



Impact of Media Information in the Development of Novel Coronavirus Symptoms without the Disease: Nocebo Phenomenon

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Introduction: Nocebo works on the human belief system, believing that one can be infected with Covid can be understood by Nocebo.
Purpose: The purpose of this research study was to see if the media showing coronavirus news can influence the development of covid-19 symptoms without the disease.
Methods: This study adopted a Qualitative Research Design. For this study, 9 participants were interviewed. Thematic analysis was used for coding the data.
Results: Results of the study indicated that fear threat was noticed throughout the pandemic which aroused anxiety in their life which also included, fear of infection, loss of loved ones, and inaccessibility to various things. This fear threat seems to be aroused from the constant media influence, and there are studies that support the results.
Conclusion: The responses received from the participant indicated fear and anxiousness as major factor for developing the symptom.

Keywords: Nocebo; novel coronavirus; media.

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1. INTRODUCTION

Nocebo, a not so recent phenomenon but which shook the research, medicine and psychology field to a next level, nocebo is usually very much associated with Placebo but in reality it the exact opposite of it.

It was in the year 1961, a person named Dr. Walter Kennedy coined the word "Nocebo" [1]. **Nocebo** derives from a Latin word which means "I shall harm you", it was discovered as a counterpart of Placebo [2].

After the last pandemic in India which can be dated back to the year 1957, after 63 years to this we experienced a global pandemic, which eventually made everyone to stay inside, some lost their job, some of them worked from home.

According to WHO, Coronavirus disease, called the Covid-19, is an infectious disease is caused by a newly discovered coronavirus [3].

Coronavirus emerged in December 2019, caused by the SARS-CoV-2(severe acute respiratory syndrome coronavirus 2), and said be originated by Bats. It has been noted that coronavirus first started in Wuhan, China and then slowly started its spread both inside and outside of China [4].

One can get infected by Covid when they breathe in air which contains droplets or airborne particiles, the risk increases when someone is in the close primary contact with someone who already has been infected.

Covid-19 along with it brought a lot of problems associated to mental health. It can be very common for people to experience such things due to the overwhelming experiences and the constant fear going around and also the fear of getting infected.

The anxiety increased due to Covid-19 news through mass media was reported to be highest around 27.3% in the age group of 40-49 and it was found to be lowest but 14.49% in the age group of 20-29. It was also seen that about 43.18% of the people who were in the age between 30-39 years developed fear and people of age group of 50-59 age felt panic due to Covid-19 related news in media in about 28% [5].

One of the results of the study conducted by Department of Clinical Psychology of Tilburg University and Utrecht University, Netherlands

showed that 46.22% concerns were that "Loved ones get very ill or die" and 19.45% were concerned about "That it may infect too many people and turn uncontrollable" [6].

In a meta-analysis study conducted it was observed that, there was relatively high rates of symptoms of anxiety were found around 6.33% to 50.9%, the symptoms of depression to be around 14.67 to 48.3%, post-traumatic stress disorder (7% to 53.8%), psychological distress (34.43% to 38%) and stress to be around 8.1% to 81.9% were reported by the general population during the covid-19 pandemic. Which basically helps us understand that covid-19 is associated with high level of psychological distress among general population. (Impact of COVID-19 pandemic on mental health in the general population: A systematic review) [7].

The fear towards COVID – 19 was greater among demographic variable such as Females, married people, lower educational status and health care workers emerged to be at a higher risk. Married people may show greater fear of Coronavirus due to their sense of responsibility and care for loved ones [8].

Media refers to the sharing or rather communication of information through various modes, channels so that it reaches the appropriate audience. The Different modes through which news or information is communicated are newspaper, news channels, social media, magazines, radio, billboards, and internet. The media has the ability to reach a large number of populations at one go [9].

The evolution of TV took another leap during Pandemic, watching TV was only during the morning with a cup of tea, or post 8-pm slot time, now it became a prime time, day in and out. Until Pandemic hit, "News" was referred as an adult type of content to watch, but after the pandemic hit there was no discriminatory age barrier seen [10].

