



FACTS, MYTHS AND INFODEMICS IN COVID-19 IN HEALTH CARE WORKERS AND GENERAL POPULATION: AN OBSERVATIONAL STUDY.

Medical Science

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ABSTRACT

Despite the ubiquity of health-related communications via social media, no consensus has emerged what information should be conveyed and how it should be conveyed to avoid creating panic among general population. With lockdowns social media, mass media became as a habit by people for news, information regarding COVID-19 and it is practiced even after lockdown. During the COVID-19 pandemic, mass media, social media and local news has become as the source of a toxic "infodemic" source for public. It contained both solicited and unsolicited advice. No conceptual model exists for examining the roles of media. It is important to first assess the important mis-information, role of infodemics and prevalent casualness among the public regarding the COVID-19. Till mass vaccination is not commenced it is prudent to emphasize guidelines and practices as per COVID guidelines like social distancing, wearing mask, hand hygiene.

KEYWORDS

Health care workers (HCWs), General Population (GPs), Corona Virus Disease 2019 (COVID), Infodemics, vaccination, mask, hand hygiene.

INTRODUCTION

As the novel coronavirus spread in 2019 now known as COVID-19 termed by World Health Organization (WHO) continues to spread across the globe termed as pandemic. With new strain of Corona virus and different surge spread reported across world^{1,9}, it still mounts to strictly follow the preventive guidelines of social distancing, wearing mask and hand hygiene. However, one of the hidden and less explored hindrance in strictly following guideline can be marked for infodemics. The spread of this infection globally termed as pandemic with severe mortality it created public panic^{1,2}. To stop spread many countries and governments follows lockdown. This lockdown has led to dependence on media like television, radio, mobile phones and other platforms like twitter, Instagram, you tube etc as primary source of global news and information^{1,3}. Due to multiple inputs of data globally there was spread of mis-information or information overload which percolate down to public and creates confusion.

An infodemics in general is an overabundance of information, both online and offline^{1,2}. The intention of infodemics can be ignorance, malicious and misguiding. However, the result is same casualness and ignorance of guidelines. While it's true that there is still a lot to be learned about the incredibly infectious and sometimes deadly disease. Guidelines of wearing mask, social distance, hand hygiene are still important and are golden rule of prevention. Many information about herd immunity, boosting local immunity by local drugs, various rumours regarding vaccine adds ignorance^{1,2}. Knowing the exact and types of misinformation and practices in the population is important.

It is also observed difference in opinion about the vaccination and myths about its efficacy slowing vaccination work. This study also assess opinion about the vaccination, knowledge about effect of vaccination among health care workers and general population.

Misinformation and infodemics increases the effects of mental health regarding the disease and creates confusion; threaten precious health gains amenable by following adequate laid guidelines; and lead to poor observance of public health measures by high-risk groups. It reduces effectiveness of prevention and endangers ability to stop the pandemic. Assessment of impact of information by social media causing confusion and difficulty in following guideline is assessed⁵⁻⁸.

Right and selective information is the need and should be supplanted by a single source⁵⁻⁸. Variation in information and attitude of people towards pandemic depends upon many factors like social-cultural differences, socio-economic status, education, geographic distribution of population, local beliefs and local preaching. These factors and long time period of this pandemic is also assessed as a cause of casualness in behaviour.

METHODOLOGY

Aim of this study is to determine various myths, misinformation, and assessment of attitude and effect of infodemics about COVID-19 among the health care workers and non-health care subjects. A cross sectional questionnaire-based study was designed in between the ongoing pandemic. A total of five hundred subjects were included in study. 250 health care workers at Rajendra Institute of Medical Sciences, Ranchi, Jharkhand, India this is tertiary care hospital, and 250 general population both rural and urban subjects were included.

HCWs included physicians, nurses, pharmacists, ward boys, ambulance drivers, cleaning, sanitation staffs, and included group working in COVID-19 Centre and other departments of to avoid selection bias. Subjects with restriction of communication, patients admitted or treated for COVID-19, subjects with psychiatric restrictions or mentally susceptible subjects were not included in the study to avoid any social pressure or selection bias. This study was conducted in tertiary care hospital with dedicated COVID-19 centre.

A verbal explanation about the study was given to the subjects without any upgradation or any information about the COVID-19. The prevailing knowledge by the mean of questionnaire was assessed. After due course of this study, it is mandated to conduct general medical education about the COVID-19 in various groups to clear the doubts, myths and misinformation. Gap between the knowledge regarding COVID-19 in two population selected will be assessed.

This study was based on questionnaire approved by the ethical committee and faculties previously conducted questionnaire-based study.

