



Bracketing People's Information, perceptions and beliefs about Covid-19 and its transmission with their behavior in Punjab, Pakistan

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Abstract- Corona virus is now declared as an international epidemic disease by international agencies like Public Health Emergency of International Concern and WHO. It is a fatal viral disease which affects respiratory system of the patients and spreads through coughing and sneezing droplets of the infected person. It was investigated, what people perceived and believed about Covid-19 based on their awareness? What were preventive strategies undertaken by family and by government? Could awareness and beliefs be bracketed with their behavior?

Twenty semi structured interviews were conducted. Five participants from each focused city were accessed. Common topics were explored among all the participants to determine distinct perspectives and to identify areas of agreement and disagreement among them. To direct the discussion a semi structured guide was developed. Three basic aspects were discussed as perceptions/beliefs of Corona, awareness and knowledge of the Pandemic, and Behaviors/practices. This study establishes a solid ground for future actions to prevent the future society from pandemics like corona.

Key Words: information, perceptions, beliefs, COVID 19, transmission, behavior

I. INTRODUCTION AND LITERATURE REVIEW

Likewise throughout the world, CORONA VIRUS has proved as an emerging threat for Pakistan. Its first case was reported in 26th Feb 2020 in Sindh province almost after 2 months of its outbreak in Wohan, the province of China. After this its regular transmission is becoming out of control day by day. At the moment it has spread in all provinces of Pakistan. In Province of Punjab, on 11th March first corona case in Lahore was reported. Punjab is one of the populous areas to have regular transmission. Developing a better understanding of Information, perceptions and beliefs of people about Covid-19, its transmission and bracketing it with their behavior can identify areas to target not only for prevention and control measures but for addressing aftereffects.

Corona virus is now declared as an international epidemic disease by international agencies like Public Health Emergency of International Concern and WHO. It is fatal viral disease which affects respiratory system of the patients and spreads through coughing and sneezing droplets of the infected person (WHO,2020).

Contaminated surface is another source of disease communication, when a person has a contact with such type of infected surface and then touches his/ her eyes, nose, and mouth so becomes infected in this way. COVID-19 is spreading with such a speed that individuals and societies should take effective actions to stop the faster transmission and outbreak of this fatal disease and should support the controlling measures taken by governments.

Diseases like COVID 19 have some different and negative impact like death rate, high inflation and unemployment rate on the level of individual community, country and globe.(Xia, Liu, 2014). So the control on infectious diseases is very important to secure public health and welfare. Individuals' perceptions and beliefs play strong role in this regard.

Wu and Zhang (2013) said "the main objective of infectious disease transmission models is to inform and guide policy-makers to prepare for and respond to (re)emerging infectious diseases, particularly when sufficient information from controlled experiments is lacking."

It is the responsibility of infected person to prevent others from the pandemic by practicing safety measures and one of them is self isolation (Funk et al, 2015). Individuals' knowledge related to disease, social

awareness, and public policies can help to prevent outbreak of such diseases and related issues and problems. General behaviors can be changed through awareness(Funk, et al, 2015).

The history of infectious diseases proves that human immune system exists and prevents from communicable and fatal diseases. The solid example is severe acute respiratory syndrome outbreak in 2003, when people in Hong Kong and Beijing adopted precautionary measures like using face masks, washing hands and avoiding public places, and public transport and in this way they ensure their safety from the disease (Fukuda et al, 2015).

Laguzet and Turinici, (2015) said, "In addition, the 2009 A/H1N1 influenza pandemic has triggered a significant proportion of the population to adapt their behavior and take preventive measures such as social distancing."

We refer to models incorporating behavioral immunity as 'behavioral change models' (BCMs), which typically complement models for disease transmission in an attempt to mimic real life dynamics (Cohen et al, 2013). Liao and You (2014) said "In essence, a BCM is a model in which individuals are responsive to external information about the disease and as a result take one or more preventive measures to reduce the chance of contracting the disease."

Information and awareness related to pandemic and the desirable behavior that individuals have to practice can be presented locally or globally in an effective manner(Liao et al, 2015)..