A study conducted by on Anxiety-Inducing Media: The Effect of Constant News Broadcasting on the Well-Being of Israeli Television Viewers, showed results like a majority (> 70%) of the viewers said that they found the newscasts to be stressful but yet that they were having hard time avoiding it. About 7.7% of the viewers from there participants reported experiencing all the four symptoms, and 17.1% reported at least 1 symptom. In the study they also found a statistically significant

correlation was found between the report of negative attitudes towards the newscasts and the report of at least one anxiety symptoms. There was also a statistically significant correlation found between the increased frequency time of watching the news and at least reporting one anxiety symptoms [11].

Research conducted in Bangladesh to understand the social and electronic media exposure and generalized anxiety disorder among people during covid-19, the findings show that around half of the surveyed population experienced a spike of anxiety (49.1%) during the pandemic, ten times higher than the national anxiety rate in 2019. The participants with an increased social media exposure of over four hours per day experienced a higher level of anxiety, then compared too other participants [12].

Now, let's see the last segment of this paper, we already spoke about how due to pandemic people were stuck at home, and in a constant need to get information about Covid-19, and also because of boredom everyone's frequency of watching TV news channels increased, and due to the constant information about the Covid-19 majority people started showing symptoms of fear and anxiousness, now let's understand how this anxiety and constant fear among people can actually lead to development of Covid-19, but without the symptoms.

So, this is where the Nocebo comes over, the development of covid like symptoms because of constant fear of getting infected after watching News, is said to be the Nocebo phenomenon.

The patients believes as to he/she will get some adverse effect because to it, it purely works on belief system, such effects can be physically experienced by the patients. It is seen by experts that Nocebo effect is possible more than the placebo effect because of how negative perception is easier to form then positive perception.

It was mentioned in one of the articles by Medsafe that Nocebo effect has a link or rather say is influenced by the "Media Storm" [13].

Research study that is done on between Covid-19 and Nocebo, the results showed that Certainty of being infected with COVID-19 and anxiety predicted 27% of the variance in

reporting of COVID-like symptoms. Also, certainty of being infected predicted the report of COVID-like symptoms. They also concluded their research saying Believing to be infected with COVID-19, along with anxiety, can enhance the severity of COVID-like symptoms. Thus, the nocebo effect was due to both cognitive and emotional factors and was higher in females [14].

From all the Review of literature that is been mentioned and understood, it can be clearly seen how the things are linking. Researches showed that because of lack of information and also boredom people started indulging in watching more News either from the T.V for any kind of e-platform, so watching of all this caused people anxiety, fear of getting infected and researches also confirms that people at least showed 1 symptom of anxiety which was associated with continues watching of the News. So, this anxiety or fear of getting infected caused people to develop Covid like symptoms, which then proves because the test of Covid comes out to be negative.

So, the main rationale behind the study is that, there is only handful of researches done on this topic especially Covid associated with Nocebo, [15] this research was conducted in Greece but there is no study conducted in India and either the research is quantitative in nature or systematic review [16] which does not yield deeper understanding, so this study is aimed to find out if Media can impact and how it effects causing impact to which factor. This will include ruling out all the possible errors which can be the reason to showing covid like symptoms, even though the test comes as negative.

2. METHODOLOGY

The purpose of this research study was to see if the media information (news or social media) showing Novel coronavirus information can influence the development of symptoms.

Purposive Sampling technique was used for the study.

This study adopted a Qualitative Exploratory Research Design, using semi-structured interviews. Semi-structure interview questions were prepared, the questions were based on covid, usage of screen time, like tv, phones, changes in lifestyle during covid and the interview questions were given for expert validation and the changes suggested was

incorporated and this study adopted an inductive method.

2.1 Participants

For this study 9 participants were interviewed. The inclusion criteria for being able to participate in the study was, that participants should have had covid symptoms, minimum of 3 symptoms, after the symptoms were seen they got the covid test done, but the test came to be negative. And the exclusive criteria were that, they should don't suffer from any chronic illness, they should don't have any co-morbidity, and one of the important criteria was that no one from their family should have had covid positive around that time, nor they were in any primarily contact that they consciousness met. Since getting such participants having these inclusion criteria was difficult, no demographic inclusion criteria was kept. Out of the 9 participants (5 females, 4 males) and the age ranged between 20 – 60 years, and all participants were from the state of Maharashtra.

2.2 Procedure

Google forms were circulated, to select participants who fulfil the inclusion criteria. From google forms contact no were collected, and then telephonic interviews were scheduled. Before starting the interview, consent was taken, and basic information like, all the interview responses will be kept confidential and only be used for the research paper was informed. Before recording the interview, permission was taken. The interviews were call recorded and the interview lasting between 15 – 20 minutes, the author interviewed all the 9 interview.

