies were done to identify the factors that most effectively motivated people to adopt hand hygiene behaviours. This study was designed to know the change in hand-washing behaviours & perception, attitudes and motivating factors regarding hand washing during the peak period of the COVID-19 pandemic through the use of a cross-sectional survey model.

OBJECTIVE

To determine Behaviours & Perception of Indian smartphone users related to hand hygiene for the prevention of COVID-19 transmission.

Methodology

Type of Study: Cross-Sectional descriptive study

Study duration: 1 May – 30 June

Sample size: 172 (Male: 86 & Female: 86)

Age: 16-54 years

Type of Data: Ministerial/ Official websites (MOHFW, India, My Gov, WHO), Primary Data collection

Study tools: Structured Questionnaire, CAPI

Data analysis: MS Excel

Inclusion criteria: Behaviours, Perception associated with hand hygiene for the prevention of COVID-19 transmission.

LIMITATION OF STUDY:

1. Limiting access to the population of concern.
2. People who know English can only fill this form.

PARAMETERS TAKEN FOR COMPARISON

Table: 2

Question	Variables
Have you heard about the new Corona Virus disease?	Information
Have you seen or heard any information regarding handwashing as a prevention strategy for Corona Virus?	Encountered Information
Do you consider Hand hygiene to be an effective means of preventing the spread of the Virus?	Effectiveness Perceived
How many times per day did you wash your hands with soap/ sanitizer before pandemic?	Hand washing before Pandemic
How many times per day did you wash your hands with soap/ sanitizer during the Pandemic?	Behaviour Change
How possible do you believe it is for you to become infected with COVID-19	Susceptibility Perceived
Have you recently experienced any flu-like symptoms?	Experience any symptoms
Do you have any acquaintance who experiences any flu-like symptoms recently?	Symptoms in any acquaintances

DATA COLLECTION METHOD:

For this study, a cross-sectional descriptive study was carried out in India. The questioner was prepared and was sent through e-mail, WhatsApp, and other social media. In which question-related to their awareness related to COVID-19, perception, and change in behaviours related to hand hygiene was there. Participants were asked to roll out the survey to as many people as possible. Data was collected from a different state of India and corrected online.

In the questionnaire socio-demographic variable includes state, age, residence area, gender, education and occupation. After that, the questionnaire contains different question related to awareness(knowledge), attitude, behaviour, perceived effectiveness of hand washing, perceived severity of Covid-19 and till survey was collected any flu-like symptom. In total, 172 people filled this questionnaire in which 86 male and 86 female between age 16 to 54 has participated from different parts of India. Participants were above 16 years of age and Indian origin, and who understood English having a smartphone and had access to the internet.

DEMOGRAPHIC DATA OF PARTICIPANTS

Table: 3 State- wise

STATE	RURAL	SEMI RURAL	URBAN	SEMI URBAN	METRO	TOTAL
ANDHRA PRADESH	0	0	0	1	0	1
ASSAM	0	1	0	0	0	1
BIHAR	3	0	6	0	0	9
CHANDIGARH	0	0	1	0	0	1
CHHATTISGARH	1	0	1	0	0	2
DELHI	0	0	8	2	14	24
GUJARAT	2	0	15	2	8	27
HARYANA	1	0	2	1	1	5
JAMMU & KASHMIR	0	1	0	0	0	1
KARNATAKA	0	0	3	0	0	3
KERALA	0	0	1	0	0	1
MADHYA PRADESH	1	0	4	3	0	8
MAHARASHTRA	0	0	1	0	3	4
MEGHALAYA	1	0	0	0	0	1
ODISHA	0	0	1	0	0	1
PONDICHERRY	0	0	0	1	0	1
PUNJAB	1	0	3	0	0	4
RAJASTHAN	2	2	11	0	0	15
TAMIL NADU	0	0	0	1	0	1
TELANGANA	1	0	33	2	8	44
UTTAR PRADESH	1	0	7	2	2	12
UTTARAKHAND	3	0	0	0	0	3
WEST BENGAL	0	0	1	2	0	3
TOTAL	17	4	98	17	36	172

Interpretation: Data shows different states of India with a different residence. The residence is divided into 5 they are rural, semi-rural, urban, semi-urban & metro. According to census 2011, Rural was defined as the population less than 10,000; semi-urban as 10,000 and above and less than 1 lakh population; urban as 1 lakh and above and less than 10 lakh and metropolitan as 10 lakh and above population.

Table: 4 Residence-wise

RESIDENTIAL AREA	MALE	FEMALE
RURAL	13	4
SEMI-RURAL	3	1

URBAN	42	56
SEMI-URBAN	7	10
METRO	21	15
TOTAL	86	86

Interpretation: Data show most of male and female are from urban and metro.

Table:5 Qualification-wise

EDUCATIONAL QUALIFICATION	MALE	FEMALE
UP TO SECONDARY	1	2
UP TO HIGHER SECONDARY	9	5
GRADUATION COMPLETED	39	47
POSTGRADUATE AND ABOVE	37	32
TOTAL	86	86

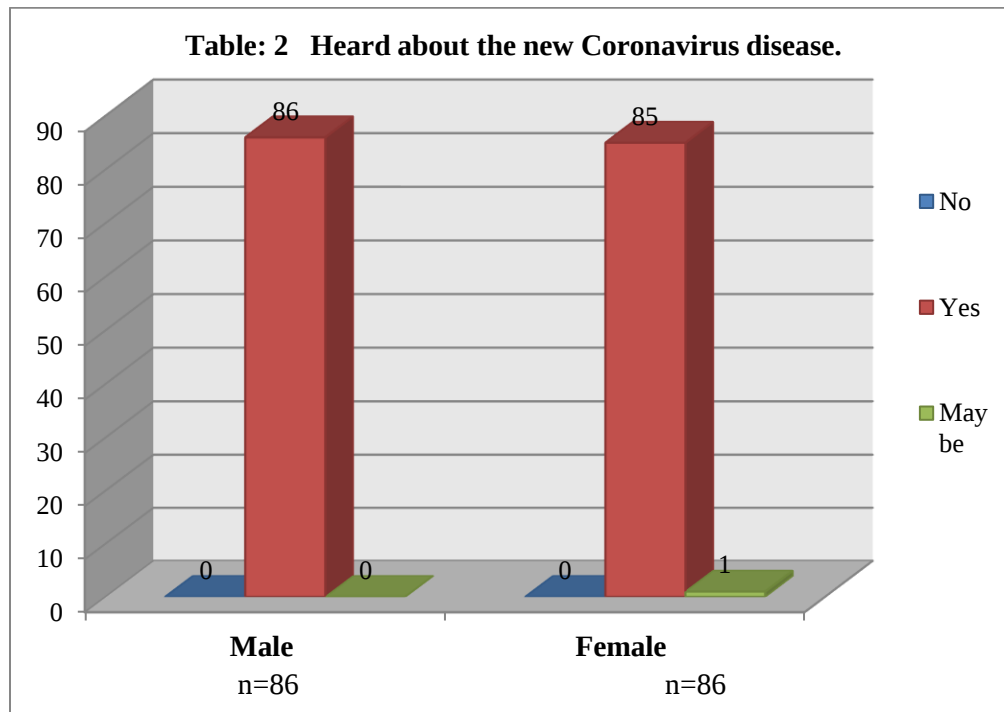
Interpretation: According to qualification graduated and postgraduates are more

Table:6 Employment-wise

	RURAL	SEMI RURAL	URBAN	SEMI URBAN	METRO	TOTAL
STUDENT	10	3	44	8	17	82
SALARIED (PRIVATE/SEMI-GOVERNMENT)	1	0	30	2	12	45
SALARIED (GOVERNMENT)	1	0	3	1	2	7
RETIRED	1	0	1		0	2
HEALTHCARE	2	0	10	3	3	18
FREELANCER	1	1	0	0	0	2
DAILY WAGE	0	0	1	0	0	1
BUSINESS/ ENTREPRENEUR	1	0	4	0	1	6
UNEMPLOYED	0	0	3	3	1	7
HOUSEWIFE	0	0	2	0	0	2
TOTAL	17	4	98	17	36	172

Interpretation: Residence-wise maximum respondents are student followed by private/semi-government and healthcare worker.

FINDINGS



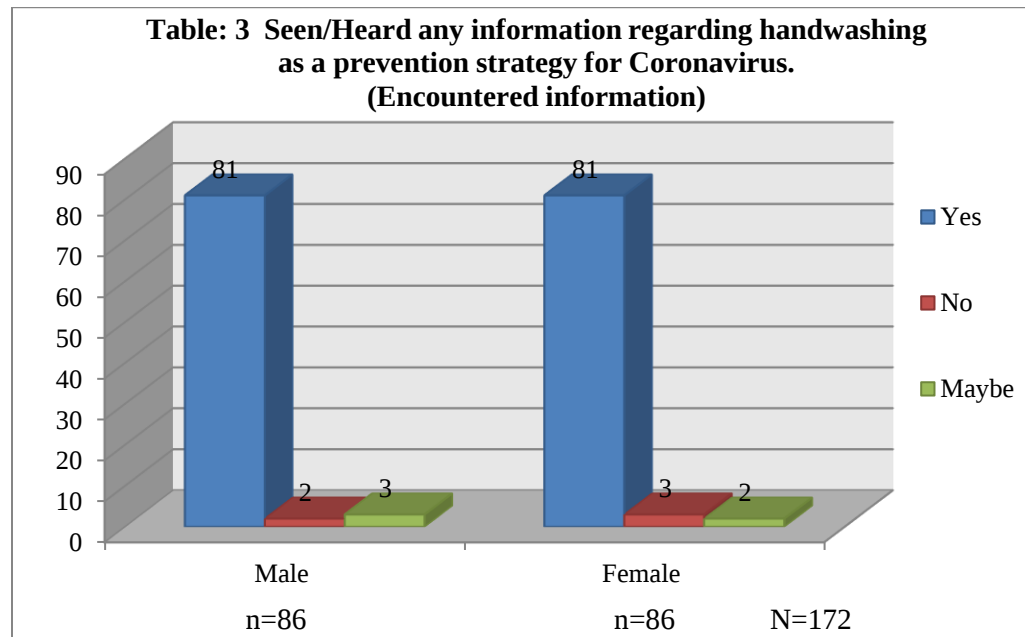
Interpretation: Data shows that the participant has information related to COVID-19. It was reported by the participants that the entire male & most of the participant in Female has heard about the new Corona Virus.

If we saw the data Employment-wise then it was reported that students has heard more about the new Corona Virus followed by salaried private & semi-Government, healthcare and Government.

Based on education it was revealed that most the participants up to secondary, up to higher secondary, graduation completed, Postgraduate and above all have heard about the new Corona Virus.

If we saw the data residence-wise then it was observed that the urban population has heard more about the new Corona Virus.

The state-wise data show information about the participant who has heard about the new Corona Virus although because of small sample representation from each state no state-specific inferences could be drawn.



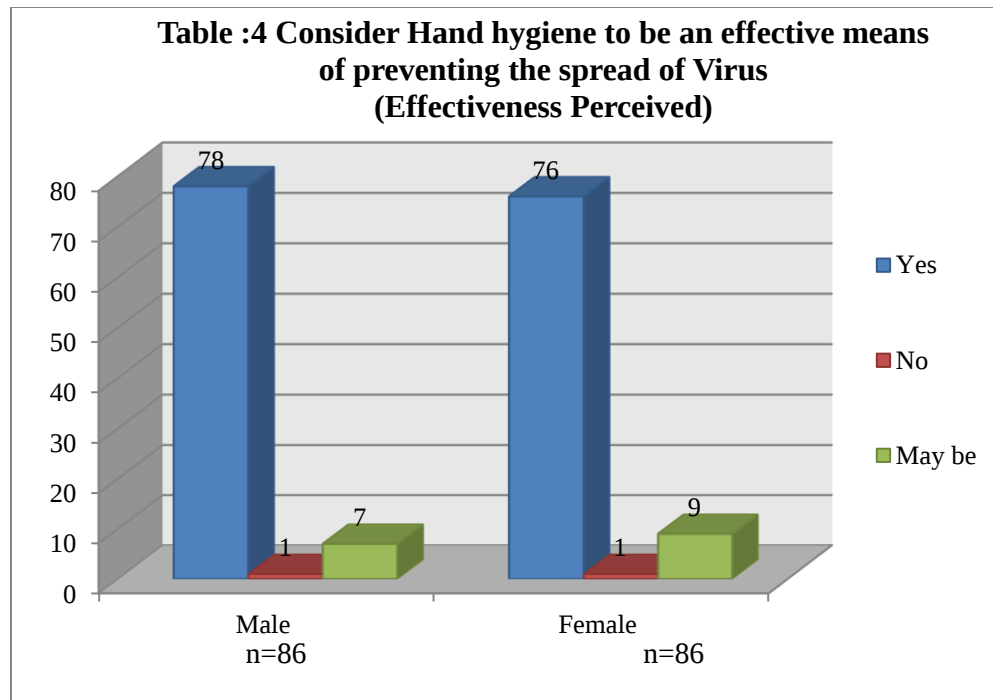
Interpretation: Data shows that the participant has encountered information. It was reported by the participants that all most all the male & female participant has seen/heard any information regarding handwashing as a prevention strategy for Coronavirus.

If we saw the data Employment-wise then it was reported that students have seen/heard more information regarding handwashing as a prevention strategy for Coronavirus followed by salaried private & semi-Government, healthcare and Government.

Based on education it was revealed that most of the participants up to secondary, up to higher secondary, graduation completed, Postgraduate and above all have seen/heard any information regarding handwashing as a prevention strategy for Coronavirus.

If we saw the data residence-wise then it was observed that the urban population has seen/heard more about information regarding handwashing as a prevention strategy for Coronavirus.

The state-wise data show encountered information although because of small sample representation from each state no state-specific inferences could be drawn.

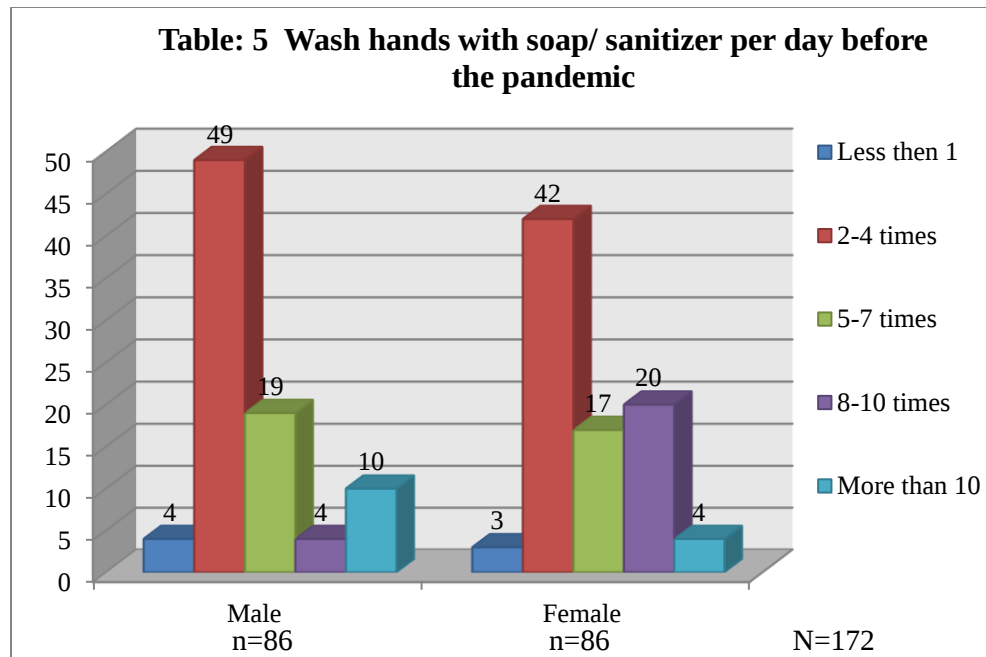


Interpretation: Data shows that effectiveness perceived of the participant. It was reported by the participants that most of the Female & male participant consider hand hygiene to be an effective means of preventing the spread of the virus.