Furthermore, this information can be specified in terms of actual risks ('prevalence-based') or of perceptions of these risks ('belief-based'), as well as a mixture of all the above (Mei et al, 2014). A widely used theoretical foundation for the formation and dynamic nature of individuals' behavior comes from game theory (Zhang et al, 2014). Greer (2013) asserted, "Game theory assumes individuals take rational decisions based on a trade-off that embodies the anticipated rational decisions of all other individuals in society."

Methods:Under qualitative approach, the present research focused on four cities of Punjab, Lahore, Rawalpindi, Multan and Gujrat. Two with high-Corona transmission,one with moderate transmission and one with lower transmission. Twenty participant were selected through snowball sampling technique for interviews. An interview protocol was developed to probe into their Knowledge, perceptions, beliefs, and behavior related to corona and its transmission.

II. METHODOLOGY

During the present pandemic period only possible appropriate way was qualitative method which could provide information on how the perception of corona is constructed in population. What's app interviews of participants from four focused cities of Punjab were conducted to explore their information, perceptions, beliefs and behavior about Corona. Participants were selected through snowball sampling technique. For this, researcher got access to a doctor engaged in corona wards in hospitals of four focused cities on recommendation. Then requested them to suggest other participants who could communicate through what's app or simple call and in this way sampling ball was rolled and a sample of 20 peoples were selected. An interview protocol was developed to probe into their Knowledge, perceptions, beliefs, and behavior related to corona and its transmission. A disclosure statement was explained to all participant on telephone call and sent them in text message too. Their interviews were recorded and saved anomalously except tagging their region /city. These findings can act as ground realities for public health interventions surrounding prevention and treatment by taking into consideration the individual perceptions, believes and behavior in diverse environmental family settings with differing levels of coronatransmission.

Following research questions were investigated

- What people perceived and believed about Covid-19 based on their awareness?
- What were preventive strategies undertaken by family and by government?
- Could awareness and beliefs be bracketed with their behavior?

Study Methods

Twenty semi structured interviews were conducted. Five participants from each focused city were accessed. Common topics were explored among all the participants to determine distinct perspectives and to identify areas of agreement and disagreement among them. To direct the discussion a semi structured guide was developed. Three basic aspects were discussed as (1) perceptions/beliefs of Corona, (2) awareness and knowledge of the Pandemic, (3) Behaviors/practices

Sampling and Recruitment of Participants

Purposive sampling technique was applied to identify information, perceptions, beliefs and wellbeing of population of 4 cities. Further Snow ball sampling technique was used to recruit participants from each city. At first, a doctor from each focused city was selected on recommendation of active society members. Then requested him or her to suggest a relevant person, keeping in mind the purpose of research, they were also requested to first nominated participant by doctor for another and so on. In this way 5 participants from each city was selected. Participants' informed consent were obtained verbally on Whats' app call and assured them voluntary nature of participation and the confidentiality of responses. They were informed about recording of their interviews. Interviews were transcribed and coded using the NVivo version 7 software.

Participant Description

Participants were the heads of households from the 4 cities, a total of 20 people participated: 11 women and 09 men. Four doctors were purposively recruited from each city. One participant recovered from Corona was also included. All the participants had at least one child.

Age range was 31-62 years old with average 31 years. Among 20 participants 4 were doctors, (2 males and 2 females), 3 were Shopkeeper , 2 had private job, 1 widow, 5 were government employee, 3 were overseas employee who were returned from Dubai, Saudi Arabia and UAE. Education wise 1 was elementary passed, 4 were secondary school passed, 7 had graduation , 4 had MBBS while 4 had master degrees.

III. RESULTS

Thematic analysis led to three major themes: (1) beliefs about the way corona is transmitted (2) Corona prevention strategies in household and community environments (3) behavior and practices. First two themes are reflection of participants' information and awareness. Preventive strategies undertaken by family and by government were further differentiated.

Beliefs about Transmission

There were two main sources of Participants' beliefs about the way Corona was transmitted: messages spread by the media, and preventive campaigns implemented by health institutions and government. In general, the participants were not clear and were confused about corona transmission. It was speculated that it was transmitted through person-to-person transmission.