2.3 Data Analysis

For this research thematic analysis was used as the data analysis method. The call recording of the interview was written in form of transcribing verbatim. Thematic analysis was used to identify the codes from the interview transcripts. To code the content, process like getting familiar with transcript was important which was achieved by reading re-reading transcripts, and highlighting few important contents from the transcript, and then generated relevant codes from the highlighting content using NVivo software for the code. Many codes were generated and then using the codes, sub-themes were made by clubbing in the codes, and then classifying those sub-theme by themes.

3. RESULTS

The overall mean age was 32. The 9-participant included 5 women and 4 men, with mean age of 33.2 for women and 30.5 for men. Out of all the 9 participants, 3 of them are married while 6 of them are unmarried, as listed in Table 1.

The overall Themes emerged using Thematic Analysis are Anxiety, Fear, Media Influence and Trace of Nocebo each have been explained along with its sub-themes below.

3.1 Anxiety

The first theme emerged under this paper is “Anxiety”, anxiety is normally defined as state of fear and persistent worry. But here in situation of covid, anxiety as commonly seen around individual of various age group, everyone had their own reason to feel anxious. From the

Table 1. Summary of the Participants demographics

Code	Gender	Age	Marital Status	Educational Qualification	Symptoms
01	Female	60	Married	5 th Std	Fever, no taste, and body pain.
02	Female	45	Married	12 th std	Fever, shivering, cough, and no taste
03	Female	21	Unmarried	MA Economics	Sore throat, weakness, fever, cold and cough
04	Female	20	Unmarried	2 nd year B. Arch	Fever, Cough, body ache
05	Female	20	Unmarried	3 rd year BA	Severe cough , Fever, smell and taste was impacted
06	Male	48	Married	BCOM	Fever, cold, no smell
07	Male	28	Unmarried	MBA	shivering ,Cough, fever, no taste
08	Male	26	Unmarried	MBA	Fever, cough, dry throat and cold.
09	Male	20	Unmarried	BCOM	Fever, Cold, Cough and no taste.

Table 2. Themes and subthemes emerged through the analysis

Themes	Subthemes
Anxiety	Low Job Security Loss of Human lives Risk of covid to family Insufficient food supply
Fear	Fear of getting infected Inaccessibility to hospital
Media	No escape from Media Curiosity Media Credibility
Trace of Nocebo	

responses collected from the most participants it is seen that they were anxious about their if they lose their jobs, loss of their loved ones, insufficient food supplies because of lockdown and anxiousness that their families may get infected.

3.1.1 Low job security

Low Job security can be defined as an individual likelihood that he/she may lose their job, it means they are more prone or risk to lose their jobs. From the responses collected it is seen that Males had more worry about job security and finance then compared to females.

"Aaaa so what's that it was very new because we never come across any such pandemic so everyone was scared even my family members so things kept going around as to what will happen in coming years in regards to whether my job will be there will the business be keep going on will we be financially good to deal with all this". (Participant - 07)

"But yes so, I was scared that if I get covid then what will happen to my family, because I am sole breadwinner so yes, I was scared for my family". (Participant - 06)

3.1.2 Loss of human lives

This is where one loses his/her near or dear ones say, near ones likes friends or family and dear ones like wife, husband, parents or children's, all this leads to feeling of overwhelmed with grief. From the responses collected it was seen that most participants either lost either their near or dear one, or heard constant news about dead of their friend's family, which lead to feeling of anxiousness and few also experienced physical symptoms of anxiety like heart palpitations, sweating and shivering.