If we saw the data Employment-wise then it was reported that students have considered hand hygiene to be an effective means of preventing the spread of the virus followed by salaried private & semi-Government, healthcare and Government.

Based on education it was revealed that eight ninth participants up to secondary, up to higher secondary, graduation completed, Postgraduate and above all had considered hand hygiene to be an effective means of preventing the spread of the virus.

If we have seen the data residence-wise then it was observed that the urban population has considered hand hygiene to be an effective means of preventing the spread of the virus. The state-wise data show effectiveness perceived although because of small sample representation from each state no state-specific inferences could be drawn.



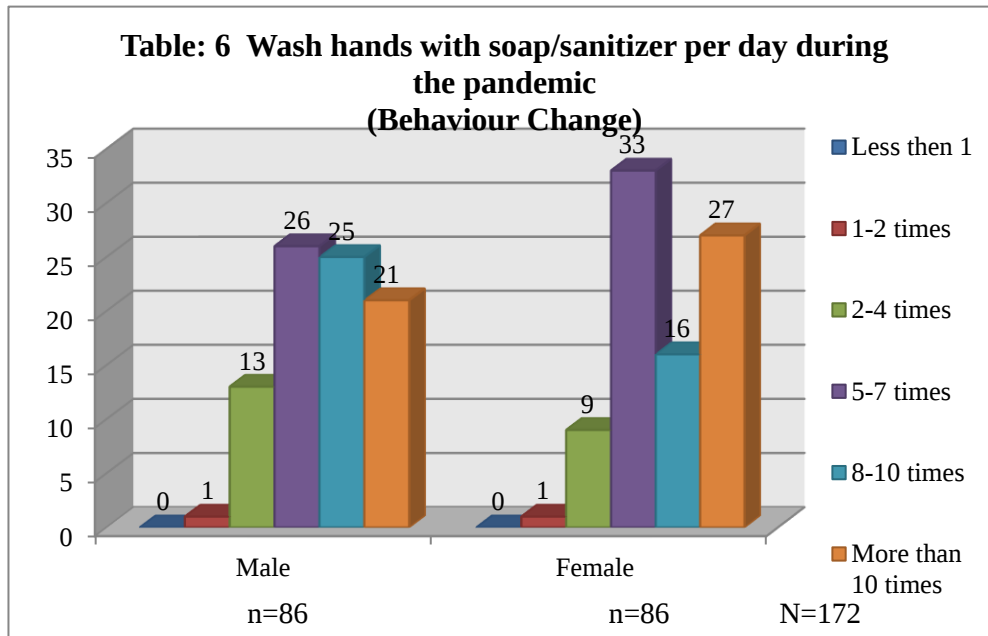
Interpretation: It was reported by the participants that before the pandemic, the frequency of washing hands more than 10 with soap/sanitizer was less than one-fourth of females and one-ninth of males. About one-fourth of female and less than one-fourth male reported that they wash 8-10 times. Less than one-fourth of female and one-ninth of males reported that they washed their hands 5-7 times a day. One-half of females and four-seventh of male reported that they washed their hands 2-4 times a day.

If we saw the data Employment-wise then it was reported that frequency of washing hands 2-4 times per day with soap/sanitizer was more in student, Government and private employment followed by healthcare compare to more than 10 times.

Based on education it was revealed that before the pandemic every population i.e. be it school student, graduate or post-graduate frequency of washing hand 2-4 times with soap/sanitizer before the pandemic is more compared to more than 10 times.

If we see the data residence wise then it was observed that the frequency of washing hands 2 to 4 times per day with Soap/Sanitizer was more as compared to more than 10 and 8-10 times.

The state-wise data shows that participants washing hands more 2-4 times per day followed by 8-10 times and more than 10 times although before because of small sample representation from each state no state-specific inferences could be drawn.

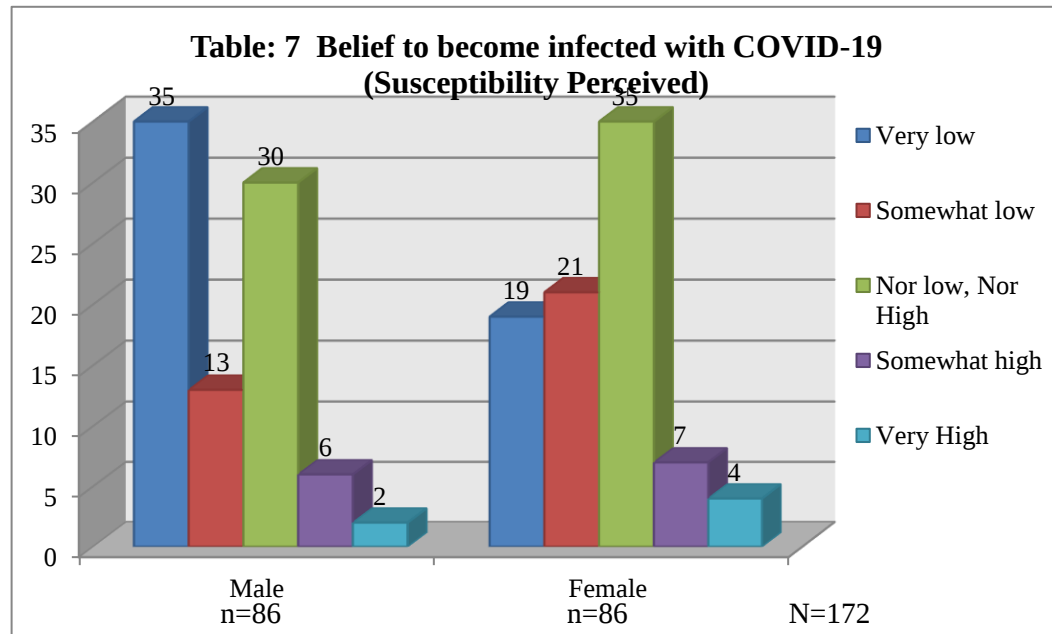


Interpretation: It was reported by the participants that during the pandemic, there was a change in the frequency of washing hands with soap/sanitizer than before the Pandemic. More than one-fourth of females reported that they washed their hands with soap/sanitizer more than 10 times a day as compared to one-fifth of males. About one-sixth of female and one-fourth of males reported that they wash 8-10 times. One-third of female and one-fourth of males reported that they washed their hands 5-7 times a day. One-tenth of females and a little more than one-tenth of male reported that they washed their hands 2-4 times a day.

If we see the data Employment-wise then it was reported that the frequency of washing hands per day with soap/sanitizer was more in student, Government and private employment followed by healthcare. Based on education it was revealed that during pandemic every population i.e. be it school student, graduate or post-graduate they had increased their frequency of washing hand with soap/sanitizer during the pandemic.

If we see the data residence wise then it was observed that the frequency of washing hands per day with Soap/Sanitizer was increased from 5 To 7 times and more.

The state-wise data shows that participants started washing hands more than 5 to 7 times per day although because of small sample representation from each state no state-specific inferences could be drawn.



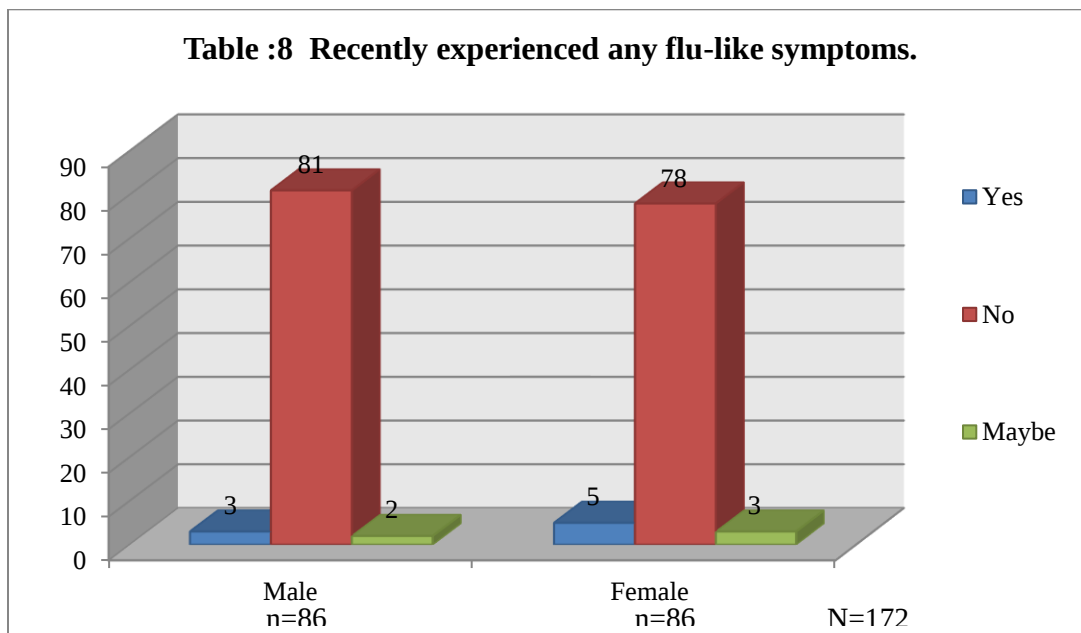
Interpretation: It was reported by the participants that they believe very high to become infected with COVID-19 was less for females and males. Two-fifth of female and one-third of males reported they neither belief nor, low, nor high to become infected with COVID-19. One fourth of females and one-seventh of male reported they belief somewhat low to become infected with COVID-19. Two-ninth of females and two-fifth of male reported they belief very low to become infected with COVID-19.

If we see the data Employment-wise then it was reported that belief very high to become infected with COVID-19 was more in student, Government and private employment followed by healthcare.

Based on education it was revealed that graduation and post-graduation belief very high to become infected with COVID-19.

If we see the data residence wise then it was observed that belief very high to become infected with COVID-19 was high in urban and metro population.

The state-wise data shows that participants belief was very high to become infected with COVID-19 high in Delhi, Telangana and Gujarat although because of small sample representation from each state no state-specific inferences could be drawn.

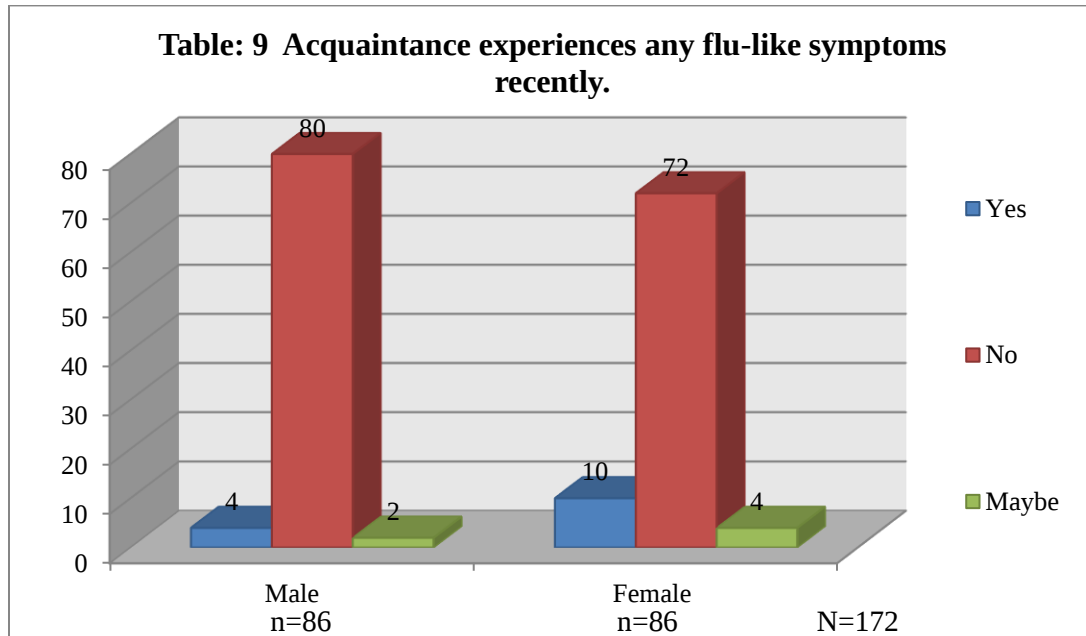


Interpretation: Data shows that the participant has experienced more flu-like symptoms. It was reported by the participants that most of the male & female participant has not experience flu-like symptoms. If we see the data Employment-wise then it was reported that students have experience flu-like symptoms followed by salaried private & semi-Government, healthcare and Government.

Based on education it was revealed that more than half of participants up to secondary, up to higher secondary, graduation completed, Postgraduate and above all has not experience flu-like symptoms.

If we see the data residence-wise then it was observed that the urban population has experienced flu-like symptoms.

The state-wise data show participants experience flu-like symptoms although because of small sample representation from each state no state-specific inferences could be drawn.



Interpretation: Data shows that the participant, acquaintances experience any flu-like symptoms. It was reported by the participants that more than half of male & five-sixth of Female acquaintances has not experienced any flu-like symptoms.

If we see the data Employment-wise then it was reported that students have acquaintances experience more flu-like symptoms followed by salaried private & semi-Government, healthcare and Government.

Based on education it was revealed that eight ninth of participants up to secondary, up to higher secondary, graduation completed, Postgraduate and above acquaintances has not experience flu-like symptoms.

If we see the data residence-wise then it was observed that the urban population has seen/heard more about information regarding handwashing as a prevention strategy for Coronavirus.

The state-wise data show participant, acquaintances experience flu-like symptoms although because of small sample representation from each state no state-specific inferences could be drawn.

DISCUSSION

Table: 7 Comparison of the bases of different parameters for male & female:

	Variable	Male	Female
1.	Information	Heard more about the new Corona Virus	Heard about the new Corona Virus
2.	Encountered Information	More encountered information regarding hand washing	Encountered information regarding hand washing
3.	Effectiveness Perceived	Both consider hand hygiene to be effective means of preventing the spread of the virus	Both consider hand hygiene to be effective means of preventing the spread of the virus
4.	Hand-washing before Pandemic	Wash hand with soap/sanitizer less than female during the pandemic	Wash hand more than the man with soap/sanitizer more before the pandemic
5.	Behaviour Change	Both show change in behaviour change during the pandemic.	Both show change in behaviour change during the pandemic. Wash hand more than the man with soap/sanitizer more during the pandemic.
6.	Susceptibility Perceived	Less susceptibility perceived to become infected with COVID-19	More susceptibility perceived to become infected with COVID-19
7.	Experience any symptoms	Experience less flu-like symptoms than female	Experience more flu-like symptomson page 28.
8.	Symptoms in any acquaintances	Experience fewer symptoms in acquaintances.	Acquaintances experience more symptoms.