RESULT

250 health care workers were included in study out of which 243 participated for the study. Out of 250 general population all agreed and participated in the study. The questionnaire was in local language so to make it understandable by the common population also. For this paper and understanding the questions all are changed to English language.

The questionnaire consists following questions which was allotted serial numbers in tabular column.

QUESTIONNAIRE:

1. Is COVID-19/CORONA a viral disease?
Ans: A-Yes, B-No, C- not sure
2. Does this disease spreads by means of sneezing, coughing, contact with contaminated person?
Ans: A-Yes, B-No, C- not sure

3. Does using mask is helpful in prevention of spread of COVID?
A-Yes, B-No, C- not sure
4. In this pandemic, hands should be washed by soap for 20 seconds or more?
A-Yes, B-No, C- not sure.
5. Should we use Aarogya Setu App? (A mobile software developed by the Government to detect the contaminated person and their location and indicating user about their contact with contaminated person or zone.)
A-Yes, B-No, C- not sure.
6. Is social distancing in pandemic important?
A-Yes, B-No, C- not sure
7. What are the common symptoms of COVID-19-fever, Cough, Headache, sore throat?
A-Yes, B-No, C- not sure
8. Is doing test to detect COVID is important?
A-Yes, B-No, C- not sure
9. Does COVID test show false positive result in non-contaminated person?
A-Yes, B-No, C- not sure
10. Should we do plasma donation after COVID?
A-Yes B-No, C- not sure
11. If COVID treatment possible or not?
A-Yes B-No, C- not sure
12. Can we do treatment of COVID at home by consulting a physician?
A-Yes, B-No, C- not sure
13. If a person had COVID infection, he will not have corona infection again in future?
A-Yes, B-No, C- not sure
14. Does Diabetes worsen in covid 19 infection?
A-Yes, B-No, C- not sure
15. Does Heart diseases worsen in covid 19 infection?
A-Yes, B-No, C- not sure
16. Is covid 19 infection more dangerous in elderly?
A-Yes, B-No, C- not sure
17. Is covid 19 infection more dangerous in children?
A-Yes, B-No, C- not sure
18. All if these are corona warriors – Doctors, nurses, cleaning staff, hospital staff, police, ambulance driver, pharmacist-
A-Yes, B-No, C- not sure
19. Corona warriors are important in this pandemic-
A-Yes, B-No, C- not sure
20. Number of days of isolation after covid 19 infection is-
A- 7 days, B- 10 days, C- 14 days, D- 28 days
21. Isolation in COVID is important?
A-Yes, B-No, C- not sure
22. CORONA is a rumor?
A-Yes, B-No, C- not sure
23. In this pandemic should we participate in public or social gatherings?
A-Yes, B-No, C- not sure
24. COVID does not affects health care workers?
A-Yes, B-No, C- not sure
25. COVID as a disease is over now?
A-Yes, B-No, C- not sure
26. Vaccination in COVID will be beneficial in this pandemic?
A-Yes, B-No, C- not sure
27. If anyone in your family is COVID positive, will you do COVID testing in all his contacts, if positive will take physician consultation?
A-Yes, B-No, C- not sure
28. Do you follow COVID related guidelines?
A-Yes, B-No, C- not sure
29. COVID-19 can be prevented by drinking alcohol?
A-Yes, B-No, C- not sure
30. COVID-19 can be treated with local methods like -----
A-Yes, B-No, C- not sure
31. COVID-19 can be prevented by taking local medicines?
A-Yes, B-No, C- not sure
32. Why some people are not using mask---as using mask from long time and it is bothersome?
A-Yes, B-No, C- not sure
33. Why some people are not using mask---it will not prevent COVID infection?
A-Yes, B-No, C- not sure
34. Do wearing mask is difficult?
A-Yes, B-No, C- not sure
35. Using mask on daily basis is costly on individual budget?
A-Yes, B-No, C- not sure
36. Which method are you using to prevent COVID-19 (Answer only if you are using any method or can leave the question.)
A. Hydroxychloroquine
B. Ivermectin
C. Local medicines (if any).
D. Milk with turmeric powder/ home made kadha.
37. Body temperature can be used to check COVID?
A-Yes, B-No, C- not sure
38. Treatment in COVID is possible?
A-Yes, B-No, C- not sure
39. What is your source of information about COVID and its prevention?
A-Training.
B- Books
C- Friends and Colleagues
D- Social Media
40. Does too much of information in media/social media confuses you and makes you irritated and hindrance in following COVID related guidelines?
A-Yes, B-No, C- not sure
41. In COVID-19 coverage by media/social media is unsolicited, unbelievable and confusing?
A-Yes, B-No, C- not sure
42. Knowledge, behaviour and precautions taken by people for following COVID-19 guidelines are appropriate?
A-Yes, B-No, C- not sure.