"Yes, one of the best friends lost her husband and many of the people I knew lost their lives hearing all the news I felt very shocked and I used to get this heart palpitations and all. All this while I was hearing news that this person lost her life and that person lost their lives and some were very young aged and all and when I heard all this, I did feel very anxious". (Participant - 02)
"When I lost my best friend, I didn't know until the next day that he is no more and yes at that time I was very sweating, fully shocked so yes it was during my friend's death". (Participant - 06)

"A YouTube video that I watched where the dead bodies were getting dumped, yes after that I did used to feel anxious, feared most of the time". (Participant - 08)

3.1.3 Risk of covid to family

This subtheme of risk of covid to family was seen more in females then in males, they were more concerned about their family been infected by covid, and that it will be difficult to handle and manage things

"I was very tensed as to what will happen if my family gets covid and how will we manage and will everything be ok or not". (Participant – 05)

"So, the things that passed my minds were, if everyone in my family got infected with covid, then how will we manage all the things, I was quite panicked about the fact that if my entire family gets covid together then it will be a huge problem". (Participant – 03)

"Yes, it didn't feel safe to go out, and things like safety about family and like currently situation of the country" (Participant – 04)

3.1.4 Insufficient food supply

Due to lockdown and not been much accessible to reach to various stores and shops, few participants seemed to be concerned with insufficient food supply, if they will be able to get enough and necessary food supply.

"I felt panicked because I was thinking as to how will we manage all the things and how are we going to go on with food and the regular supplies". (Participant – 05)

3.2 Fear

3.2.1 Fear of getting infected

Most of the participants mentioned that initially they were not afraid of getting infected but after one of their near and dear once got infected they also developed the fear of getting infected.

"So initially no, I was not really afraid because we were all in lockdown, I used to take all precautions so that time I wasn't, but when I saw that people whom I knew, the people I knew very closely died because of covid, that's when I developed the fear". (Participant -08)

"I heard that one of my relative is infected with covid, from that point even I started feeling that even I would get infected with Covid" (Participant – 02)

"Yes, there was point where I felt that I can get covid, when they were showing news like Maharashtra this much case is there in USA it is more and all so that's when I got scared about getting infected". (Participant -07)

3.2.2 Inaccessibility to hospital

Few participants here mentioned that they were anxious about their family getting covid because they were fearful that they won't get beds or admission in hospitals, because of the situations around.

"My family gets covid, all this hospital things also started to wander, because it was so much shown in the news that there is no availability in hospital and all, so yes, I was very much tensed about all this as well". (Participant-08)

"My main concern was everything should get proper then, as in we should get hospital, we should get medicines and all, so this was the thing I was worried about". (Participant 03)

3.3 Media Influence

3.3.1 No Escape from media

This subtheme is about how difficult it is to escape from media, be it print media or electronic media, most of the participants mentioned that even if they wanted to stop watching any kind of news related to covid, they weren't able to because it used to come in one way or other there was no escape.

"Yes, not particularly news channels the covid thing was all-over any source of information was having information related to Covid, so it was so difficult to escape from it. So yes definitely the time increased". (Participant- 05)

"But it even social media showed all this news so it was like even if I wanted to stop it was like you still see me". (Participant- 08)

3.3.2 Curiosity

Curiosity can be understood as a strong desire to know about something, in this case it is about covid, most of the participants said that they all started watching more and more of news and also finding about covid through different sources because they were curious to know about it.

"Yes, a lot, I think we were a lot curious to know as to what is going in and around us and to get to know more about the Covid I used to watch the news constantly". (Participant- 09)

"Ya because everyone tries to be tempted about knowing the scenarios around as to how many cases are there, what is that the country is going through and so ya it drowns me to watch TV more often than usual". (Participant -07)

"Curiosity you know to know more about it, I used to only watch news to know what exactly covid is where has it originated from, what is the affecting rate and all, and with this they obviously used to show a lot of about the death and all which then felt a lot negative for me". (Participant -08)

3.3.3 Media credibility

Media credibility is about the trust or believe one can have or one has on media and the content that media shows, most of the participants mentioned that they think media credibility is low and the content they show are added or exaggerated and that it creates threat in the audience minds.

"No half of them is fake, the percentages and numbers that they show are not real, and that is why I reduced my news watching time because they never show the reality" (Participant 06)

"I think it was exaggerated, the no of cases was added, and they are adding things and then showing us, because they want to create threat in our mind". (Participant -09)

"So initially when covid came, we all relayed upon the news and that time it felt oh yes, the new people are providing us with a lot of useful and true news, but once this death rate and cases started increasing that's when I somewhere felt that it has a little extra information added to it. That they do this all for their TRP. So yes, I don't think it's true always". (Participant -08)

3.4 Trace of Nocebo

Nocebo is explained with regard to our belief system that is the negative belief can lead to a negative outcome, half of the participants mentioned that the symptoms that they developed was because they were scared and anxious that they will develop it and as soon as they saw the negative test results they felt better, this implies the trace of nocebo.

