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Responses from People to Control Policy of COVID-19: The Roles of Fear in Information Processing and Persuasion

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Abstract: The Covid19 pandemic sent the world into a panic. Local governments have made policies to prevent and control the outbreak. Some governments advocate mandatory controls, while others rely on the population's sense of autonomy to fight the epidemic. By the same token, the public has responded differently to the government's controls. The purpose of this article is to analyze the theories of fear behind the policies issued by governments and the response of the population to them. It includes how governments try to influence the process of how information is processed through the program of fear appeals.

Keywords: Fear appeals, Fear, Covid-19 policies.

1. Introduction

Since December 2019, the globe has been confronted with the devastating challenge of the COVID-19 pandemic, starting in Wuhan, China. Toward the end of December 2019, 27 unexplained cases of pneumonia were reported in Wuhan [1]. This virus has infected a large number of people in China in a short period of time and has spread around the world. The World Health Organization (WHO) has declared the COVID-19 outbreak a global public health emergency [2].

As a result of this pandemic, countries have paid a high price in terms of human lives lost, the dramatic increase in poverty, and the economic repercussions. Currently, there are only vaccines but no specific medications for treating pneumonia. Thus, the best strategy to cope with this problem is apparently to control the spread of it.

So, different governments have established different epidemic prevention policies, depending on the local situation. Previous studies on health behaviors in fear appeals have focused on specific behaviors, such as how to force someone to have regular and frequent mammograms through fear of the consequences of breast cancer [3]. It is quite rare to have research about the implications of fear appeals on vast topic like epidemic policies in general.

One of the main reasons is that the outcome of the matter may not link to the immediate benefits of people (for example, taking the vaccine, because the social benefits brought by one vaccinated person are way greater than the individual benefits received by the vaccinated person). Plus, since such responsibility for decreasing the number of infected patients is shared by numerous people (even the world, indeed), making it is simpler to disavow [4].

As we can see from the various News Headlines, residents of different countries have different levels of enforcement of the epidemic control laws: in some countries such as China, residents will

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be very obedient to the government's strict enforcement, while in other countries such as the Japan, residents will be more likely to resist the government's arrangements and prefer lax restrictions on individuals [5].

This article discusses how fear appeals can influence governments to change their epidemic prevention strategy, and how fear is causing differentiation of people's responses to their national policy, that is, affecting one's style of information processing. Past research on fear appeals included many theories, but this article will mainly focus on a few, which include: Drive Reduction theory, Extended Parallel Response model, and the Protection Motivation theory.

2. Fear Appeals

2.1. Drive Reduction Theory

One of the first complete theories about the fear appeal is the Protection motivation theory proposed by Hovland, Janis, and Kelly. This theory states that the tendency to behave in a certain way is correlated to the expectation that the given act will be followed by some outcome. This idea means that fear acts as an unpleasant stimulus, motivating people to behave to ameliorate emotional stress [6]. Fear appeals can also be more compelling if the message provokes a strong enough level of fear to create a "drive state."

There are two assumptions for this model. First, the intensity of fear must reach a certain threshold, high enough to operate as a driving force. Second, advice to diminish the driving stimulus must also be sufficiently convincing and reassuring. The first assumption is based on the notion that a low level of fear arousal would not contribute to a strong enough motivation for people to seek a way to alleviate fear. The second assumption infers that a message including suggestions for suitable cognitive or behavioral responses to eliminate the fear would be well received [7].

Hence, studies concluded that the relationship between persuasion and fear is curvilinear, which means that extremely high or low levels of fear can't produce effective persuasion compared to a middle level of fear, or so-called the "optimal level of fear" [8]. From this perspective, the function of this model can best be described as an inverted U. Study posits two key elements for the model: the intensity of the fear, and the probability that the threat will occur. Higbee states that an inverse relationship exists between these two variables, thus, forming the eventual inverted-U shape [9].

However, there are critiques about the model. According to a meta-analysis done by other studies, the relationship between fear and persuasion is not curvilinear but positive linear [10,11]. Experiments were also performed to test this model by analyzing different trials that directly tested the hypothesis. The result shows only two of the numerous experimental groups revealed an inverted-U function concerning the considerable increases in the levels of fear [12]. Regardless of the inadequate conclusion about this theory, the curvilinear model is still applicable and should still be accepted as long as it is effective when predicting persuasiveness using moderate levels of fear [13].

The drive reduction theory focused extensively on the main concept of "fear." However, other theories that will be discussed emphasize more the cognitive process instead of the emotion itself.

