

## COVID-19 AND INFODEMIA: A QUALITATIVE RESEARCH

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### ABSTRACT

The aim of the study is to examine the concept of infodemia within the scope of the Covid-19 pandemic and to evaluate how the infodemic management should be in new pandemic situations that may come to the agenda in the future. Within the scope of the qualitative research carried out, professionals were conducted with a total of 9 academicians, working in 3 Public Health Departments, 3 Health Management Departments, and 3 Communication Faculties. Maxqda Analysis Program was used to analyze the data. As a result of the study, the sources of the infodemia were propounded and it was seen that the emphasis on social media was at the forefront. Due to the infodemia seen in the Covid-19 pandemic process, the negative effects that occur in individual, social, economic, and political areas have been revealed. It has been stated that the Ministry of Health in the national context also has duties in the national context, as well as international organizations such as the World Health Organization, in preventing such effects, in a word ensuring the management of infodemia. In addition, academics, in order to ensure the control of infodemia in possible pandemic processes in the future, to provide training on media literacy and health literacy to the members of the society; They emphasized that sanctions should be applied to those who disseminate false information about the pandemic situation.

**Keywords:** Infodemia, Covid-19, qualitative research

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## COVID-19 VE İNFODEMİ: NİTEL BİR ARAŞTIRMA

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### ÖZ

Araştırmanın amacı, infodemi kavramının Covid-19 pandemisi çerçevesinde irdelenmesi ve ilerleyen dönemlerde gündeme gelebilecek olan yeni pandemi durumlarında infodemi yönetiminin nasıl olması gerektiğine ilişkin değerlendirmelerin ele alınmasıdır. Yürütülen nitel araştırma çerçevesinde alanında uzman 3 Halk Sağlığı Bölümü, 3 Sağlık Yönetimi Bölümü ve 3 de İletişim Fakültesi'nde görev yapan toplam 9 akademisyen ile görüşmeler gerçekleştirilmiştir. Verilerin analizinde Maxqda Analiz Programı kullanılmıştır. Çalışma sonucunda infodeminin kaynakları ortaya konulmuş ve temelde sosyal medya vurgusunun ön planda olduğu görülmüştür. Covid-19 pandemi sürecinde görülen infodemiye bağlı olarak bireysel, toplumsal, ekonomik ve siyasal alanlarda meydana gelen olumsuz etkiler gözler önüne serilmiştir. Bu gibi etkilerin önüne geçilmesinde yani infodemi yönetimini sağlama noktasında Dünya Sağlık Örgütü gibi uluslararası kuruluşların yanı sıra ulusal bağlamda Sağlık Bakanlığı'na da görevler düştüğü ifade edilmiştir. Ayrıca akademisyenler, ilerleyen dönemlerde muhtemel pandemi süreçlerinde infodeminin kontrolünün sağlanması noktasında toplum bireyelerine medya okuryazarlığı ve sağlık okuryazarlığı konusunda eğitimlerin verilmesini; pandemi durumuna ilişkin yanlış bilgi yayanlara ise yaptırımların uygulanması gerektiğini vurgulamışlardır.

**Anahtar Kelimeler:** Infodemi, Covid-19, nitel araştırma

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## I. INTRODUCTION

With the Covid-19 pandemic, individuals have been subjected to information bombardment on health issues by becoming closely connected with health news on a global scale. Health news disseminates rapidly through communication channels (social media and traditional media) and entered the lives of individuals and had an impact on many points. The disseminated news and the source of the information transmitted are easily accepted without being correct. So, serious problems and crises have arisen regarding the course and control of the pandemic.

Perhaps the most prominent concept that has come into our lives as a result of this information bombardment experienced with the Covid-19 pandemic is the concept of "infodemia". It is seen that this concept was first included in an article about the SARS virus published in the Washington Post by David J. Rothkopf in 2003. Stating that the SARS virus has two stories in her article, Rothkopf points out the importance of "infodemia", the other side of the medallion. Expressing that infodemia affects the lives of thousands of people, she points out that the epidemic crisis (SARS) makes it difficult to control and control and the dangers in this direction. Rothkopf interprets the infodemia as "an information epidemic" and describes a few facts mixed with fear, speculation, and rumor that are rapidly spreading and transmitted by modern information technologies around the world ([www.washingtonpost.com](http://www.washingtonpost.com)).