Earlier there is much research done on the behaviour and perception of human behaviour. But all the research are done in a proper setup or in an institute where the participant is whether student or workers. This is the first student done during pandemic where every working population is been taken into consideration. Also with different qualification and different state and residence. Above tables show the difference between observed behaviour and perception related to hand hygiene and expected behaviour and perception of Indian smartphone users related to hand hygiene. This table answers different parameters taken for comparison like information, encountered information, effectiveness perceived, hand washing before pandemic, behaviour change, susceptibility perceived. In Gender-wise information, the male has heard more about the new coronavirus than female. So, it can be said that male have more information related to COVID-19 than female. In encountered information male has more information than female regarding handwashing as a preventing strategy for Coronavirus. Ineffectiveness perceived both male and female consider hand hygiene to be an effective means of preventing the spread of the virus. Handwashing behaviour before pandemic it is been observe that many people wash their hand only 2- 4 times per day and female has wash hand than the male with soap/ sanitizer before the pandemic. In behaviour change, during the pandemic, the data show there is a sudden increase in the frequency of washing hand with soap previously more frequency for washing hand was in between 2-4 times per day but during the pandemic, it was observed that people use to wash their hand more than 10 times or in between 5 to 10 times per days. Also, it was observed that female have more frequency of washing hand than male. In susceptibility perceived female have more perception to become infected with COVID-19 than male. In the experience of having COVID-19 in them and acquaintances, female having experience more than male. Hence, it can be said that more the perception to become infected with COVID-19 result in their behaviour change.

CONCLUSION

People in India have increased their frequency of hand hygiene practices during the pandemic, with significant gender & residence differences existing in the behaviour and perception related to hand hygiene as a means of disease prevention.

Also, it was observed that the perception of having High risk of COVID-19 has changed in their handwashing behaviour.

SUGGESTION

According to the data, there is an issue in encountered information as some of the participants have not seen/heard any information regarding handwashing as a prevention strategy for Coronavirus.

There is a need to educated people regarding the importance of handwashing strategy for prevention of Coronavirus.

REFERENCES

1. NHP CC DC, NHP Admin, Apr 03, 2015, Wash your hand, https://www.nhp.gov.in/hand-washing_pg
2. MoHFW | Home [Internet]. [cited 2020 Jun 3]. Available from: <https://www.mohfw.gov.in/>
3. Czerniewska A, White S., BMC Public Health. 2020 Jan 31;20(1):154. doi: 10.1186/s12889-020-8240-9. Hygiene Programming During Outbreaks: A Qualitative Case Study of the Humanitarian Response During the Ebola Outbreak in Liberia.
4. Jae-Hyun Park, Hae-Kwan Cheong, Dae-Yong Son, Seon-Ung Kim, and Chang-Min Ha, 2010 Jul 28, Perceptions and behaviors related to hand hygiene for the prevention of H1N1 influenza transmission among Korean university students during the peak pandemic period
5. Biran A, Schmidt WP, Varadharajan KS, Rajaraman D, Kumar R, Greenland K, Gopalan B, Aunger R, Curtis V, Lancet Glob Health. 2014 Mar;2(3):e145-54. doi: 10.1016/S2214-109X(13)70160-8. Epub 2014 Feb 27, Effect of a behaviour-change intervention on handwashing with soap in India (SuperAmma): a cluster-randomised trial.
6. E Seimetz, S Kumar, H-J Mosler, Health Education Research.2016 Apr;31(2):109-20.doi:10.1093/her/cyw002. Epub 2016 Mar 2, <https://pubmed.ncbi.nlm.nih.gov/26936481/>,Effects of an Awareness Raising Campaign on Intention and Behavioural Determinants for Handwashing.
7. Heidi Storm Vikke, Svend Vittinghus, Matthias Giebner, Hans Jørn Kolmos, Karen Smith, Maaret Castrén, Veronica Lindström, doi: 10.1136/emermed-2018-207872. Epub 2019 Jan 28. Compliance With Hand Hygiene in Emergency Medical Services: An International Observational Study.
8. <https://www.who.int/docs/default-source/inaugural-who-partners-forum/who-interim-recommendation-on-obligatory-hand-hygiene-against-transmission-of-covid-19.pdf>. World Health Organization (WHO)

9. <https://apps.who.int/iris/bitstream/handle/10665/331488/WHO-2019-nCoV-Aviation-2020.1-eng.pdf?ua=1>, World Health Organization (WHO)
10. Ankur Garg , Davendra Kumar Taneja, Suresh Kumar Badhan, Gopal Krishan Ingle, Apr-Jun 2013;57(2):109-12.doi: 10.4103/0019-557X.115009.
<https://pubmed.ncbi.nlm.nih.gov/23873200/>. Effect of a School-Based Hand Washing Promotion Program on Knowledge and Hand Washing Behavior of Girl Students in a Middle School of Delhi
11. Ilesanmi OS, Alele FO. Pan Afr Med J. 2015 Oct 11;22 Suppl 1(Suppl 1):24. doi: 10.11694/pamj.supp.2015.22.1.6614. eCollection 2015. The effect of Ebola Virus Disease outbreak on hand washing among secondary school students in Ondo State Nigeria, October, 2014.
12. Elise Grover, Mohammed Kamal Hossain, Saker Uddin, Mohini Venkatesh, Pavani K Ram, Robert Dreibelbis, 2018 Oct;99(4):934-936.doi: 10.4269/ajtmh.17-0903. Social Influence on Handwashing With Soap: Results From a Cluster Randomized Controlled Trial in Bangladesh
13. Xuyu Chen, Li Ran, Qing Liu, Qikai Hu, Xueying Du, Xiaodong Tan, 2020 Apr 22;17(8):2893.doi: 10.3390/ijerph17082893. Hand Hygiene, Mask-Wearing Behaviors and Its Associated Factors During the COVID-19 Epidemic: A Cross-Sectional Study Among Primary School Students in Wuhan, China
14. A Akyol, H Ulusoy, I Ozen, J Hosp Infect. 2006 Apr;62(4):395-405. doi:10.1016/j.jhin.2005.10.007, <https://pubmed.ncbi.nlm.nih.gov/16478645/>. Handwashing: A Simple, Economical and Effective Method for Preventing Nosocomial Infections in Intensive Care Units

ANNEXURE

S.No	Name of the Department	Date(s)	% of Time Spent	Interacted with (Name and Designation)

QUESTIONNAIRE

A study on Behaviours & Perception of Indian smartphone users related to hand hygiene for the prevention of COVID-19 transmission.

The most important thing to stay fit and healthy is frequent hand washing. Even WHO and other health organizations have recognized the importance of hand hygiene globally and also during this pandemic.

So, I am surveying on "Behaviors & Perception related to hand hygiene for the prevention of COVID-19 transmission in India".

Kindly take out your valuable time to fill the survey and stay safe by staying at home and by practising hand washing.



1. Your state *

—

2. Your Age *

—

3. Your residential area *

- ☐ Rural
- ☐ Semi-Rural
- ☐ Urban
- ☐ Semi-Urban
- ☐ Metro

4. Select Gender *

- ☐ Male
- ☐ Female

5. Educational Qualification*

- ☐ Up to secondary
- ☐ Up to Higher Secondary
- ☐ Graduation Completed
- ☐ Postgraduate and above

6. Which category best described your work*

- ☐ Student
- ☐ Unemployed
- ☐ Salaried (Government)
- ☐ Salaried (Private/ Semi-Government)
- ☐ Retired
- ☐ Healthcare
- ☐ Housewife
- ☐ Contractual
- ☐ Business/ Entrepreneur
- ☐ Daily Wage
- ☐ Other

7. Have you heard about the new Coronavirus disease? *

- ☐ No
- ☐ Yes
- ☐ Maybe

8. Are you following the lockdown Measures? *

- ☐ Yes, always
- ☐ Yes, sometimes
- ☐ No

9. Which among the following are true about COVID-19? *

- ☐ It is a viral infection spread by coughing or sneezing
- ☐ Fever, fatigue, cough and breathing difficulty are symptoms
- ☐ It is a deadly disease
- ☐ All of the disease
- ☐ None of the above

10. What are the preventive measures against the spread of COVID-19? *

- ☐ Wash your hands regularly using alcohol or soap and water
- ☐ Cover your mouth and nose when coughing or sneezing
- ☐ Avoid close contact with anyone who has a fever and cough
- ☐ Practice respiratory hygiene
- ☐ All of the above

11. How long is the incubation period of COVID-19*

- ☐ 2-4 days
- ☐ 2-7 days
- ☐ 2-14 days
- ☐ 2-24 days
- ☐ Don't know

12. Who do you think is at the highest risk to get the coronavirus? *

- ☐ Children under 5 years old
- ☐ Adolescents up to 15 years old
- ☐ Youth
- ☐ Adults
- ☐ Elderly Persons
- ☐ Pregnant Women
- ☐ Persons with Comorbidities
- ☐ Health Workers
- ☐ Don't Know

13. Have you seen or heard any information regarding handwashing as a prevention strategy for Coronavirus? *

- ☐ Yes
- ☐ No
- ☐ Maybe

14. Do you consider Hand Hygiene to be an effective means of preventing the spread of the virus? *

- ☐ Yes
- ☐ No
- ☐ Maybe

15. Do you have knowledge about different steps in handwashing? *

- ☐ Yes
- ☐ No

16. Do you know about the phrase thoroughly washing your hand? *

- ☐ Yes
- ☐ No
- ☐ Maybe

17. How many times per day did you wash your hands with soap/sanitizer during this Pandemic?*

- ☐ Less than 1
- ☐ 1-2 times
- ☐ 2-4 times
- ☐ 5-7 times

- ☐ 8-10 times
- ☐ More than 10 times

18. How many times per day did you wash your hands with soap/ sanitizer before pandemic? *

- ☐ Less than 1
- ☐ 2-4 times
- ☐ 5-7 times
- ☐ 8-10 times
- ☐ More than 10

19. Have you advised others to wash hands with soap/ sanitizer? *

- ☐ Yes
- ☐ No
- ☐ May be

20. How possible do you believe it is for you to become infected with COVID-19? *

- ☐ Very low
- ☐ Somewhat low
- ☐ Nor low, nor high
- ☐ Somewhat high
- ☐ Very high

21. Have you recently experienced any flu-like symptoms? *

- ☐ Yes
- ☐ No
- ☐ Maybe

22. Have Sought help or advice about symptoms from Doctor during this pandemic? *

- ☐ No
- ☐ Yes

23. Do you have any acquaintances who experienced any flu-like symptoms recently? *

- ☐ Yes
- ☐ No
- ☐ Maybe

24. Went to Hospital for testing COVID-19 during this Pandemic? *

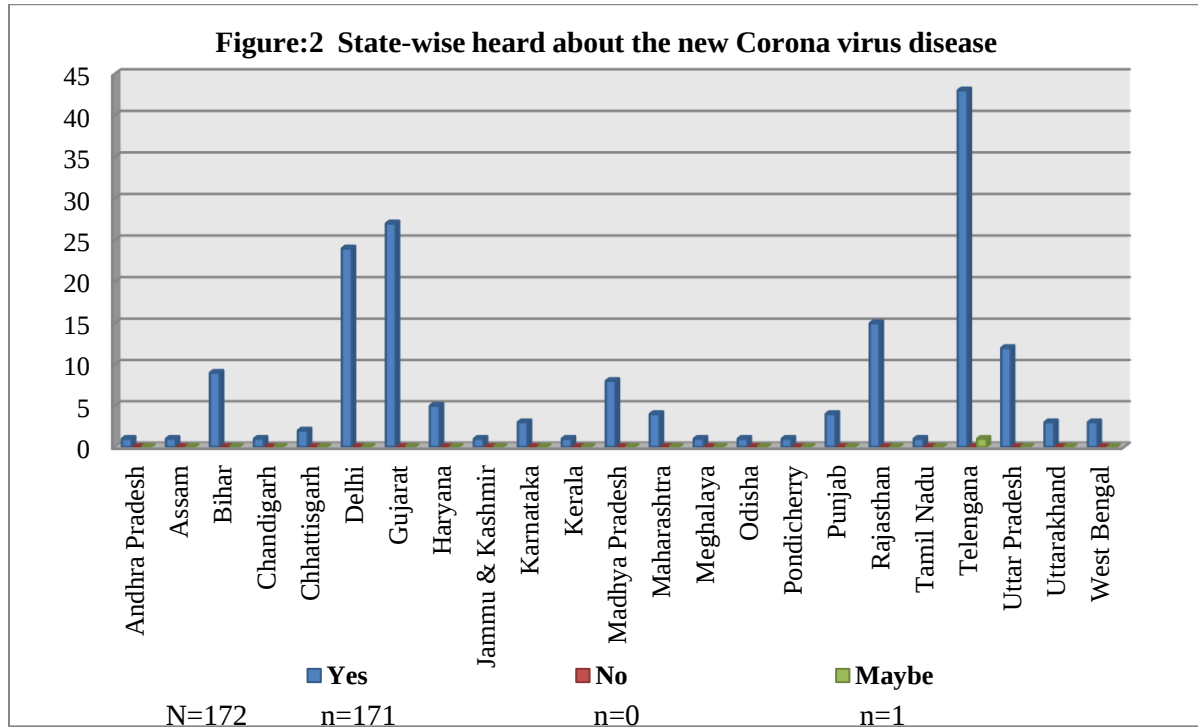
- ☐ Yes
- ☐ No

25. What was the outcome? *

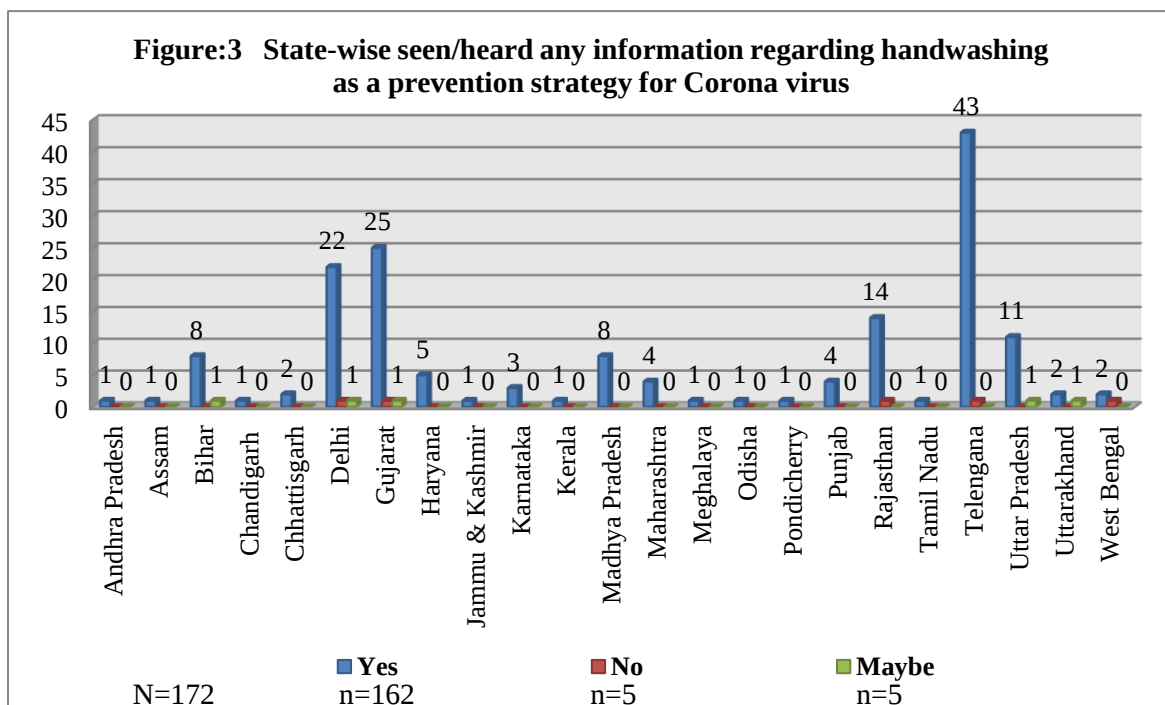
- ☐ COVID-19 negative
- ☐ COVID-19 positive