This idea of person-to-person transmission is played out in the collective imagination due to the corona awareness campaign and programs. It was also believed that every person who had a travel history is suspected as is shown in the given below evidence:

And when there are four or more people in a family among them one having travelling history, are the all confirmed cases? or suspected?... because my friend got positive corona test when she came back from Iran first, later her mother got sick, then her younger brother, and so on two more people living in the house. Like flue it spread, its hundred percent sure. (GP2)

Thematic analysis identifies that they confuse the mechanism of Corona transmission with the transmission mechanism of common flue. This confusion is reinforced by knowing of many peoples within the same space-time.

Some of these beliefs about the contagious nature of Corona are supported by the participants because key information is not presented in a clear and simple way. This perception may impact prevention, safety practices.

It was also discussed that immunity system also play a vital role. All the peoples around confirmed corona persons are not conformed but suspected.

A Doctor from Lahore opined that

The patients having strong immune system was recovered soon. (LP1)

Anchors and Experts on TV Chanel was informing that coronais transmitted and it is true... if a person has a positive test, everything is transmitted to another person. That's true. That's why confirmed people should be isolated (MP3).

This belief is not only found in those where transmission level was high but even among those from area of low transmission level like Multan. These data indicate the importance of awareness campaign. Beliefs about the corona could affect care, and safety precautions and strategies. In two cities, participants mentioned the need to "isolate" the confirmed cases from other people to avoid spreading the virus: Interviewer: "How your friend became positive corona case?"

Interviewee (RP4): " He just went to buy vegetables and get caught by virus."

I: "What does isolation mean?"

P: "they should be kept separate." (GP3).

The idea of isolation can be practiced in various ways and two of them are avoiding suspected and avoiding direct transmission. This perception of the need for isolation was expressed as follows:

The confirmed person need to be covered... be isolated from other people, wrapped with Kit, or something like that. So that the virus doesn't transmit to the others around. They should be kept at least 15 days in isolation. (LP4)

This belief is mentioned throughout four cities with both high- and low- corona spread; the concept of isolation of confirmed and suspected peoples is part of social representations of corona as a contagious disease.

Corona is transmissible person-to-person, this concept is part of the local knowledge that people use to fight virus by isolating themselves, stay home and keep safe themselves. In one of the city Lahore with high occurrence, the participants anticipated that virus stays on the surface and contact with that surface transmit it.

It is informed that if you touch a surface which is touched by a confirmed corona patient, you can grab virus. I know the importance of wearing gloves outside the homes. (LP2)

This idea about transmission through sneezing and coughing may be related to knowledge about how prevention of other viral diseases requires avoidance of contact with bodily fluids like blood sweat, spawland saliva. These beliefs about corona transmission are intensified when a person dies from corona; this prompts other measures to avoid transmission:

People did sterilize, threw away the bedsheets even bed of the patient, the clothes he wore, they sterilized everything... do you know the behavior of other peoples? They kept social distance, the people nearby stayed at distance, they protected themselves...Because everyone knew they had to protect themselves, obviously they distanced themselves. Only few went to his burial.(RP5)

Stigma and contagious nature of virus need more debate as many participants condemn the act of distancing oneself although they knew the need to protect themselves. The confusion about transmission mode of virus led to this type of community response.

All participants including doctors identified contact as the importer of the virus, but how corona spread, the ways of transmission create confusion. The participants discussed ideas and beliefs related to modes of transmission. They opined as:

Lack of information..... I think so..... I witnessed, when she was warned that she could get infected, few other nearby toldno.....no.....it is not contagious, contact could spread it....To whom she believe? What could be her response ... when she was confused about transmission mode.....contagious or not, or only contact with a positive case. (MP3).

People from different cities have different mindsets. Lahore is advance, peoples are comparatively more educated and have more exposure to new information, than Gujrat, Rawalpindi and Multan. Their diverse beliefs and perceptions about corona transmission come from their previous experiences and socially shared concepts about the pandemics and epidemics in the area. They are based on practical experiences dealing with other diseases like dengue, various types of flue and Congo virus etc and using that experience to understand reality. Only participants from Gujrat (medium occurrence) referred transmission through the physical contact (hand shake, hugging etc) in a more definitive way:

Handshake is the source of transmissionI know.....