Infodemia is considered as a concept derived from the words "knowledge" and "epidemic" according to the Oxford Dictionary. Infodemia is defined as "information about a problem that is often unreliable, spreading rapidly and making it difficult to reach a solution" ([www.lexico.com](http://www.lexico.com)). According to Wikipedia, It is stated that infodemia is interpreted as a combination of "information" and "epidemic", which "expresses the rapid, wide and comprehensive spread of both true and false information" ([en.wikipedia.org](http://en.wikipedia.org)). The report published by the World Health Organization (WHO) on February 2, 2020, in response to the Covid-19 pandemic, it is stated that accompanying a massive infodemia described as "excessive information overload", some correct and some incorrect, causing difficulties in finding reliable and valid resources when needed. In the same report, WHO also states that by establishing technical risk communication and social media teams to combat infodemia, there is a 24-hour struggle against the myths and rumors about Covid-19 ([www.who.int](http://www.who.int), 2020a). In addition to, on February 15, 2020, WHO general director T. A. Ghebreyesus stated that "they are not only fighting an epidemic but also fighting an infodemic." He also states that "fake news spreads faster and easier than this virus and is similarly dangerous" ([www.who.int](http://www.who.int), 2020b). As can be seen from the explanations, the issue of infodemia is at least as important as the pandemic itself and is worth examining.

In this context, if a general definition about infodemia is to be made; With the development and individualization of communication tools, together with the traditional media, everyone has become a content producer with social media, and the spread of information can be expressed as all of the factors that cause the disseminate of false information for the benefit, lack of information or other reasons. On the other hand, the concept of infodemia is associated with concepts such as misinformation, disinformation, information pollution, fake news, excessive information, conspiracy theories, and biological weapons in the literature, and its effects are discussed (Erku, et al., 2020; Stephens, 2020; Gupta, et al., 2020; Ahinkorah, et. al., 2020; Aydın, 2020; Cinelli, et. al., 2020; Mesquita, et. al., 2020; García-Marín, 2020).

According to specialists, infodemia, which is related to the Covid-19 pandemic and also expressed as information pollution, especially circulated in social media channels, is at least as effective as a virus and threatens our health by manipulating large masses (Yerlikaya, 2020). *Infodemia is an important issue not only during the pandemic period but also in situations such as election, crisis, war, natural events, and so on. In such cases, infodemia emerges and spreads rapidly with the effect of social media platforms.* The resulting infodemia leads to the misdirection of large masses, and this situation causes the emergence of possible crises. It is important to evaluate the issue of infodemia, which increases the negative effects of the Covid-19 pandemic in the health field. Based on these thoughts, the current study is based on examining and evaluating the concept of infodemia from the perspective of academicians within the scope of the qualitative research method.

## II. METHOD

### 2.1. The Purpose and Importance of the Research

The purpose of the current research is to determine the evaluations regarding the concept of infodemia within the scope of the Covid-19 pandemic from an academic perspective. The concept of infodemia has been a frequent phenomenon during the Covid-19 pandemic period. At this point, in the Covid-19 pandemic process, by revealing the infodemic instances, the reasons for the occurrence of infodemia, the infodemic sources, and examining the consequences of the infodemia during the pandemic process, evaluating the infodemia management during the Covid-19 process in the following periods. It is also important to consider how the infodemic management should be in new pandemic situations that may come to the agenda.

### 2.2. The Methodology of the Research

In the study, the qualitative research method, which consists of investigations aimed at understanding and discovering the meanings attributed by people to a particular subject and problem, was preferred (Creswell, 2017). Within the scope of the research, questions were asked to the academics regarding infodemia during the Covid-19 pandemic process, and their opinions on this issue were examined.

In the research was used Phenomenological. With the Phenomenological, as Yıldırım and Şimşek (2016) also stated, it is possible to put forward the explanations of the people in a way that will enable a better examination of the studied phenomenon. In this way, it is aimed to provide an in-depth examination of the infodemia case within the framework of the Covid-19 pandemic within the scope of the research.

Within the scope of the research, it was reached by using criterion and snowball method among purposeful sampling methods to academicians. Criteria addressed in criterion sampling are as follows:

- To work as an academicians in one of the departments of Health Management, Public Health, and Communication Faculty.
- To have knowledge about infodemia.
- To be closely related to the Covid-19 pandemic process

Interviews were held with the academicians who met the specified criteria, and after the interviews made using the snowball method, the names of the new academicians were obtained and the interviews were completed. In this context, a total of 9 academicians participated in the research, from 3 Health Management, 3 Public Health, and 3 from the Faculty of Communication, who can make an assessment on Covid-19. The sections of the participants included in the research are Public Health, Health Management and Communication. The reason why these departments are preferred is that the faculty members in these departments have broader knowledge and experience about the research topic of infodemi and Covid-19 pandemic. The subject of infodemi is an information epidemic and is closely related to the field of communication. The issue of pandemic, on the other hand, finds a special area of investigation in the field of public health. Since the infodemic seen during the pandemic period was discussed within the scope of the research and it was wondered how it could be managed and prevented, it was deemed appropriate to consult the opinions of experts in the field of health management. The characteristics of the academicians and interview information are shown in Table 1.