Extra Finding

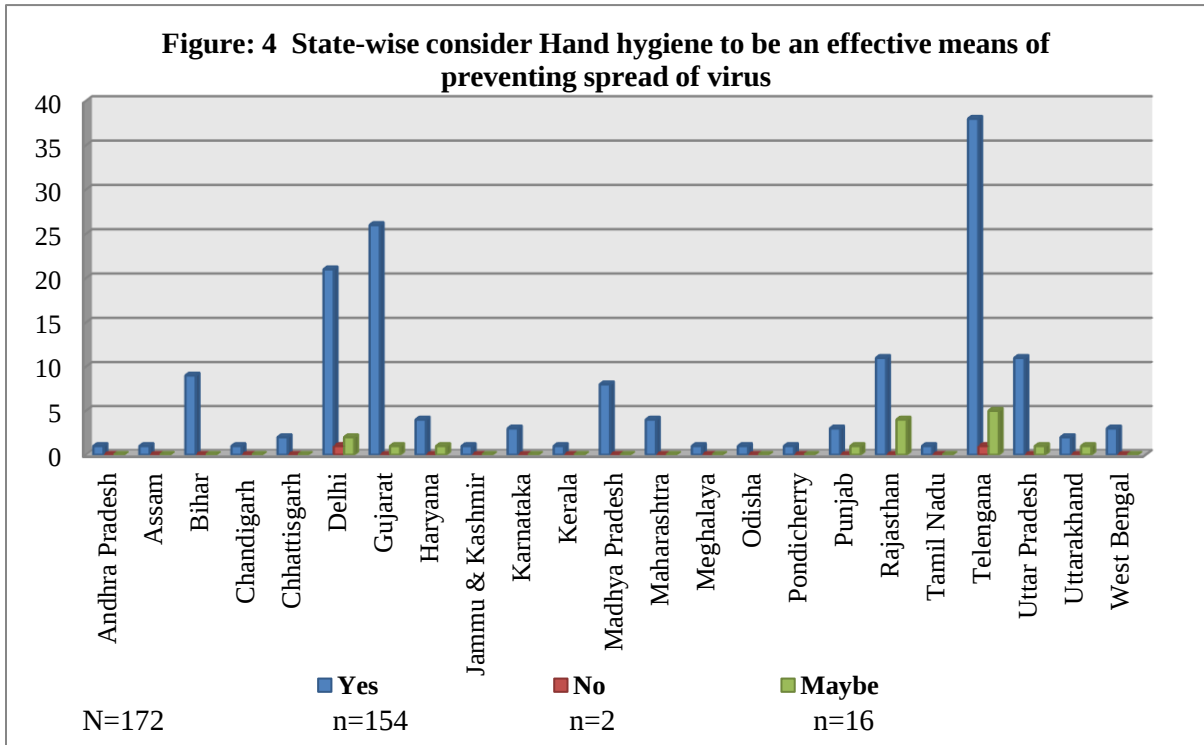
STATE WISE



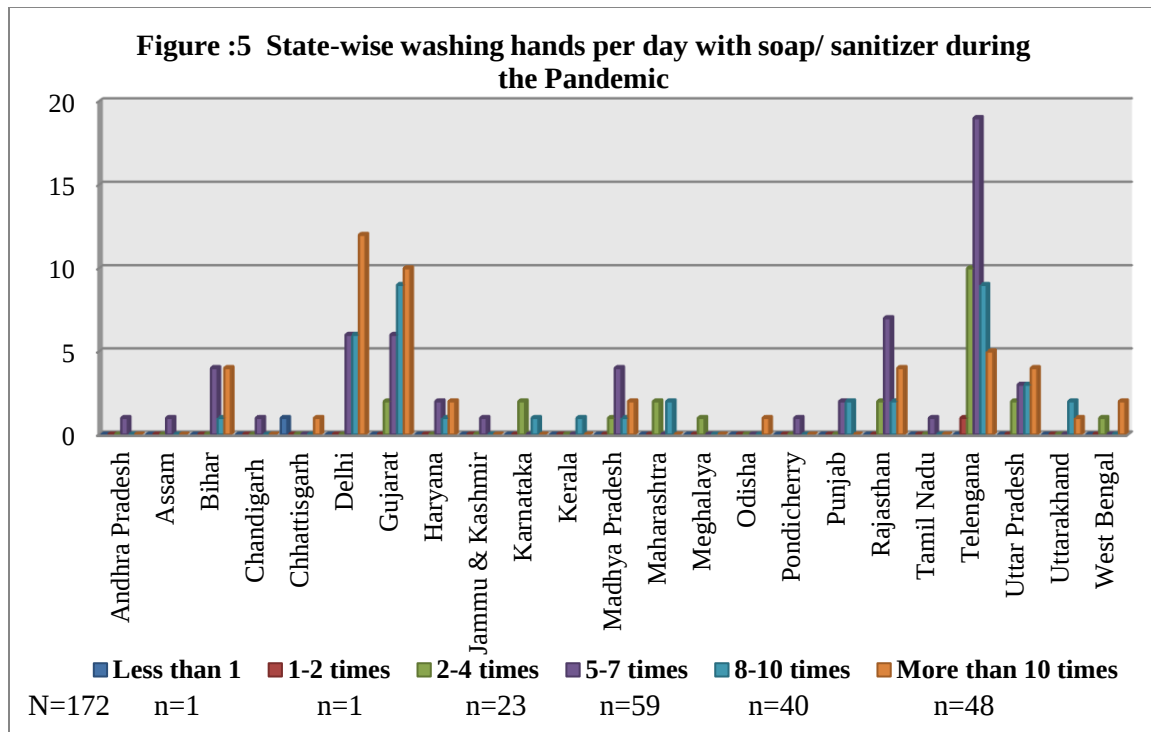
Interpretation: Every State has heard about the new coronavirus Diseases.



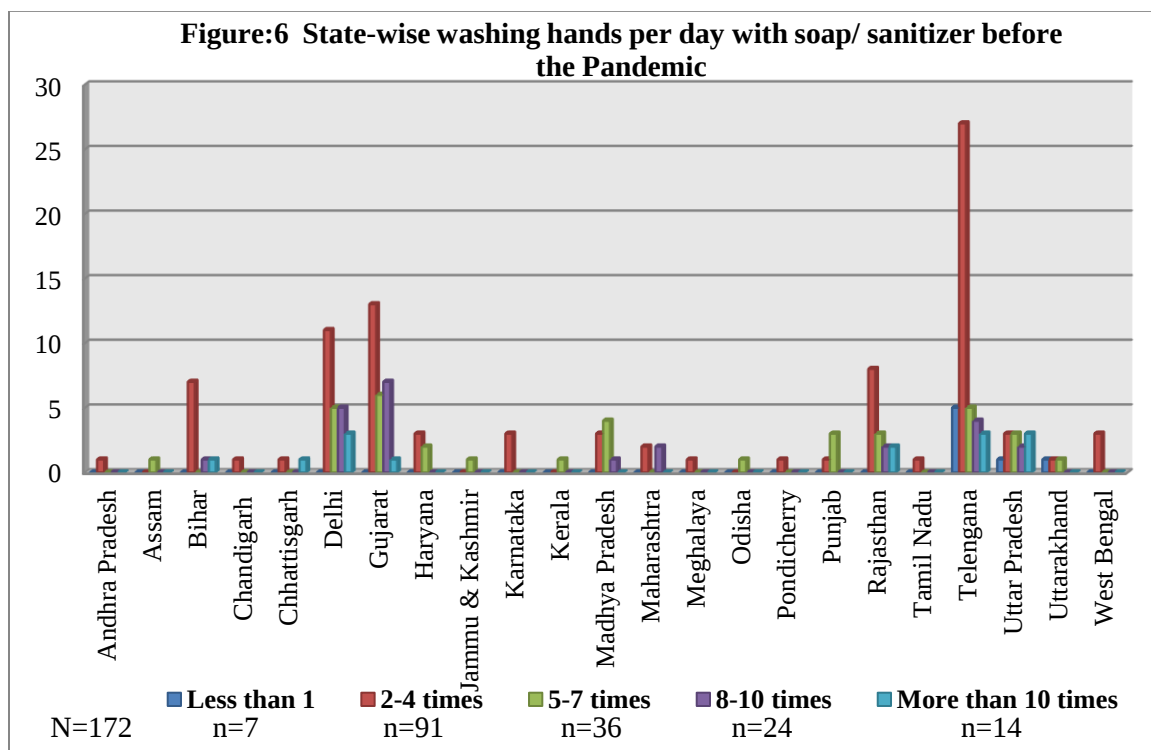
Interpretation: Every state has seen/heard information regarding handwashing as a prevention strategy for the Coronavirus.



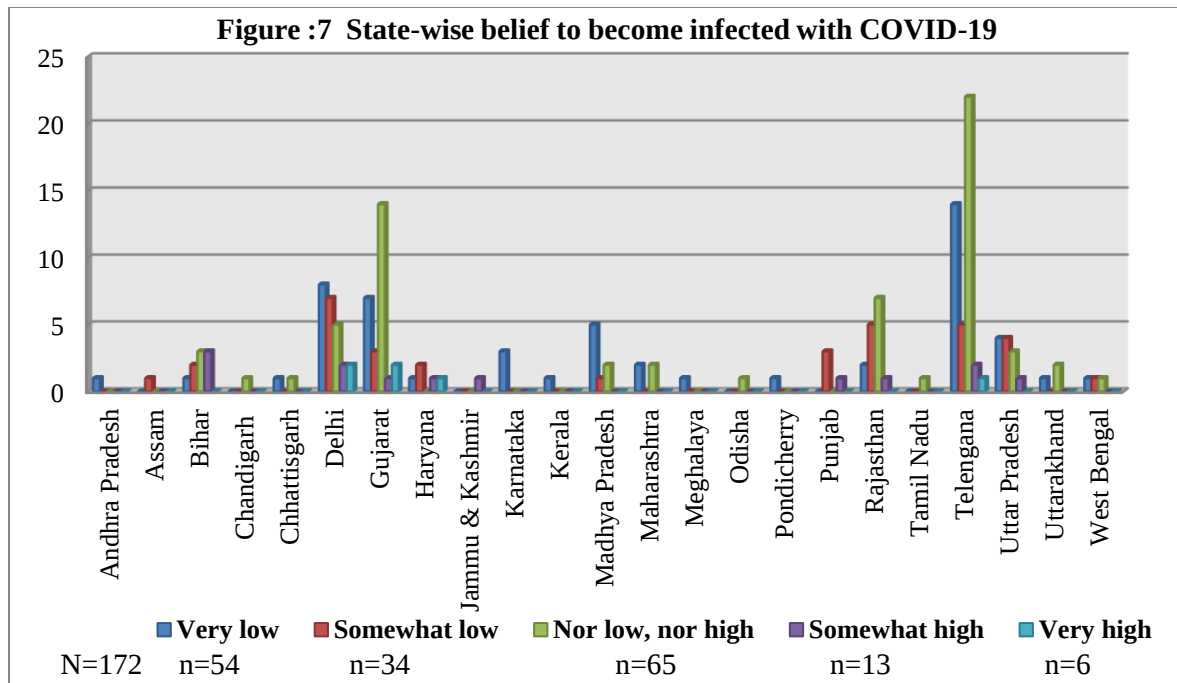
Interpretation: Telangana, Gujarat & Delhi consider hand hygiene to be an effective means of preventing the spread of the virus.



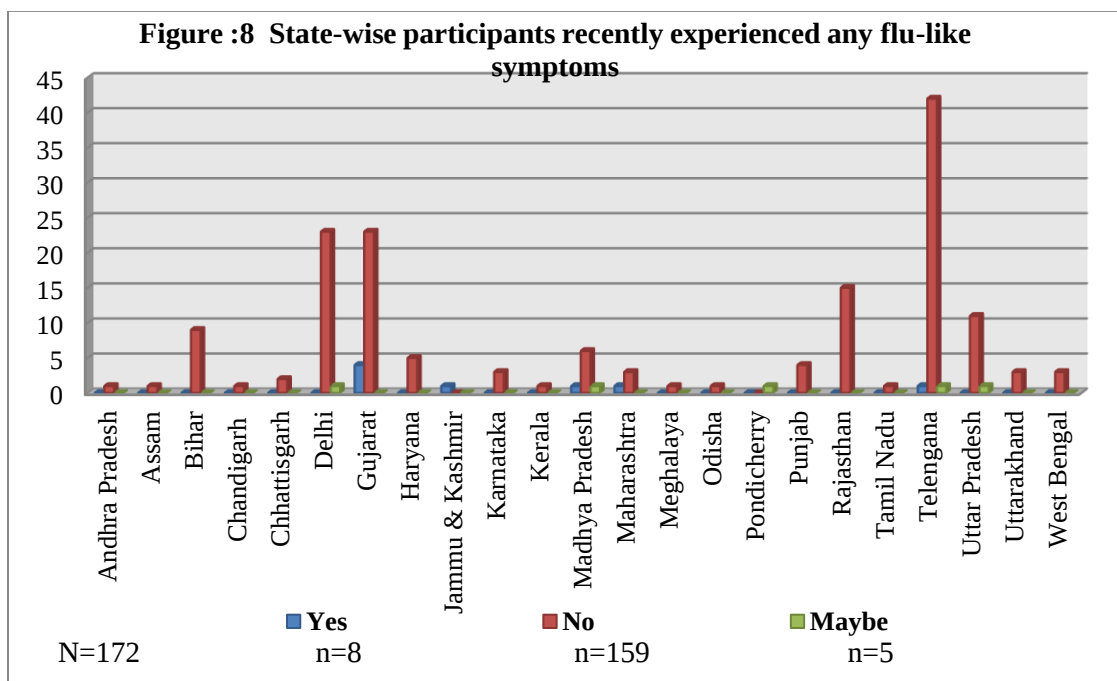
Interpretation: Data show participants started washing hand more than 5 to 7 times per day.