I believe that by shaking hand with a person with positive test will make you too positive for corona. (F3P1)

Four of the participants were doctors and one was nurse, they had received just information not training about corona. They said more information and latest specific training could increase awareness about corona transmission. Peoples are confused about means of transmission and spread of Corona even those who had direct relation with confirmed cases and who has experienced of it.

I had cough, few days later flue after corona test I was confirmed victim... but I did not know how I caught it. Most probably in hospital through sneezing of any other person.(RP4)

This lack of information and confusion develop an attitude toward the pandemic that may lead to their behavior including stigmatization of people (through the isolation).

Behavior and Practices

It was noted that beliefs and behaviors of the people were not correlated. They had the awareness about covid-19 transmission and its precautions but they didn't follow the advice and rules for its prevention.

I know about that the whole world is suffering from this flue and it is transmitted through touching but how can we avoid it (touching) -----ok----- How can I leave my job? (RP3)

Happenings can't be stopped. I don't like to sit in home under corona fear. (GP2)

I am a doctor, I asked a patient please wear Mask you have flue. He said ----Really? I will not, it is just formality. (MP1)

I was surprised when my friend invited me to play cricket last Sunday. (RP4)

I used to do grocery every week end. I go outside fully equipped with Mask and gloves. I maintain distance in metro. (LP3)

I often order for home delivery try to avoid go outside. (LP4)

Hand washing after some time with hand sanitizer has become habit of me and my kids but my wife consider it unnecessary. (GP3)

I asked my relatives and friends please don't come to see us. I am available on phone 24 hours. (LP4)

There is no need to hide in homes due to corona fear but come out for its remedy.(GP2)

Now we have become used to Corona, It's not a new thing now. People in the world has suffered from plague and many other pandemics before. (RP2).

Diverse behaviors of people were observed. Some were too concerned with pandemic and others were took it lightly. These differences in behaviors are due to lack of education and different environment of places.

Prevention Strategies

Outbreak of Covid-19 has perplexed the whole world. Travel restrictions, social distancing, self-isolation and a novel mania linked with sanitized practices are common prevention measures taken throughout the world. Few participants from Multan and Rawalpindi, cities famous for their religious history and people conservative to a little extent believed that these preventive measures are parallel to those of from Islam.

I was regular but now punctual in my prayers so I need no extra preventive care for myself.(MP4)

The Holy prophet's saying support quarantines. When there is epidemic, there should be no in and out of people from that specific area. (Sahih al-Bukhari))

Generally, Isolation and social distancing were the primary strategies in corona prevention that was mentioned by all the participants from four focus cities with either high-moderate or low-corona cases. For example:

Self-isolated and keeping social distances through staying homes can control epidemic (LP5).

In the case of Covid-19, the information shared by participants about the importance of quarantines in prevention reiterates the need to maintain social distance. Social messaging from the government may also shape this perception of prevention. Stay home ---stay safe slogan is one of the most popular slogan to reduce confirmed cases in which peoples are encouraged to keep a social distance to prevent the spread of virus. Differential risk is perceived for people of focused cities who undertake or do not undertake these measures. However, these preventive measures are not localized only at the household level. Lock down is an effort by government to minimize these risks at the community level. In all of the cities, the informants recalled situations of conflict with colleagues and other peoples for not maintaining the social and physical distance. Because of this, they recommended that the authorities impose a strict lockdown:

For people to put some pressure on them, it will yield positive results. (LP3).

spread of corona are limited, as mentioned below:

We are struggling from home that the corona doesn't spread... but we don't have a government support , we have to do all routine jobs few can be done by staying at home but for others we have to go outside. (LP3).

At an institutional level, lack of preventive strategies has also been reported by doctors and a nurse participant. These health professionals showed concern on safety measures for them and coordination among the peoples, doctors, and the government.

Maintaining social distance is, on one hand, considered as individual responsibility while imposing Lock down and closure of all working places were recognized as prevention strategies undertaken by government. Use of Masks, gloves , sanitizer and washing hands for 20 seconds were considered as personal individual efforts but it was suggested that it should be compulsory for everyone. Government should take step to impose it on people to direct them for their serious behavior towards corona. Beyond these general forms of corona prevention, there are others that are not commonly practiced but prevails to a certain level like cleaning door handles , avoiding junk food, relying on homemade food protein rich food tied to people's awareness, attitude and behavior.