2.2. Extended Parallel Response Theory

Leventhal in 1970 rejected the drive reduction theory and contributed to the development of the Extended Parallel Response theory [14]. The theory suggests two separate paths are essential for the resulted change in persuasiveness after a fear arousing message, which is also said to be "paralleled": danger control and fear control. When danger control is active, the mind will emphasize the potential danger of the stimulus and then generate reactions that help avert the hazard. Fear control, however, focuses less on the problem (danger), but on the mental and emotional processes. When fear control

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is active, it will result in responses that impact one's approval of the persuasive message's suggestions [10].

Witte [15] experimented with the theory which proved and further elaborated on top of Leventhal's work. He found that fear control and danger control are two separate paths that are closely related but carry out different functions. Plus, when one's self-efficacy in executing the suggested behavior is strong, the threat caused by the message acts as a mediator between fear and action. Interestingly, cognition seems to lead to the appropriate fear appeal results via the danger control process. However, fear by itself causes feal appeal failures via the fear control process. Thus, the Extended Parallel Response theory strengthens the hypothesis that fears appeals may be used to persuade other if they elicit intense fear as well as high belief in people's self-efficacy.

On the other hand, the Parallel response model has also been criticized. Some argue that fear and danger control processes are sometimes indistinguishable from each other. Although to some extent, one can defend the model by insisting that the EPPM theory only aims to combine the emotional and cognitive processes which might bump into a situation where these two processes overlap with each other [16]. Limitations of the model also include the ambiguous description of how exactly the association between efficacy and fear developed [12], not to mention the lack of evidence for the hypothesis [10].

2.3. Protection Motivation Theory

Another model that also emphasizes cognitions instead of emotion is the Protection Motivation theory. The two components of the theory are threat appraisal and coping appraisal. The theory suggests that the persuasiveness of the advice will increase when the threatening message not only makes people feel intense fear but also make them believe that they can carry out protective behaviors [6]. Thus, arguing that the fearful message stimulates the individual to consider measures to protect themselves, and the change is motivated by both feelings of dread and the cognitive process of believing oneself.

In comparison to the Extended Parallel Response model, the Protection Motivation theory predicts not only the effect of self-efficacy but also makes predictions that are derived from previously states assumptions about the interactions and relationships between different variables. Thus, the Protection Motivation theory serves as an extension of the Parallel Response model that is more specific and testable [6].

The main investigator of the Protection Motivation Theory, Ronald Roger, also admits that there more research is needed to better refine the model. For example, the theory failed to take all possible variables that might impact results into consideration. Instead, it made a lot of assumptions, idealizing the model [6]. Despite all these limitations, all of the aforementioned theories do contribute to the overall understanding of the mechanism of fear [17].

3. Fear and Information Processing

Theories discussed in the preceding sections were developed to explain the roles and impact of fear in persuasion exclusively. More recent studies on fear and persuasion focused on the routes of information processing [4]. A representational theory for this concept is the Elaboration Likelihood model proposed by Petty and Cacioppo.

The ELM suggested that there are two independent paths for information processing. One path focuses on the major premise or arguments for the problem and is thus named the central route. The central route is the main cognitive process and requires people's effort to evaluate the message and change the way people perceive the message. The other path is called the peripheral path and is developed base on the peripheral cues, which is also the main innovation of this model. The cues can

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be in various forms, ranging from secondary cues like physical attractiveness [18] to primary cues like food [19] that are mainly happening in the unconscious mind [20].

The model argues that information undergoing the central route will produce behaviors that are more predictive and durable compared to what is generated from the peripheral route. One possible explanation for this phenomenon is that in order to lead conduct, emotional changes must persist until the moment comes to make actual behavioral choices. As a result, the more persistent the emotions are, the more likely they are to influence behavior [4,21].

4. Method

This paper aims to explore the application of fear appeals to the COVID-19 pandemic, as COVID-19 was arguably the largest global fear in the last decades, and this paper wants to analyze specifically how the impact of fear on the response of people to the epidemic control policies. Fear was brought on by the consequences of pneumonia and the message to be processed is the regulation policies by the government. The hypothesis is that if the local epidemic is severe and there are continuous new cases every day, then the local people will respond positively to the government policy because of the intense fear; if the local epidemic is not particularly severe and the new cases are relatively few or not consecutive, then the local people will not respond actively to the government.

4.1. Procedure

To perform analysis on this research question, selecting proper participants or countries to be analyzed is the first step. Participants should satisfy these requirements: (1) The severity of the local epidemic situation must be varied, which corresponds to different fear levels. (2) The strictness of the government policy also needs to be different.

In the second section, data about participants are collected. The data should include the response from the citizens, the scope of the government policies, and specific or the most representative policies.