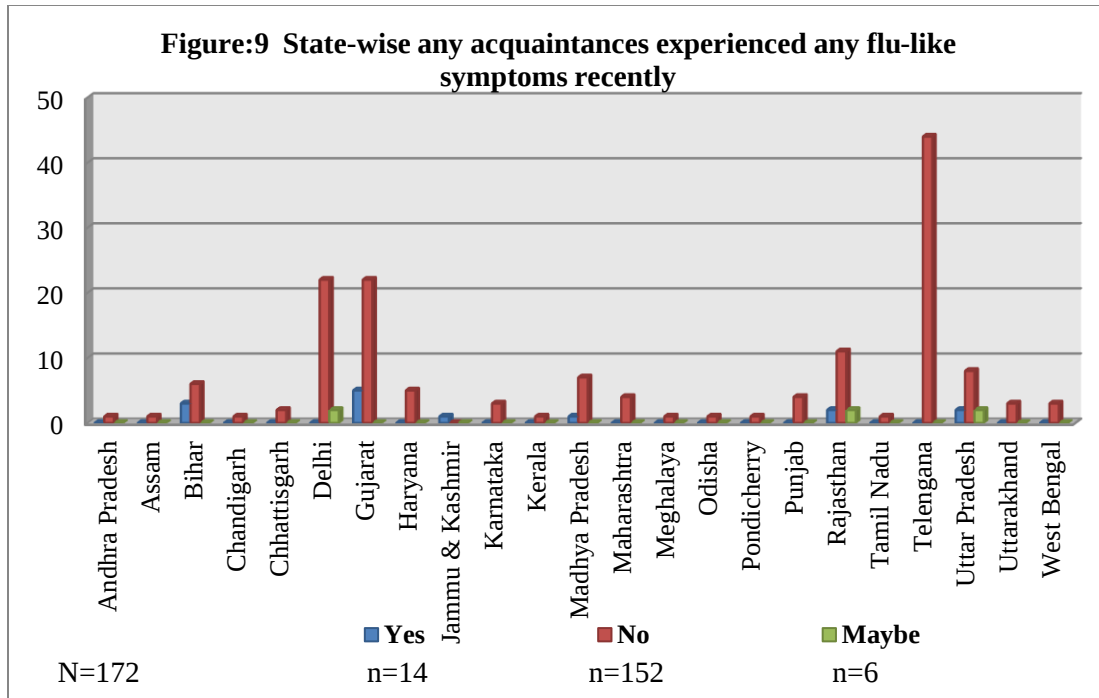
Interpretation: Data show before the pandemic frequency of washing hand with soap/sanitizer was 5 to 7 or less than that.



Interpretation: Data show a belief to become infected with COVID-19 is nor low, nor high

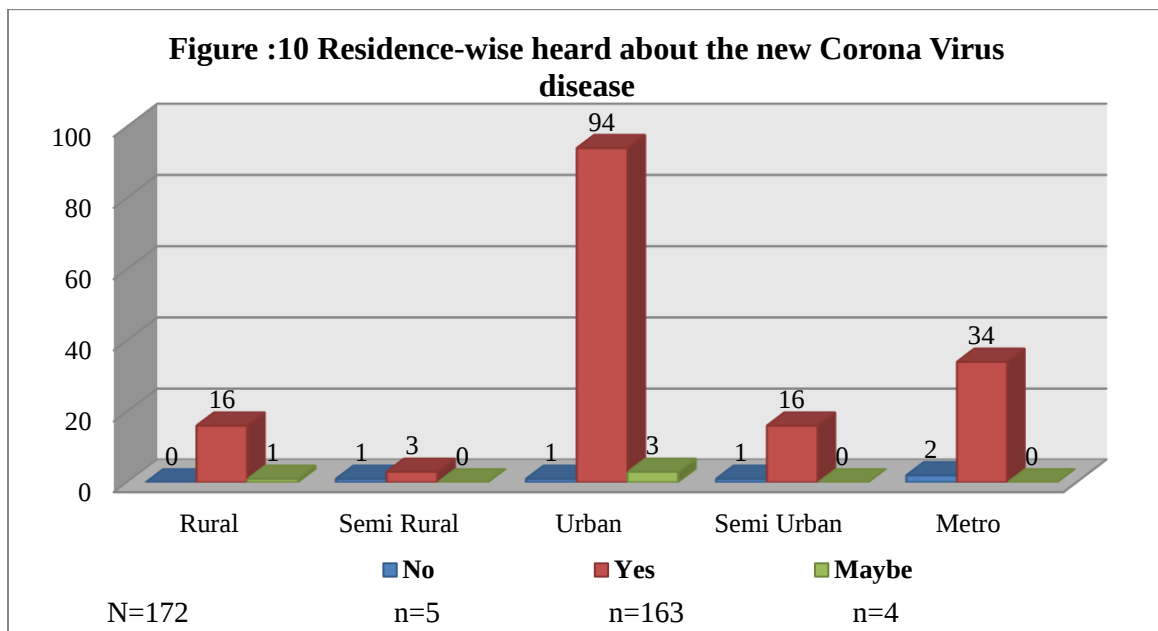


Interpretation: State-wise participants from Gujarat, Maharashtra & Madhya Pradesh have experienced flu-like symptoms.

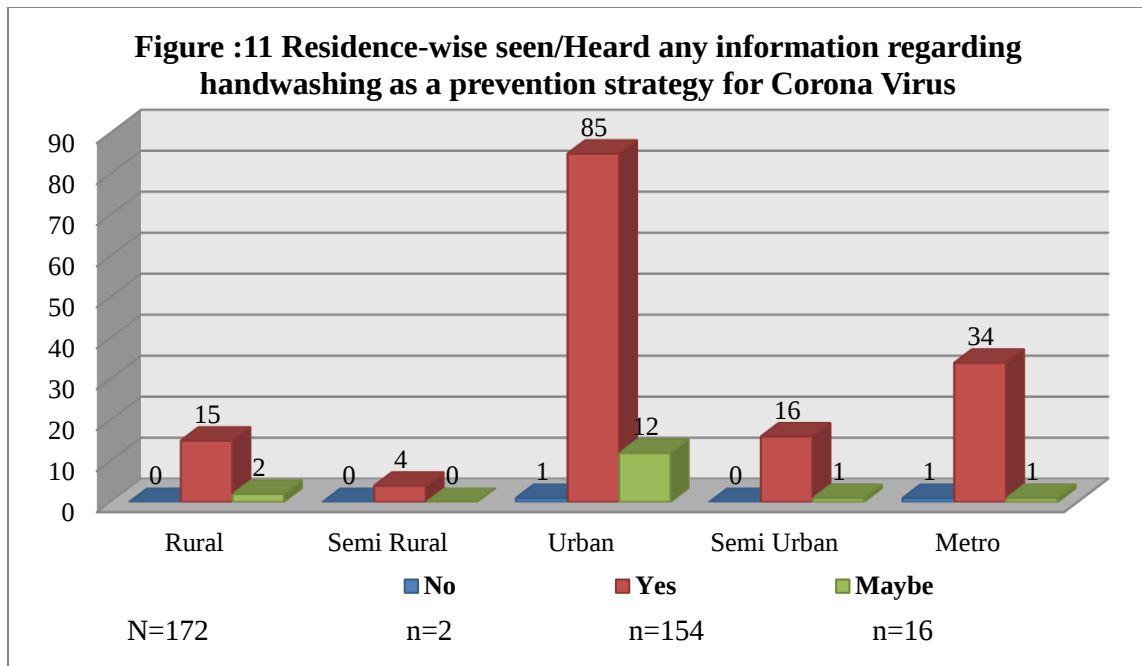


Interpretation: Many participants acquaintances from different states have experience flu-like symptoms

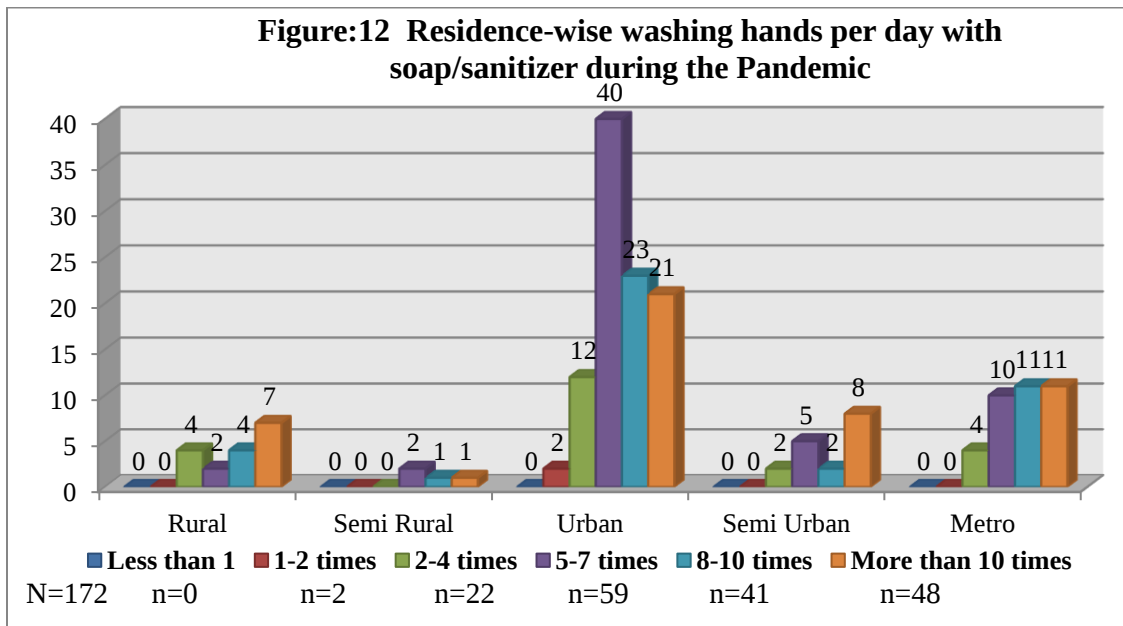
RESIDENCE WISE



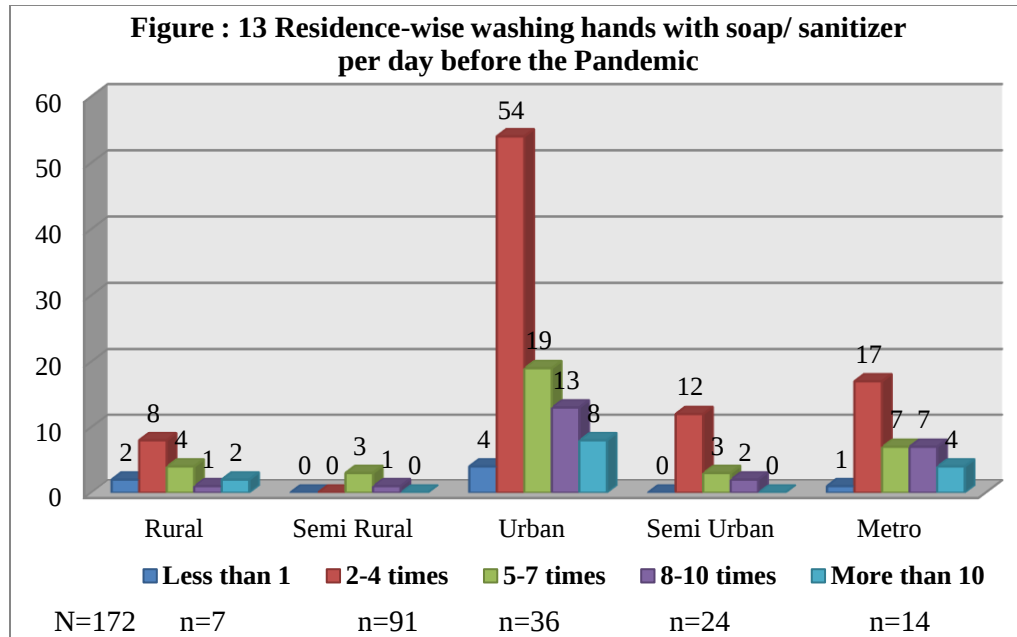
Interpretation: Urban population heard more about the new Coronavirus disease



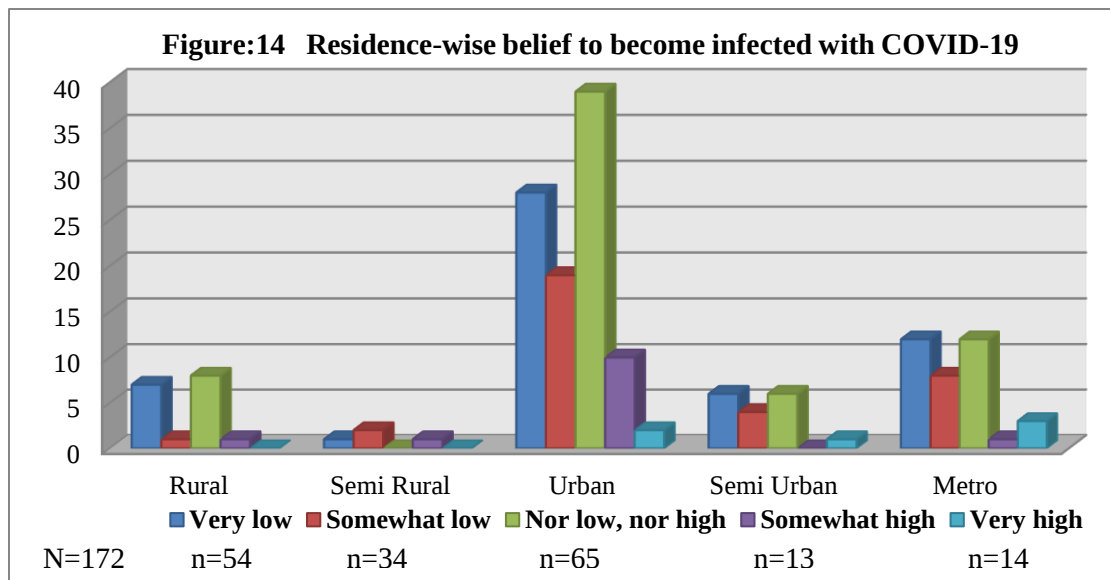
Interpretation: The Urban and metro population have seen/heard more information regarding handwashing as a prevention strategy for Coronavirus



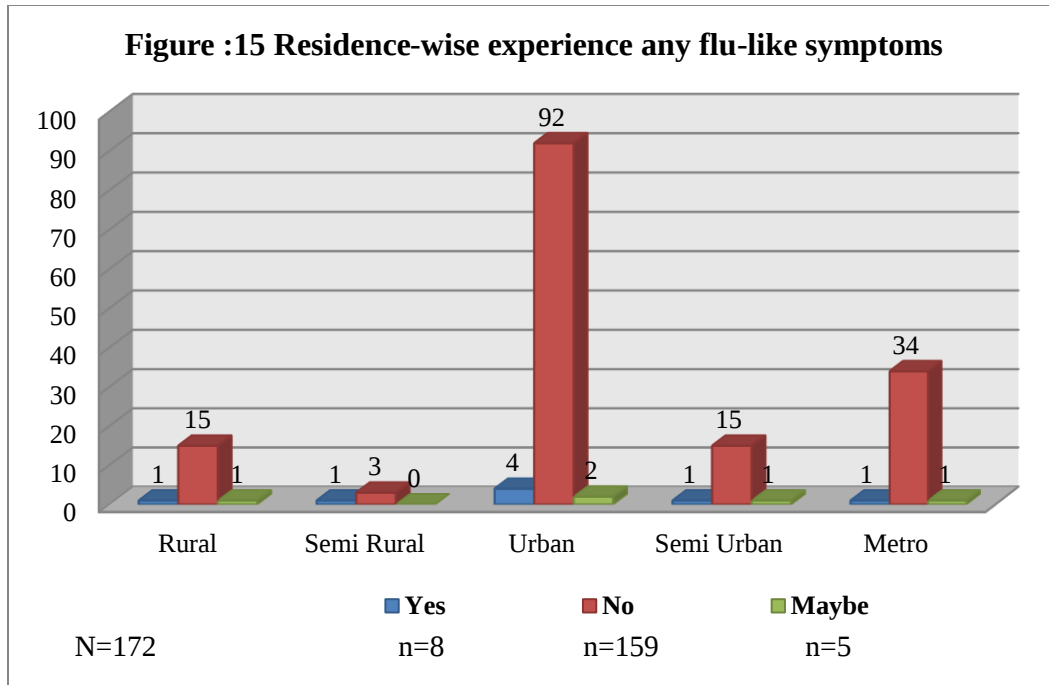
Interpretation: During Pandemic Frequency of Washing Hand per day with Soap/Sanitizer Has increased 5 To 7 times and more