Health care workers:

	HCW-YES	%	HCW-NO	%	HCW-Not Sure	%	HCW-4 th option	%	TOTAL
1	243	100	0	0	0	0			243
2	243	100	0	0	0	0			243
3	243	100	0	0	0	0			243
4	211	84.4	17	6.8	15	6			243
5	243	100	0	0	0	0			243
6	208	85.6	23	9.5	12	4.9			243
7	243	100	0	0	0	0			243
8	144	57.6	43	17.2	56	22.4			243
9	100	41.1	141	58.0	2	0.8			243
10	153	62.9	75	30.8	15	6.1			243
11	243	100	0	0	0	0			243
12	200	82.3	25	10.2	18	7.4			243
13	220	90.5	23	9.4	0	0			243
14	117	48.1	70	28.8	56	23			243
15	233	95.8	0	0	10	4.1			243
16	215	88.4	14	5.7	14	5.7			243
17	185	76.1	39	16	19	7.8			243
18	243	100	0	0	0	0			243
19	218	89.7	25	10.3	0	0			243
20	213	87.6	0	30	12.3	0	0	0	243
21	243	100	0	0	0	0			243
22	18	7.4	169	69.5	56	23			243
23	18	7.4	225	92.6	0	0			243
24	104	42.7	102	42	37	15.2			243
25	0	0	243	100	0	0			243
26	243	100	0	0	0	0			243
27	243	100	0	0	0	0			243
28	243	100	0	0	0	0			243
29	46	18.9	197	81	0	0			243
30	0	0	243	100	0	0			243
31	53	21.8	190	78.1	0	0			243
32	92	37.8	137	56.3	14	5.7			243
33	85	34.9	109	44.8	49	20.1			243
34	33	13.5	198	81.5	12	4.9			243
35	38	15.6	205	84.3	0	0			243
36	79	32.5	19	7.8	29	11.9	116	47.7	243
37	225	92.6	18	7.4	0	0			243
38	243	100	0	0	0	0			243
39	205	84.3	0	0	3	1.2	35	14.4	243
40	216	88.8	27	11.1	0	0			243
41	215	88.4	28	11.5	0	0			243
42	108	44.4	100	41.15	35	14.4			243

General population:

Q.N	GP-YES	%	GP-N0	%	GP-Not Sure	%	GP-4 th option	%	TOTAL
1	226	90.4	23	9.2	1	0.4			250
2	249	99.6	1	0.4	0	0			250
3	119	47.6	49	19.6	82	32.8			250
4	249	99.6	1	0.4	0	0			250
5	152	61	54	21.7	43	17.2			249
6	247	98.8	0	0	0	0			247
7	235	94	0	0	14	5.6			249
8	144	57.6	43	17.2	62	24.8			249
9	105	42	88	35.2	56	22.4			249
10	203	81.2	40	16	6	2.4			249
11	186	74.4	15	6	46	18.4			247
12	186	74.4	41	16.4	22	8.8			249
13	126	50.4	66	26.4	57	22.8			249
14	206	82.4	13	5.2	31	12.4			250
15	227	90.8	9	3.6	9	3.6			245
16	239	95.6	0	0	10	4			249
17	151	60.4	45	18	43	21.2			239
18	235	94	2	0.8	12	4.8			249
19	220	88	2	0.8	27	10.8			249
20	31	12.4	2	0.8	192	76.8	24	9.6	225
21	208	83.2	0	0	39	15.6			247
22	19	7.6	220	88	10	4			249
23	28	11.2	215	86	7	2.8			250
24	31	12.4	206	82.4	8	3.2			245
25	206	82.4	33	13.2	0	0			249
26	49	19.6	81	32.4	120	48			250
27	239	95.6	6	2.4	5	2			250
28	241	96.4	7	2.8	2	0.8			250
29	33	13.2	168	67.2	48	19.2			249
30	22	8.8	225	90	2	0.8			249
31	63	25.2	151	60.4	35	14			249
32	84	33.6	117	46.8	47	18.8			248
33	84	33.6	116	46.4	48	19.2			248
34	78	31.2	100	40	68	27.2			246
35	142	56.8	71	28.4	27	10.8			240
36	0	0	0	0	76	30.4	156	62.4	232
37	199	79.6	14	5.6	37	14.8			250
38	200	80	12	4.8	38	15.2			250
39	83	32.8	2	0.2	74	29.6	92	36.8	249
40	185	74	38	15.2	24	9.6			247
41	186	74.4	44	17.6	20	8			250
42	199	79.6	51	20.4	0	0			250

DISCUSSION

Among 250 subjects of general population 162 (64.8%) were educated with at least matriculation and 88 (35.2%) were uneducated. All 243 subjects in health care group were having service jobs and among 250 subjects of general population 109 (43.6%) were having service jobs of various kinds and 141 (56.4%) were doing business or work at home. Of among total of 493 subjects of both health care workers and general population 342 (69.4%) resided in urban areas of cities, 151 (30.6%) subjects resided in rural areas.