**Table 1. The Characteristics of Academicians and Interview Information**

No	Pseudonym of the participants	Degree-position	Department	Place of the Interview	Interview Duration
1	(P1)	Prof. Dr.	Health management	Faculty	39 minutes 15 seconds
2	(P2)	Assoc. Prof. Dr	Health management	Zoom	25 minutes 45seconds
3	(P3)	Assoc. Prof. Dr	Health management	Zoom	27 minutes 270seconds
4	(P4)	Dr. Fac.mem.	Public relations and publicity	Zoom	34 minutes 25seconds
5	(P5)	Prof. Dr.	Public health	Zoom	30 minutes 24 seconds
6	(P6)	Prof. Dr.	Public health	Zoom	38 minutes 53 seconds
7	(P7)	Dr. Fac.mem.	Public health	Zoom	25 minutes 13 seconds
8	(P8)	Dr. Fac.mem.	Communication sciences	Zoom	29 minutes 7 seconds
9	(P9)	Assoc. Prof. Dr.	Media and communication	Zoom	22 minutes 41 seconds

The semi-structured interview technique, which is one of the interview types used in qualitative research, was used in the study, and detailed information on the subject was obtained from the participants (Demir, 2017). During the semi-structured interview, 5 basic questions and questions at the end were asked to the participants. As a result of the interviews with the participants, 35 pages of data were obtained, and it was observed that the average interview duration was 30 minutes. The data obtained from the participants through the interviews were subjected to thematic analysis. The data were arranged and coded in this way, collected under general themes, analyzed, and the results were interpreted by making sense of the findings (Creswell, 2017; Yıldırım and Şimşek, 2016). In this context, the interviews were first deciphered and the documents obtained were subjected to coding by the researchers. The reliability of the study was ensured by observing that there was a consistency between the codes obtained. Regarding the validity of the study, an external control mechanism, one of Creswell and Miller's (2000) strategies regarding the validity, was provided, and rich and intense descriptions were included. After the codes were obtained, the analyzes were completed and the findings were obtained by transferring the codes to the Maxqda Program in order to make themes more systematic and to create concept maps. In this context, the data were collected by asking the following interview questions to the participants:

1. What do you think when you hear the concept of infodemia for the first time?
2. What could be the sources of infodemia (social media- media organs, etc.) and how do they spread?
3. Can you evaluate infodemia within the COVID-19 pandemic?
4. What kind of consequences did infodemia have during the COVID-19 pandemic period? At the end: What effects did it show in which areas? (What are the economic, political, social, and individual effects?)
5. Do you think the infodemic process was managed during the COVID-19 pandemic period? At the end: How should "infodemic management" be in terms of preventing the aforementioned effects during pandemic periods?

### 2.3. Ethical Approval

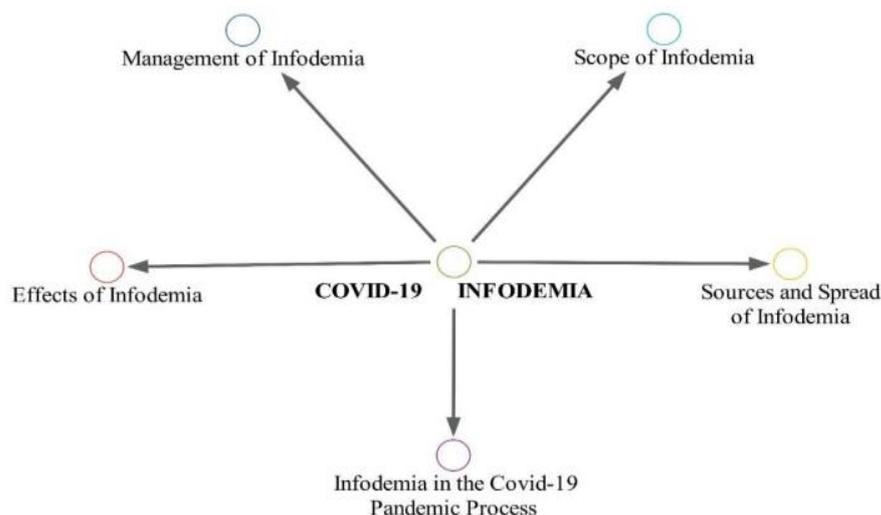
The present study was approved by the Süleyman Demirel University, Social and Humanities Ethics Committee (Date: 25.05.2021; Number of Meetings: 107; Number of Decisions: 1).