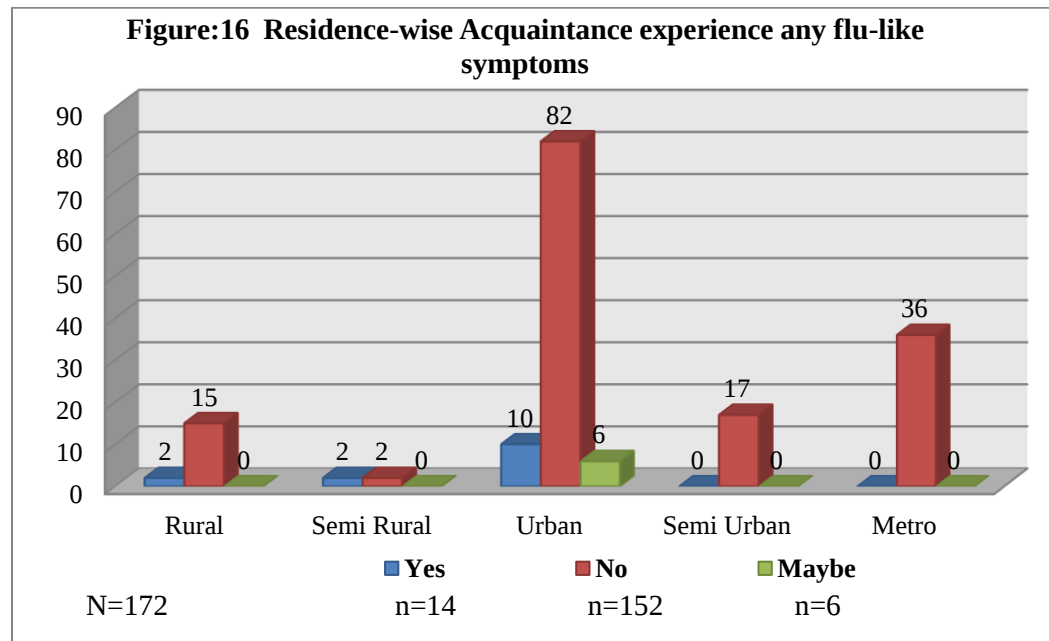
Interpretation: Before pandemic Frequency of Washing Hand per day with Soap/Sanitizer was in between 2 to 4 or less than 5 to 7



Interpretation: Metro and urban population belief more to become infected with COVID-19



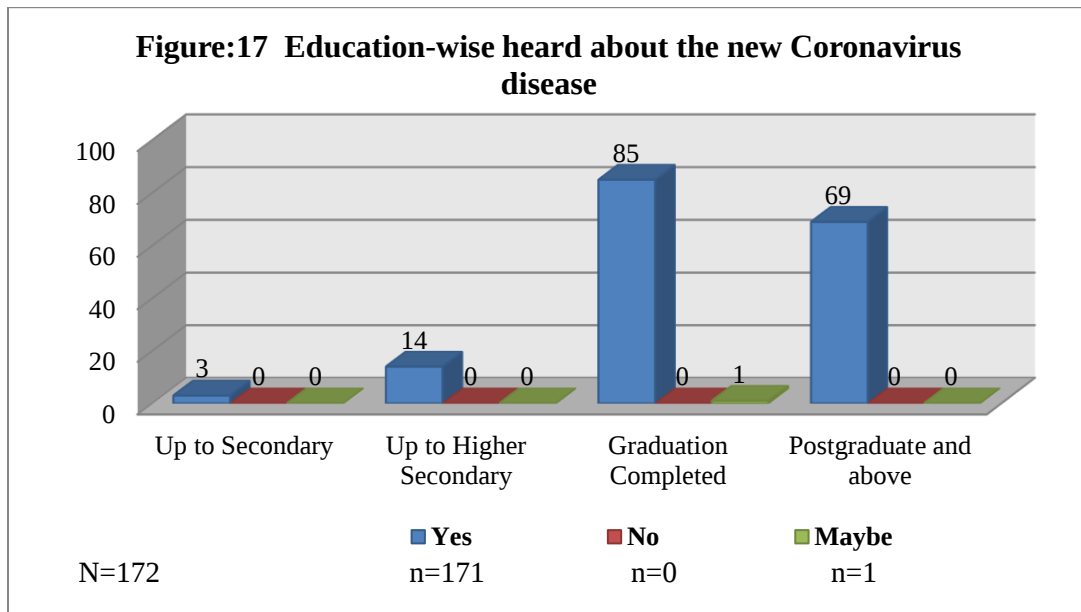
Interpretation: Urban population experience more flu-like symptoms



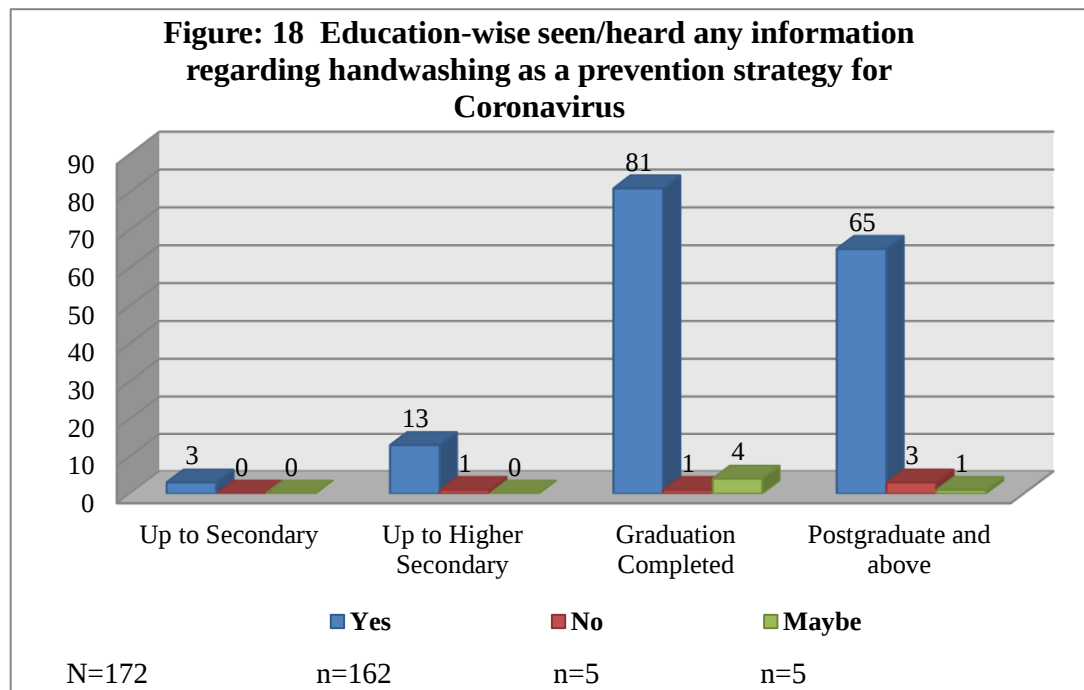
Interpretation: Urban population acquaintance experience any flu-like symptoms

Residence-wise Interpretation: Population should practice more hand hygiene practice.

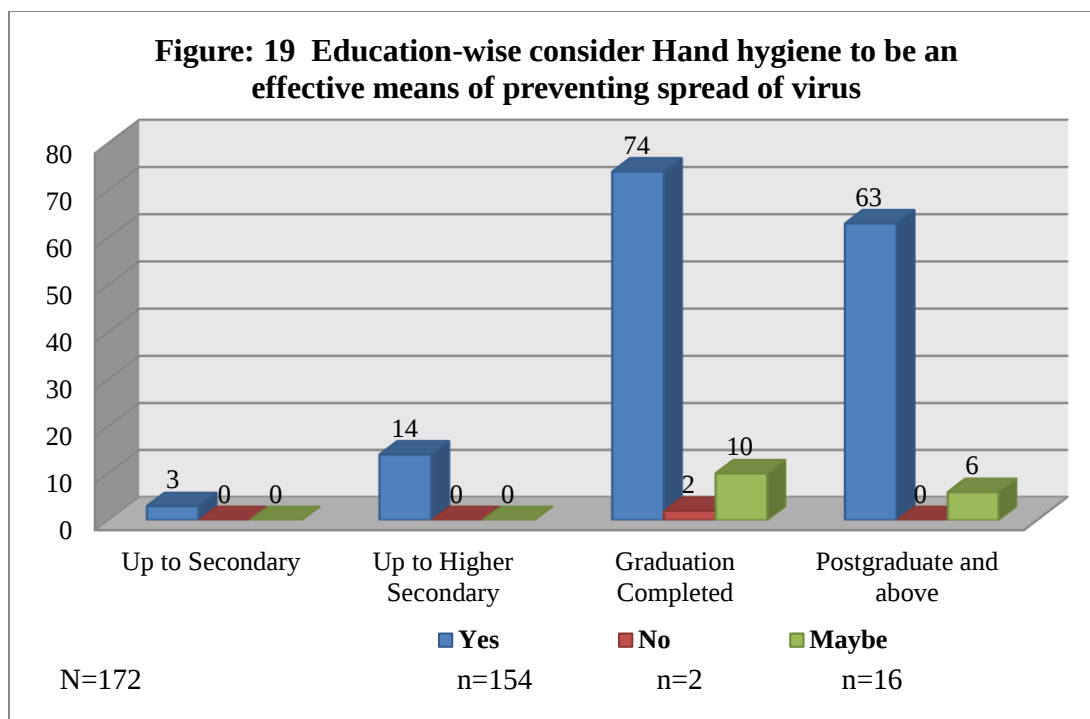
Education-wise



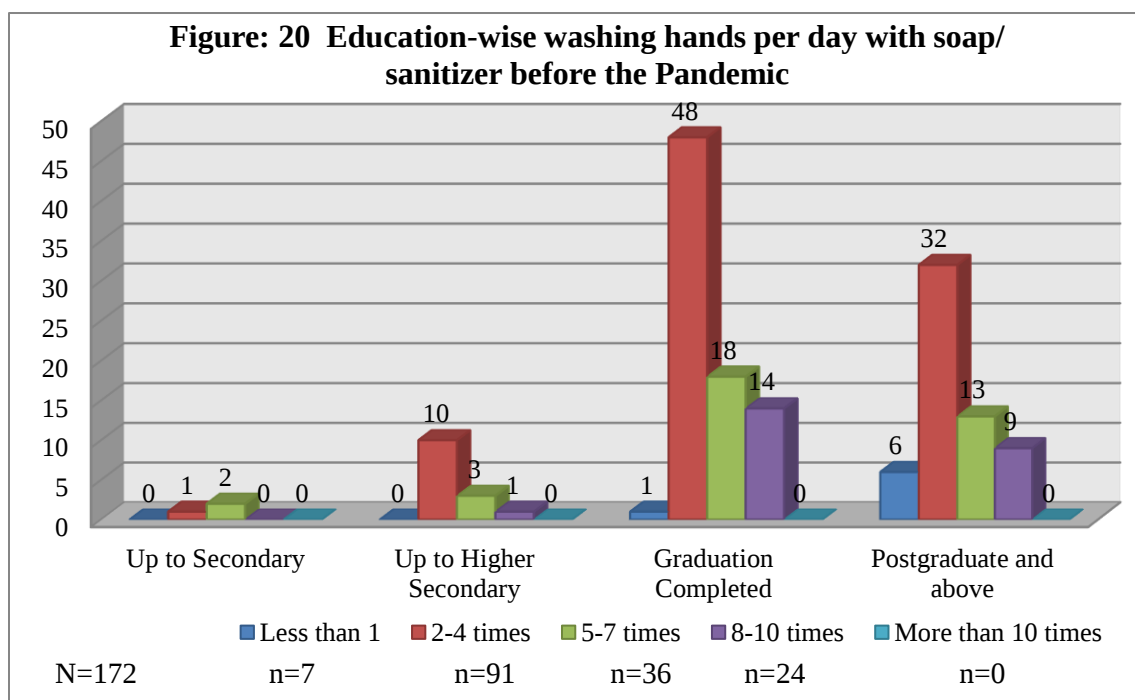
Interpretation: Education-wise every population has heard about the new Coronavirus disease



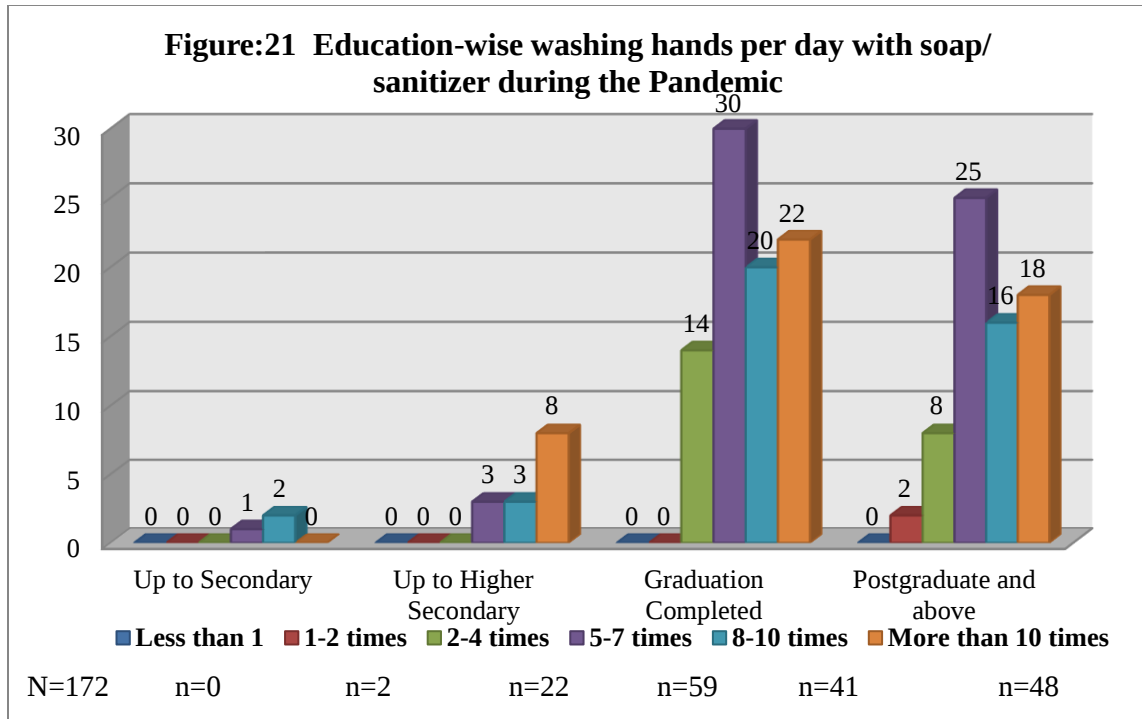
Interpretation: Education-wise every population has seen/heard information regarding handwashing as a prevention strategy for Corona virus