Only one who know that protein rich food develop immunity in body for corona will take it. What are proteins and immunity-----majority of our people don't know (RP4)

Lack of vegetables, pulses, fruits and meat in slum areas of four cities has complicated the control of Corona. Some slum areas in four cities have supplied rashin in the homes; however, other homes of deharidar still need to supply Rashin and request other health services. These slum areas reported the importance of Rashin on regular basis.

There is a gap between knowledge and practice, Media reports and government agencies pointed out peoples' individual behavior and practices even though individuals indicate that they execute measures to keep themselves and other safe. It does not mean to blame individuals instead it shows how knowledge of what they are supposed to do may influence their reporting and intentions of prevention practices.

Majority of the participants opined that focus of all government campaigns should be on both to *control* corona outbreak and to *prevent* it from occurring. They observed:

In start, focus of government was on control of epidemic but gradually it transferred to preventing it to occur. (GP3)

Taftan quarantines served nursery for corona instead of controlling it. (GP2)

For the participants, epidemics need quick and timely action; delay in taking actions would bring huge damage. It can be said that the absence of pre-planning and delay is the result of poor public planning to deal the situation. This study establishes a solid ground for future actions to prevent the future society from pandemics like corona.

IV. DISCUSSION AND CONCLUSION

Coronal is a new and novel disease and for this reason, it was named as "Novel Corona".

Theory of social representation says that the basis of social practices lies in the ideas, beliefs and the meanings attached and interpretations made for certain social norms and rituals.

The participants of present study were a little bit confused about the transmission mode of corona virus. Corona cases are being multiplied in days so in this particular phenomenon corona cases are clustered in space and time, giving the appearance of direct transmission (Collinson et al, 2015). Corona can be transmitted directly from person to person.

It is apparent from the results that corona is transmitted through personal contact, coughing, sneezing and objects. They also believe that it can be transmitted from person to person so it is suggested that individuals may be making an association between corona and other infectious diseases, such as influenza with which they may have had a longer history and more experience. Kassa and Ouhinou (2015) said, "Thus, people incorporate information and beliefs from other diseases into their interpretation of the transmission of corona. Future information and/or education campaigns should emphasize that corona can only be transmitted through coughing, sneezing etc."

(Althouse and Hébert-Dufresne, (2014) said, "The concept of isolating individuals from interacting with other people should be discouraged as they could lead to rejection or social isolation as one of the participants mentioned. These beliefs could influence the prevention measures and may lead to stigma of corona as is evidenced in some of the discussions."

Present epidemic is a complex phenomenon in which it is difficult to control and prevent because it appears in 14 days and during its incubation period, is difficult to identify. So the people living around the infected person are in a vulnerable situation. Frequently provided awareness, health related guidelines and self isolation can prevent to expose individuals in this fatal disease (Oraby et al, 2014). The study also reveals and it is strengthened by a previous research that significant information is being passed from doctors to patients and their caregivers during diagnosis. These opportunities may lead to positive outcomes (Greenhalgh et al, 2015). The study revealed and the results were strengthening the previous study that isolating an infected individual can reduce probability of disease and will enhance prevention (Fast et al, 2015). The study also established the fact that active social participation can play a vital role in the prevention of disease and can lemmatize the chances of fast spread of pandemic (Misra, et al 2015). Study is also in accordance with Greer (2013), he said, "Under a social participation focus and cultural significance should guide prevention practices, beyond the biomedical prescriptions. Because community members recognized the need for action beyond just their own households, actions that mobilize the community toward social participation, such as clean-up campaigns may be successful. Social participation often varies by community, and higher rates of participation are associated with more success in reducing."

THE results are aligned with Fithen (2003), he said, "With the corona virus pandemic, people all over the world have become more aware of the best practices during a pandemic, from careful hand-washing to social

distancing. Countries across the world declared mandatory stay-at-home measures, closing schools, businesses, and public places.”

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