In both the groups, 243 (100%) in health care workers and 226 (90.4%) said COVID as viral disease. On spread via coughing, sneezing, touch by the infected person, 243 (100%) of HCWs and 249 (99.6%) answered affirmative.

However, on use of mask in prevention of spread of COVID all HCWs 243 (100%) and only 119 (47.6%) of GPs said yes, 49 (19.6%) in GPs said it is not effective and 82 (32.8%) in GPs were not sure about use of mask. Use of handwash by soap only 211 (86.8%) HCWs and 249 (99.6%) of GPs answered yes. On use of Aarogya Setu App 243 (100%) of HCWs and only 152 (61%) of GPs agreed for its use.

Regarding Social distancing; 247 (98.8%) of HCWs and 208 (85.6%) accepted its effect in COVID. 243 (100%) of HCWs and 235 (94%) now were acquainted with fever, cold, cough as common symptoms of COVID. However, regarding COVID test only 234 (96.3%) of HCWs accepted its importance and 9 (3.7%) were still unclear of its importance, in GPs 144 (57.6%) knew its importance, 43 (17.2%) of GPs it is unimportant 63 (25.2%) were not sure about its use.

For assessing the wrong perception about COVID test which is generalised for TRUENAT, RTPCR or Rapid antigen test a question was drafted asking whether COVID test will give false positive in the non-infected person, for which 100 (41.1%) HCWs and 105(42%) of GPs said yes which shows the fear for test among population in general.

For plasma donation 203 (81.2%) of HCWs and 153 (62.9%) of GPs said yes. For treatment of COVID by physician at home 200 (82.3%) and 186 (74.4%) agreed which shows confusion about treatment by right medication in population. Regarding re-infection of COVID among previously infected person 220 (90.5%) of HCWs and 126 (50.4%) said yes and 23(9.4%) in HCWs and 66 (26.4%) in GPs said no they cannot be reinfected and 57 (22.8%) in GPs are not sure.

Questions regarding severity of comorbidities in COVID, regarding Diabetes 206 (82.4%) HCWs and 117 (48.1%) answered yes. Regarding Heart diseases 233 (95.8%) of HCWs and 227 (90.8%) answered yes. More severity of COVID among elderly 215 (88.5%) in HCWs and 239 (95.6%) in GPs answered yes. For more severity among children 185 (76.1%) in HCWs and 151 (60.4%) in GPs answered yes.

Question regarding CORONA warriors: regarding importance of CORONA warriors 218 (89.7%) in HCWs and 220 (88%) in GPs agreed. Regarding doctors, nurses, hospital staffs, police staffs employed in COVID duty 243 (100%) in HCWs and 235 (94%) answered yes.

Questions regarding Isolation and its duration; 243 (100%) HCWs and 208 (83.2%) agreed about its importance. Among HCWs 213 (87.6%) for 7 days, 30 (12.3%) for 14 days, among GPs the clarity on number of days of isolation was mixed and shown 31 (12.4%) for 7 days, 2 (0.8%) for 10 days, 192 (76.8%) for 14 days, 24 (9.6%) for 28 days. This variation showed non clarity of isolation among both the groups.

Questions regarding various myths about COVID, that COVID is a rumour, 220 (90.5%) in HCWs and 220 (88%) in GPs says it is not a rumour, however 23 (9.4%) in HCWs and 19(7.6%) in GPs says it's a rumour, 10 (4%) among GPs are still not sure about it. That one should participate in social meetings, 225 (92.6%) among HCWs and 215 (86%) among GPs says no, whereas 18 (7.4%) among HCWs and 28 (11.2%) still says yes it can be attended also 7 (2.8%) among GPs were not sure. Question whether COVID is ended, 243 (100%) HCWs says no, but in GPs 206 (82.4%) says yes, it is ended which indicates the casualness and mis-information regarding COVID among general population. Whether drinking alcohol will help in prevention of COVID, 197 (81%) of HCWs and 168 (67.2%) of GPs says no it will not be beneficial, but 46 (18.9%) HCWs and 33 (13.2%) in GPs says it will be beneficial indicating the mis-information about COVID prevention and treatment. Other question regarding treatment by local witchcraft 243 (100%) HCWs and 225 (90%) of GPs says it is not possible. But, regarding use of local medicine in treatment of COVID, 190 (78.18%) HCWs and 151 (60.4%) says no, on the other hand 53 (21%) of HCWs and 63 (25.2%) of GPs think it can be treated by local medicines, which however is never recommended by guidelines.