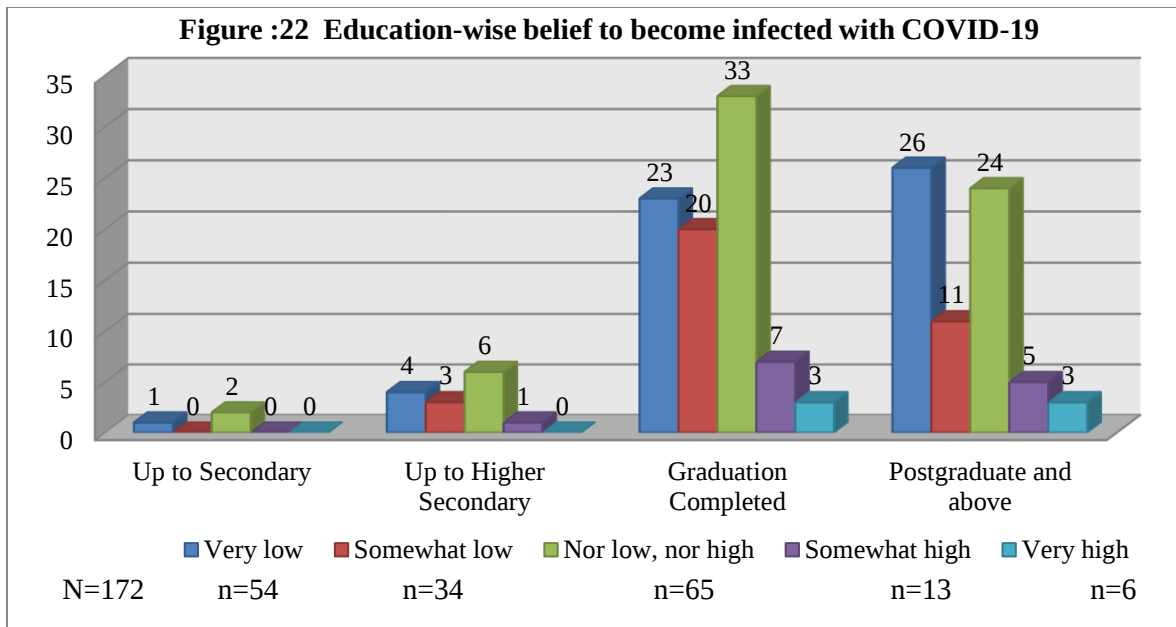
Interpretation: Education-wise most of the population considers hand hygiene to be an effective



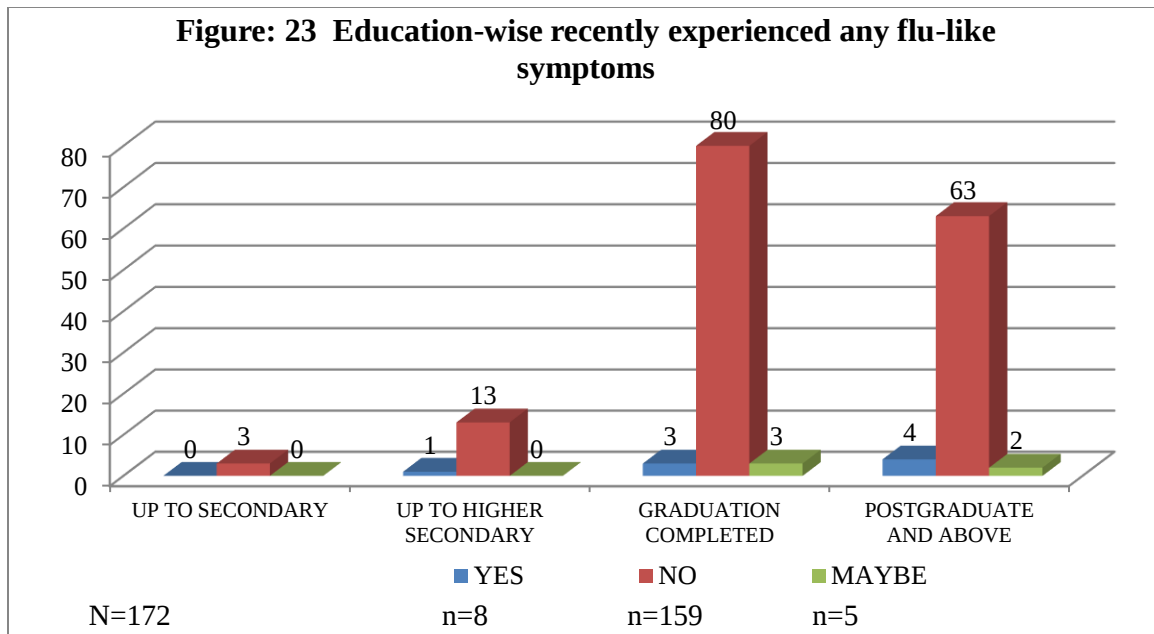
Interpretation: Education-wise graduation and postgraduate population wash more hand with soap/ sanitizer before pandemic than up to secondary and up to the higher secondary population



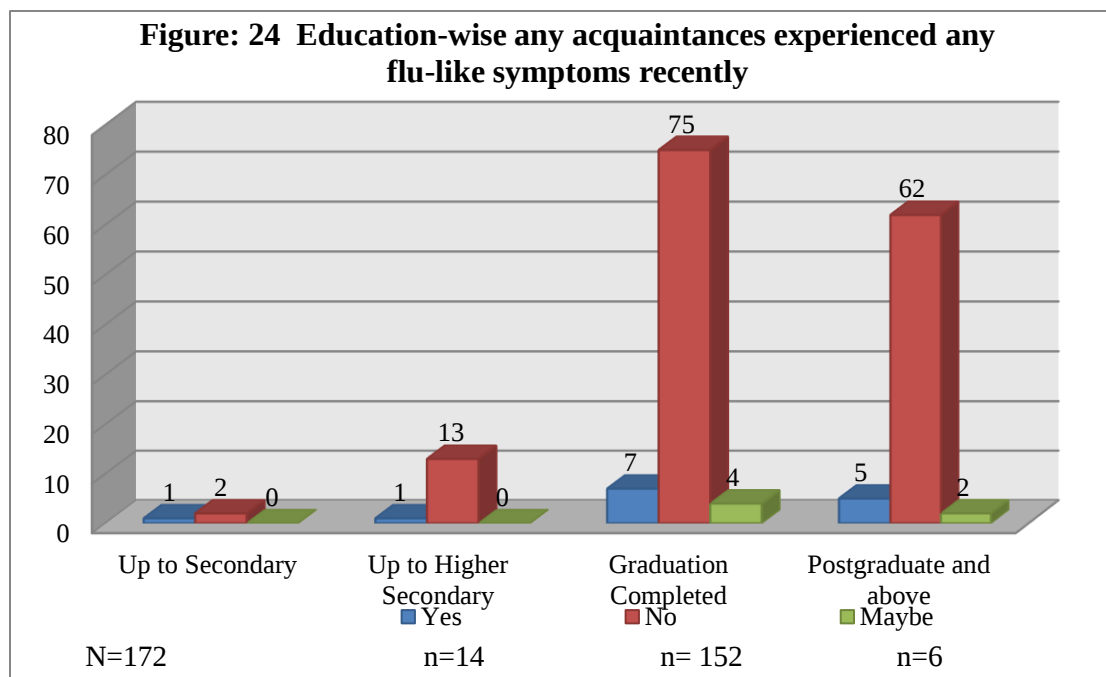
Interpretation: During pandemic education-wise, every population has increased their frequency of washing hand with soap/sanitizer during the pandemic



Interpretation: Education-wise graduate and post-graduation population belief more to become infected with COVID-19



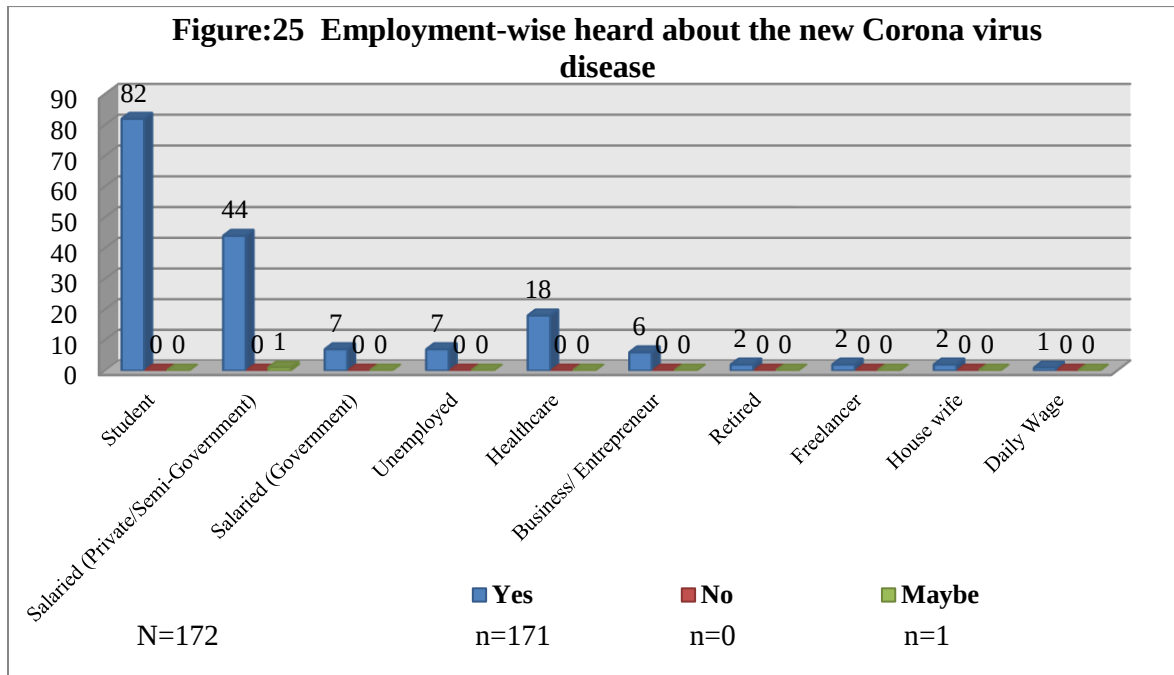
Interpretation: Education-wise graduation and post-graduation recently experienced flu-like symptoms



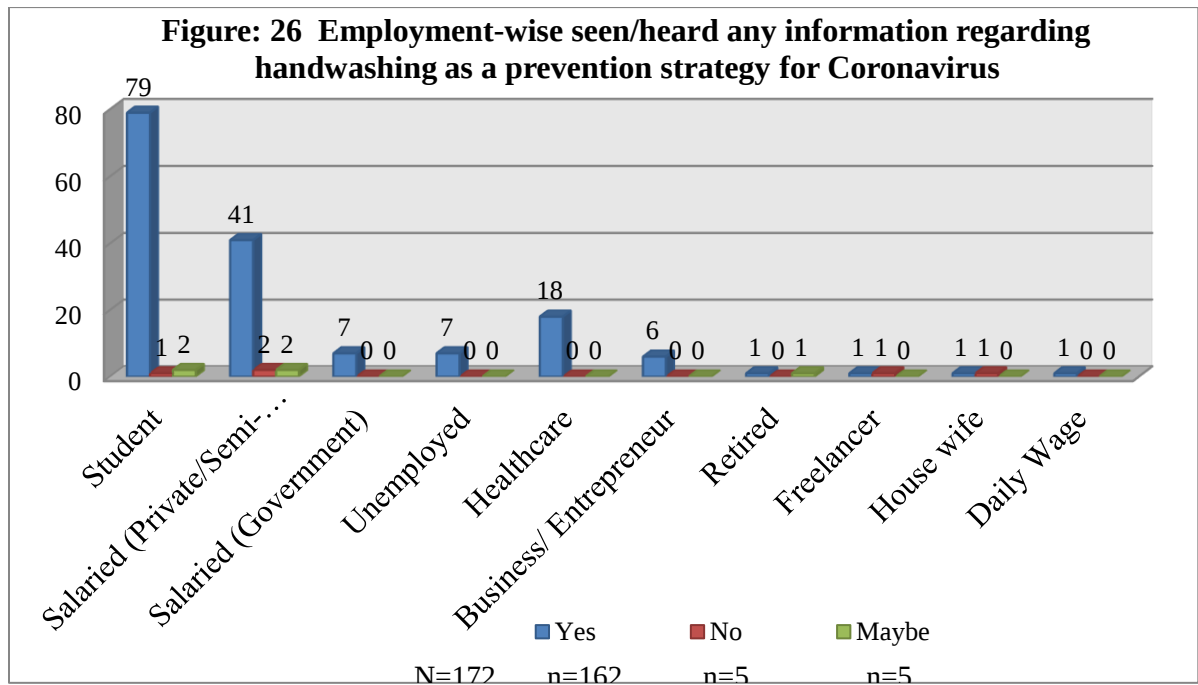
Interpretation: Education-wise graduation and postgraduate acquaintances experienced flu-like symptoms recently

Education-wise Interpretation: Participants has increased their frequency of washing hand during the pandemic.