"Umm to be honest, no I don't think I had covid, I feel it was all psychological, I say this because as soon as I got my results and it came to be negative, within a day all my symptoms just disappeared. So yes, I don't think I had covid, but it maybe because I am scared, this all is according to me, and this is what I feel". (Participant -08)

"When I had all these symptoms, I was very anxious that I have covid and so I didn't feel like eating anything and I could not get any sort of taste, but the time I got my results that it came to be negative, then I started eating food, I got that satisfaction that I don't have Covid". (Participant -01)

"Maybe I was very fearful and that is why maybe I experienced the symptoms because I experienced anxiously throughout the pandemic". (Participant 05)

4. DISCUSSION

The most emerging theme that is observed throughout this study is Anxiety, anxiety for, it was seen that there was a gender difference in

their reasons to feel anxious i.e. It was seen that Males had anxiety regarding their job insecurity and finances and among females it was observed that they were worried about their family members being infected with Novel Coronavirus. Study conducted by Department of Clinical Psychology of Tilburg University and Utrecht University, Netherlands showed that 46.22% concerns were that "Loved ones get very ill or die" [6].

Sub-theme emerged in the area of Media were No escape from Media, Curiosity and Media Credibility Media played crucial role throughout the pandemic. Participants mentioned that it was out of curiosity that they started watching news, but it was leading to discomfort in them but they also reported that it was difficult to escape from media and it was also been recognized that people have very low credibility towards media. A study conducted by on Anxiety-Inducing Media: The Effect of Constant News Broadcasting on the Well-Being of Israeli Television Viewers, showed results like a majority (> 70%) of the viewers said that they found the newscasts to be stressful but yet that they were having hard time avoiding it, About 17.1% reported at least 1 symptom anxiety [11].

The main variable around which the research is revolving is Nocebo, one of the themes emerged during the analysis is Trace of Nocebo, when the participants were asked about that even though they had covid symptom but then why did their test results come out to be negative, more than half of the participants responded with answers which showed trace of Nocebo. One of the articles The Conversation "Coronavirus: could reading about the pandemic cause harm? They write that now-a-days we just see scary health stories related to Covid-19 popping out. The shock and anxiety that people have reading and watching news related to Covid-19 could show symptoms which mimic like Covid- 19, but it is without the disease. This all might be caused by "Nocebo effect"- where we can get the symptoms because we expect so [17-20].

As we see in the results part that how people started watching Media, different forms of media, printing and electronic media out of curiosity to get information but it led to discomfort among them and how it was difficult to get an escape from it, and how this news brought different reasons to feel anxious one among which was fear of being infected self as well as family members. So, this anxiety or fear of getting infected caused people to develop Covid like

symptoms. From the responses collected during the interview the participants they themselves mentioned that as soon as they got to know that their Covid test results came negative, they started feeling better.

5. STRENGTH

1. Gender based analysis has also been done for factors like fear.
2. The data was collected when covid was at peak, so the data is rich.
3. Helps other understand factors that influences Indian population.

6. CONCLUSION

According to the results obtained, it was observed that fear threat was been noticed throughout, living during the pandemic which aroused anxiety in basic aspects of their life, fear of being infected was one such. This fear threat seems to be aroused from the constant media influence round, in print as well as e-media form. By the responses received from the participant Nocebo effect was traced as a factor for developing the symptom. This study gives a lot of scope for further studies in this side of Coronavirus in scientific and systematic way. This Study brings a lot of implications to be taken to reduce the Nocebo effect on Coronavirus which shows exact symptoms in form of the threat. It shows that lack or exaggerated form of anything can cause such false alarm of disease among general population. All of this is something to be thought and considered about before a new pandemic hits the world.

7. LIMITATION

1. Small sample size was one of the drawbacks of the study.
2. Factors like seasonal flu could not be studied and taken into consideration which can act as a few percentages for the factor influencing the similar symptoms.
3. The Covid test has about 90-95% of sensitivity to detect covid. So, the 5-10% error of false negative is to be included during considering the result.

ETHICAL APPROVAL AND CONSENT

1. Informed consent was from the participants individually before taking the interview
2. They had the right to withdraw from the research, Confidentiality is maintained.

3. The research was done under the guidance of the research guide, and the research was conducted taking ethical rules into consideration.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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