Question about vaccination will help in ending this COVID pandemic, 243 (100%) HCWs and only 49 (19.6%) in GPs Says Yes, whereas 81 (32.4%) in GPs says no, and majority of 120 (48%) in GPs are not sure about the effect of vaccination in ending COVID. Regarding getting tested for COVID when a family member becomes positive, 243 (100%) HCWs and 239 (95.6%) GPs says yes, but difference in opinion about the COVID test but getting it tested is a question of debate.

Questions regarding use of mask; whether using mask for this long period of disease is boring and bothering, 92 (37.8%) of HCWs and 84 (33.6%) of GPs says yes, whereas 137 (56.3%) in HCWs and 117 (46.8%) in GPs doesn't feel it boring or bothering. Question regarding use of mask for prevention of COVID infection, a mix opinion was seen, where 85 (34.9%) of HCWs and 84 (33.6%) of GPs say it is not beneficial in prevention, 109 (44.8%) in HCWs and 116 (46.4%) in GPs says it is beneficial, 49 (20.16%) HCWs and 48 (19.2%) GPs are not sure. Question regarding difficulty in wearability of mask, 33 (13.5%) HCWs and 78 (31.2%) GPs admit its difficult in wearing mask, 198 (81.4%) HCWs and 100 (40%) GPs says it is not difficult to wear mask. Regarding cost of daily use of mask, 205 (84.3%) HCWs

and only 71(28.4%) says it is not costly, whereas 38 (15.6%) in HCWs and 142 (56.8%) in GPs finds it costly for daily use. This pertains to impact of economic burden in following wearing Mask as a general daily life style practice among the population especially in Gps.

Questions regarding use of various drugs in prevention of COVID with or without advice, use of hydroxychloroquine, 79 (32.5%) HCWs and no one in GPs say they used it, use of Ivermectin, 19 (7.8%) HCWs and no GPs used it, while use of local drugs of various discipline 29 (11.9%) of HCWs and 94 (37.6%) in GPs used it, use of local homemade syrups 116 (47.7%) in HCWs and 156 (62.4%) in GPs are seen. This use of Hydroxychloroquine, Ivermectin and other local drugs for prevention of COVID is questionable and not advised in guidelines but seen most commonly in HCWs and indicates misinformation.

Questions regarding source of information and its impact on mental health and individual perception of COVID was evaluated by questions such as, what is the source of COVID information, of which 205 (84.3%) of HCWs and 83 (32.8%) got training, 3 (1.2%) in HCWs and 74 (29.6%) in GPs got information through family and friends, 35 (14.4%) in HCWs and 92 (36.8%) in GPs got information from social media, which contributes as major source. This unprecedented and unsolicited multiple advices are confusing many times. On further asking whether too much of these advices causes confusion and creates difficulty in following guidelines properly, 216 (88.8%) of HCWs and 185 (74%) of GPs said yes, 27 (11.1%) HCWs and 38 (15.2%) GPs said no.

Questions regarding multiple unsolicited and unofficial advices causing confusion 215 (88.4%) HCWs and 186 (74.4%) GPs said yes. Question regarding appropriateness of knowledge, attitude and preventive measures which are followed by general population, 108 (44.4%) HCWs and 199 (79.6%) of GPs said yes, while 100 (41.15%) HCWs and 51 (20.4%) GPs said it is inappropriate.

CONCLUSION

In this COVID-19 pandemic multitude of factors contributes towards spread of infection at fast pace. Among factors casualness in behaviour due to long period of pandemic, use of local medicines, misinformation about COVID as rumour^{10,11}, not using mask due to inconvenience, cost of using mask, uncertainty about effectiveness of vaccine, less confidence about COVID test, burden and confusion by bundle of information available on various social media platforms were few prevalent in both HCWs and GPs subjects. These questions showed us the underlying myths, mis-information regarding COVID-19 which is a contributing factor in second wave along with severity of transmission. To manage these myths, mid-information and infodemics a single window advisory body with equal participation of local leaders and administration is required to spread actual knowledge and to curb the casualness.

Conflict of Interest: None

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