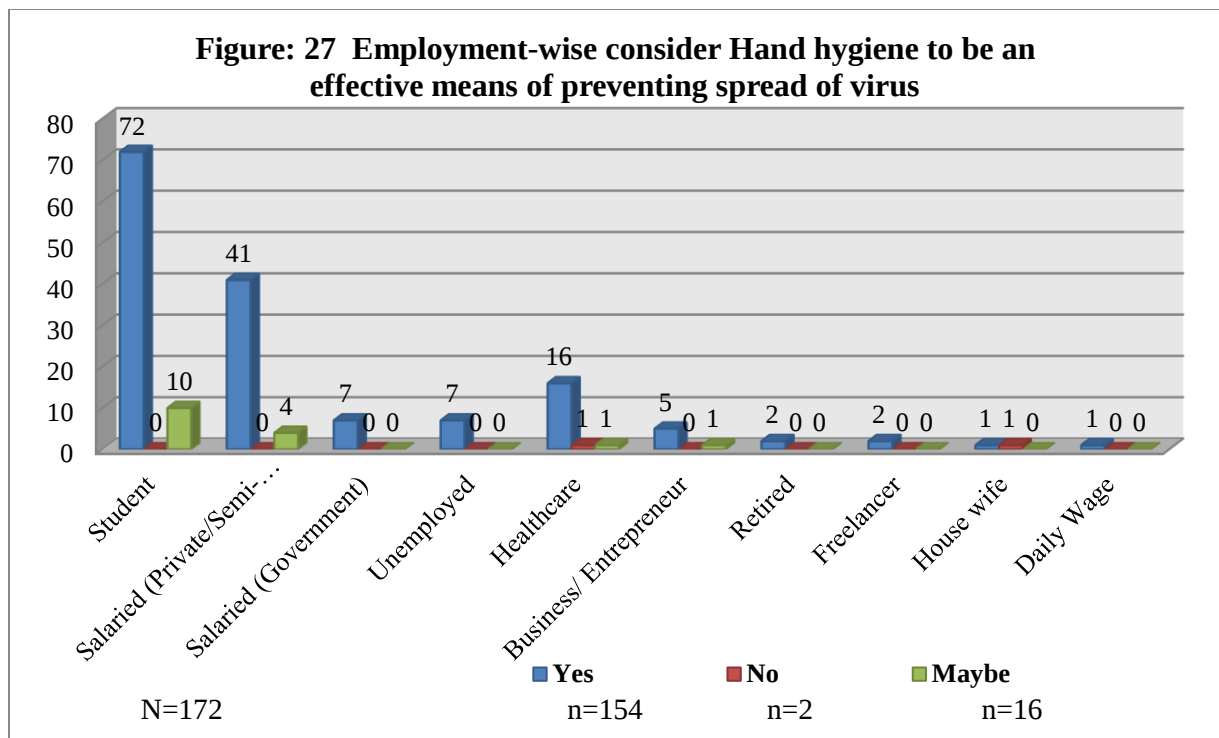
EMPLOYMENT WISE



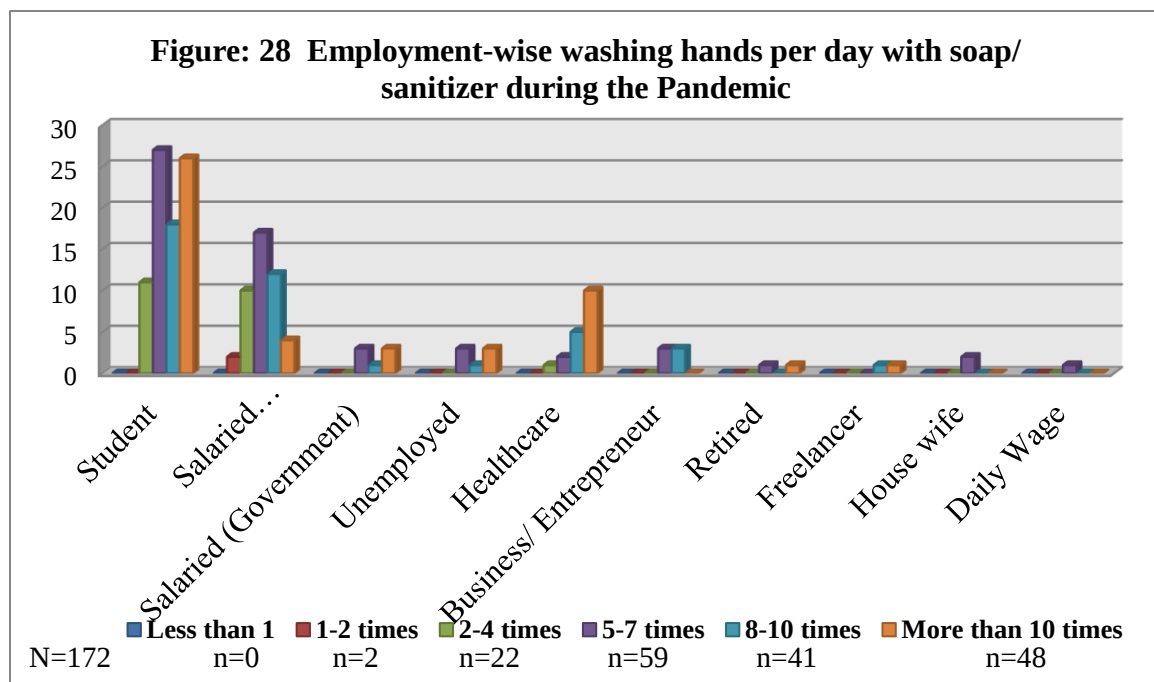
Interpretation: Employment-wise every population has heard about the new Coronavirus disease



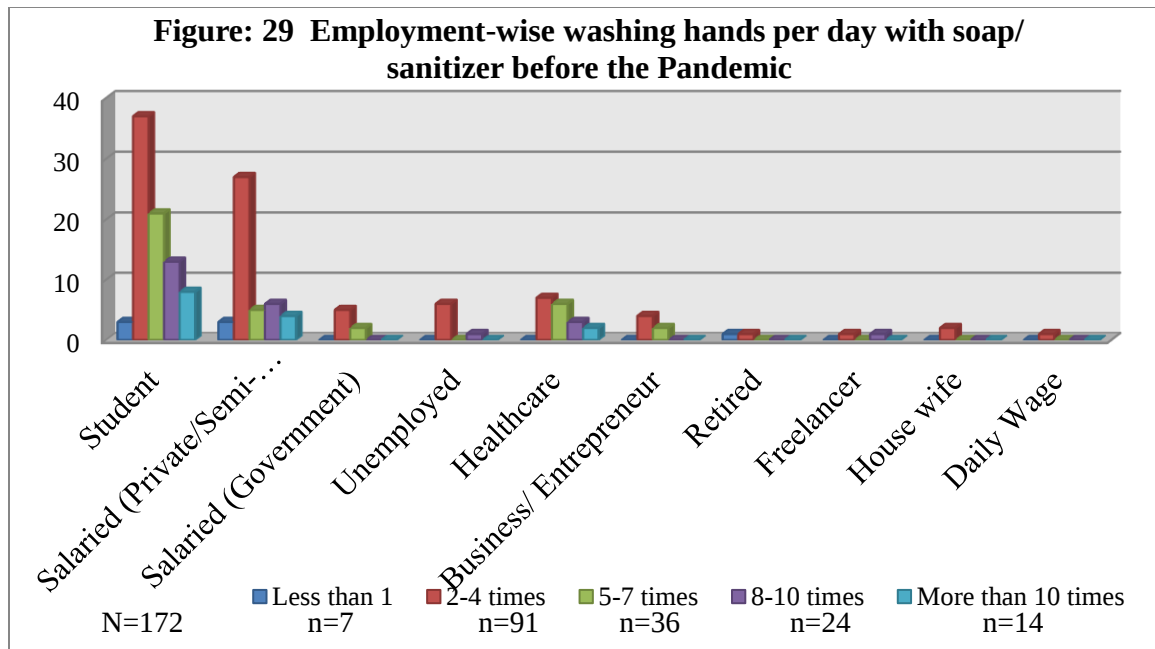
Interpretation: Employment-wise every population has head information regarding handwashing as a prevention strategy for Coronavirus



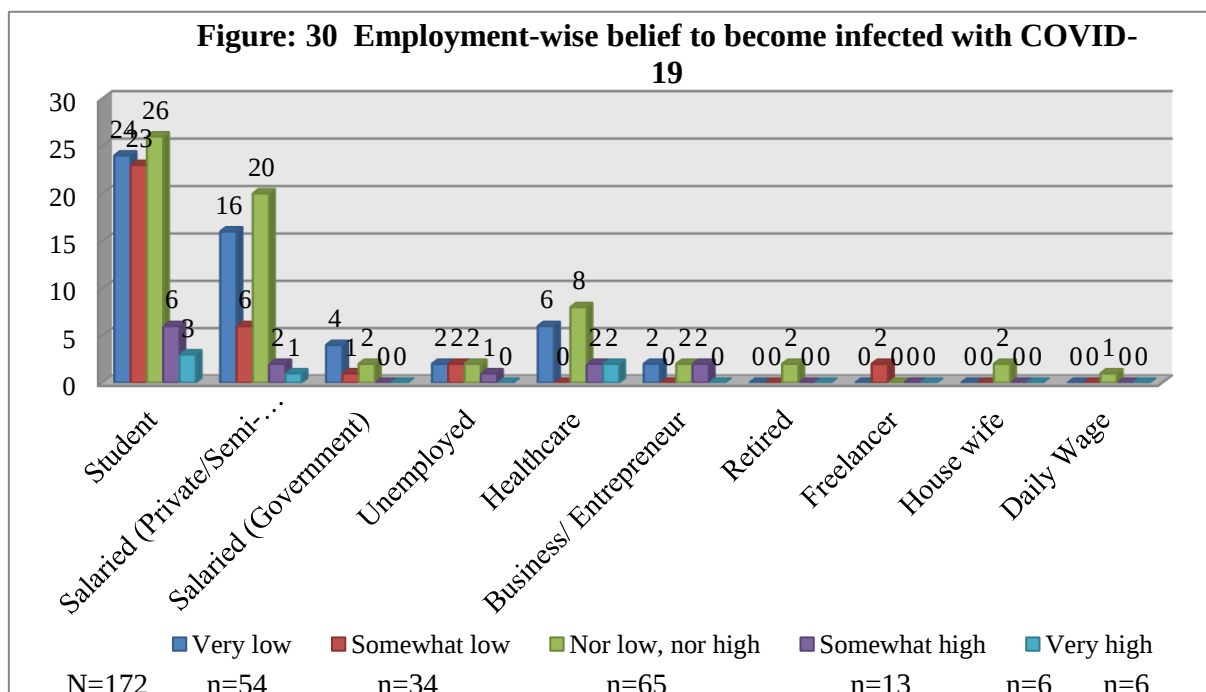
Interpretation: Employment-wise every population has to consider hand hygiene to be an effective means of preventing the spread of the virus



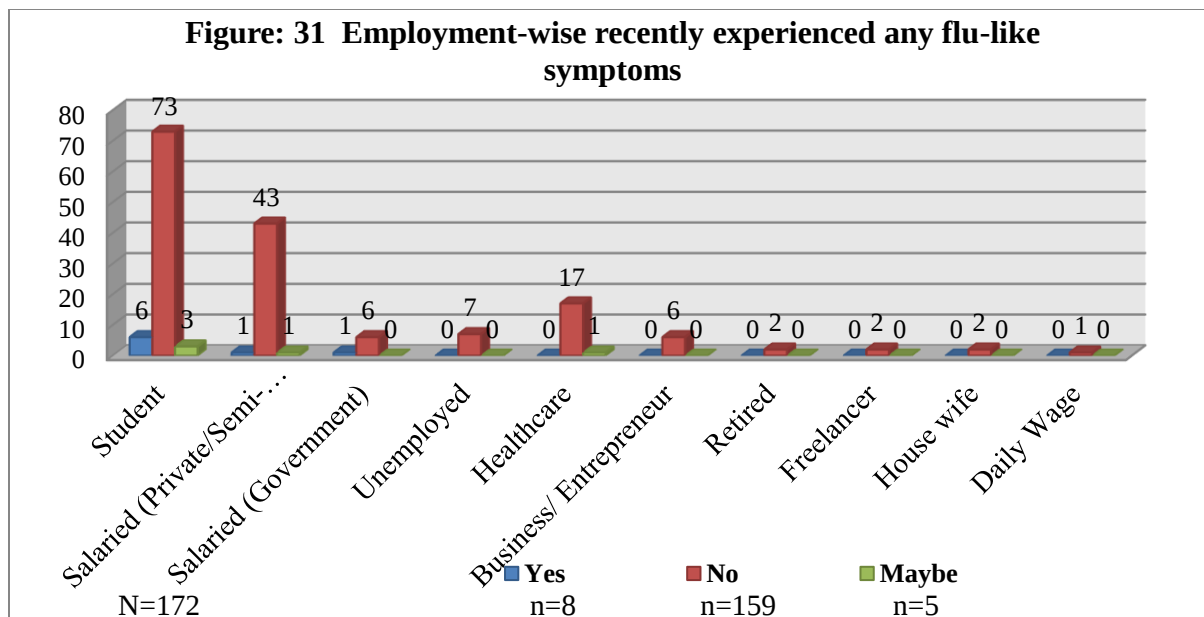
Interpretation: Employment-wise frequency of washing hands per day with soap/sanitizer is more in student, Government and private employment followed by healthcare



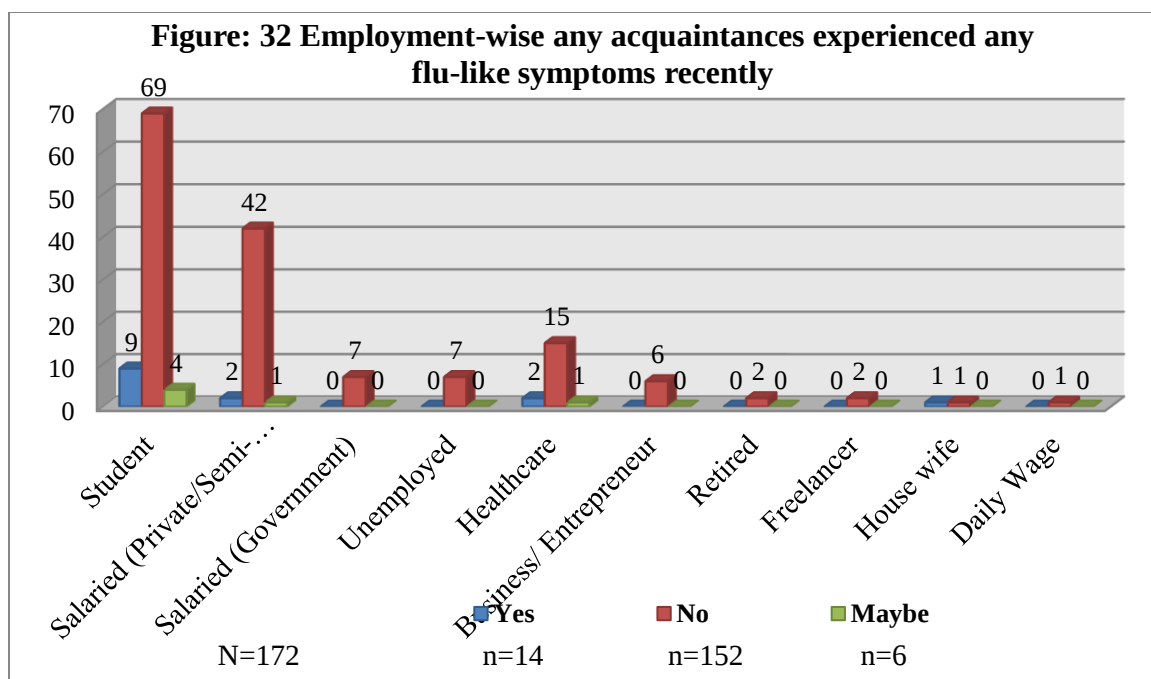
Interpretation: Employment-wise frequency of washing hand with soap/sanitizer before the pandemic was high in student, government, semi-government, private and healthcare employer



Interpretation: Employment-wise student, healthcare followed by Government, semi-government and private belief more to become infected with COVID-19



Interpretation: Employment-wise Student & Government Employer Recently Experienced Flu-Like Symptoms



Interpretation: Employment-wise students, healthcare followed by private/semi-government acquaintances experienced more flu-like symptoms recently

Employment-wise Interpretation: Student, Salaried (Private/semi Government) & Healthcare participate have a higher risk of having COVID-19.