4.2. Results and Analysis

The Oxford Covid-19 Government Response Tracker (OxCGRT) is a dataset that is continually updated, user-friendly and reliable for investigators to explore the effects of pandemic regulation policies [22]. The article picked 4 countries for the sake of this analysis, which are China, Sweden, Japan, and France.

In 2020, there were 2,545,671 cases diagnosed in Sweden with a response stringency index of 35-45. While Sweden had a comparatively lax policy. The government's attitude toward Covid-19 is that it is a "Marathon" and thus, needs to be resolved more slowly and consistently. Thus, Swedish policy included temporary bans on traveling in and out of the country, but there were no restrictions on citizens' mobility within cities. Sweden mainly builds their strategy with the pandemic by relying on the importance society attaches to Covid-19. However, in 2021, October, some Swedes publicly rejected the government's regulation policy. They presented their arguments against the anti-epidemic law article and resorted to a full-name referendum.

Unlike Sweden, China executes its policies with an iron hand. This resulted in 230,135 cases diagnosed in 2020 and a response stringency index of 60-70. Their strategies involved mandatory lockdowns of both countries and cities that are heavily infected (like Wuhan). Public places with high traffic flow such as shopping malls and amusement parks were forced to shut down. In addition, some industries that require close contact, such as beauty salons, were also closed.

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In 2020, France had 33,993,930 cases diagnosed with a high stringency index of 85-95. France adopted a similar strategy to China. At first, Government did not impose mandatory restrictions on citizens since initially, France was not heavily influenced by Covid-19. However, once pneumonia began to spread, the Government passed the lockdown rules and public places were also on lockdown.

Japan had 13,598,290 cases diagnosed in 2020 with a response stringency index of 40-50. Japan did not adopt mandatory rules like lockdown. Instead, the Japanese Government passed out guidelines on how to deal with Covid-19 to their citizens and recommended their citizens restrict their behaviors themselves to prevent the spread of the pandemic.

Table 1: A summary of the policies and response to the policies of the 4 chosen countries [5].

Countries	Narrative	Response	Scope	Closure measures
Sweden	Marathon	Mild and advisory	Subnational	❿ Requirements regarding international travel control and the cancelation of public events ❿ Recommendations regarding the restriction of internal movement ❿ No measures regarding the closure of schools, workplaces, and public transport
China	War	Drastic and mandatory	National	❿ Lockdowns in cities with major outbreaks ❿ Requirements regarding the closure of schools, worplaces, and public transport; restrictions on internal movement; international travel control;and the cancelation of public events ❿ Grassroots organizations monitor individual's behavior
France	War	Drastic and required	National	❿ Nationwide lockdown based on a decree ❿ Requirements regarding the closure of schools, workplaces, and public transport; restictions on internal movement; international travel control; and the cancelation of public events ❿ Limitations regarding individual mobility (certification and penalties)
Japan	Emergency	Mild and recommended	Subnational	❿ Recommendations regarding the closure of schools and workplaces ❿ Requirements regarding international travel control ❿ No measure regarding the closure of public transport

Table 1 shows the four countries respectively. It also shows their response to the pandemic including a narrative of their responses, the scope of the control policies, and the exact measures they made dealing with pandemic.

Sweden and China comparatively belong to the mild fear group since they have fewer cases discovered. The advisory attitude of the Swedish government contributes to the lenient policy, which corresponds to a weak argument for the recommendation. In this way, Chinese policy can be grouped as having strong arguments. Thus, in the group Sweden and China, the effect of central route processing is clear. Chinese people, under the relatively mild fear situation, did not reject strict regulation policies because they were persuaded to believe in the effectiveness of the message, or the control policies which resulted in a persuaded outcome that produces lasting behaviors like wearing masks and taking regular Nucleic acid tests.

France and Japan belong to the intense fear group. Thus, they have high motivation to think carefully about the message. However, France's message is deeply processed since it offers a more reliable solution to the fear-causing problem and carries out a succeeded fear appeal. While for Japan, it illustrates a peripheral route processing due to the lacking reliability of their argument. However, since the fear is strong, there was a temporary change in people's behavior but not long-lasting.

More, comparing China and France's stringency index (China:60-70; France:85-95), one can conclude that France produced a stronger response to the epidemic because they have both high

motivation and strong arguments for the message, compared to China which only has mild fear with strong arguments. Thus, showing the importance of both danger and fear control.

5. Conclusions

Although presenting a comparison between four countries and their actions respectively, there is certainly not a single policy that one can assume to be "The Solution" for all countries. However, the above analysis can indeed offer countries another perspective of how fear is related to citizens' response and provide insights into how government can use fear strategically to facilitate the desired response they want to get from the public. Therefore, this research confirms the importance of fear in decision-making and under different cultural circumstances, can affect government policies and people's perceptions and reactions toward that policy.

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