## III. RESEARCH FINDINGS

In this part of the research, the findings and comments of the data obtained from the opinions of the participants, consisting of academicians, on "Covid-19 and Infodemia" are included. The data obtained

within the scope of five basic questions were coded and collected and analyzed under themes by the inductive method. Participant P1, P2,...P9 codes were used while determining to whom the opinions belonged.

**Figure 1. Covid-19 and Infodemia: Concept Map for Assessment of the Academicians Perspective**



In the figure above, from the perspective of the academicians, the scope, sources, and propagation of infodemia, the infodemia in the Covid-19 pandemic process, the effects of the infodemia, and the themes of infodemic management are seen with their baselines. The opinions and evaluations of academicians about Covid-19 and infodemia are handled over these 5 themes.

### 3.1. Findings Regarding the Extent of Infodemia

The first question of the research, "What does the concept of infodemia bring to your mind in the first stage?" The theme of "scope of infodemia" was created in line with the answers given to the question. From the participants about the concept of infodemia; "uncontrolled dissemination of information", "rapid spreading of false information", "information pollution", "incomplete information sharing", "inconsistent news", "false information epidemic", "sharing non-evidence-based information", "fake news", and "spreading of speculative and non-scientific base information". The answers were received and coded.

The concept of infodemia was first addressed by the P1 and P2 participants, associated with the uncontrolled spread of information and the rapid spread of false information. Regarding the concept of infodemia, P1 said, "The uncontrolled spread of information comes to mind due to the pandemic. It is unproven information. It is the rapid dissemination of information that people are sensitive to". P2, on the other hand, uses the metaphor of "information garbage" related to the concept of infodemia, as "the concept is new, so it evokes the name of a disease. In the digital age, the rapid spread of incorrect information comes to mind. I can say that it is information garbage".

The participant P3, P5 and P7 stated that infodemia is information pollution and the dissemination of information without a scientific basis. Regarding the subject, P3 said that "a concept emphasized by WHO and expressed as information pollution. In addition, they are the ideas that arise especially during the pandemic process, and do not have a scientific basis... In a sense, I can say that it is information pollution..." while P7 commented that "giving false information, sharing information without evidence comes to my mind". In addition, P3 stated that "information pollution also occurs as a result of not

providing the information on time and correctly", and stated that infodemia can occur in different ways. In this context, in the Covid-19 pandemic, we are experiencing, public institutions and international organizations need to share information on time and adequately. Otherwise, the emergence of the concept of infodemia is inevitable.

In the first stage, Other concepts that come to mind of the participants and are associated with the concept of infodemia are; inconsistent news, false information, and fake news. Regarding the concept of infodemia, P4 commented as "as far as I have read, it is stated that inconsistent news on any subject is shared and spread". On the other hand, P9 "Infodemia means fake news. This kind of fake information is spread in order to create impact and chaos on people". He emphasized the concept of infodemia as fake news with the statement.

On the other hand, P5 and P6 associated the concept of Infodemia with the term misinformation epidemic. According to this, P5 is expressed, "We know that people have difficulty extracting the correct information between too much information. As such, I can say that the effect of false news on individuals is high. During the pandemic process, the concept of infodemic reminds me that too much wrong and wrong information". Besides, p5 comments as "I understand that misinformation is terrifying. There is an epidemic, but there is also an information epidemic. Although it is especially reduced to coronavirus, we know that there is a spread of information in the field of health. We see that people who appear on TV make interesting expressions to make them famous. We see that even experts working in the field of health care hesitant about many issues due to the spread of false information. We know that vaccines have been developed and applied similarly for centuries. Despite this, we see that individuals are caught between vaccination and not. I can say that this is due to false and false information." on the other hand, P6 states that the concept of infodemia is an epidemic of misinformation. In summary, in this section, the concepts associated with the concept of infodemia, in general, are emphasized, the scope of infodemia is tried to be drawn and the framework of the concept of infodemia is discussed.

### **3.2. Resources of the Infodemia and Findings Regarding Its Spread**

The second question to the academicians is "What could be the sources of infodemia and how does it spread?" The question has been posed. Almost all of the participants emphasized that in addition to sources such as "traditional media" (TV, magazines, and newspapers), especially "social media" (Whatsapp, Twitter, Youtube, and Facebook) channels are the source of infodemia. It was emphasized that social media created an environment for the emergence, increase, and development of infodemia by the participants. In this context, P5 said, "First of all, it is necessary to start with traditional media. Because not everyone uses social media. Television, one of the media organs, makes a lot of news about the epidemic. During this period, we witnessed many people commenting on television programs. Comments and recommendations of non-experts on infectious diseases cause information pollution. On the other hand, some information is shared on social media without confirming its accuracy, and it is delivered to many people in a short time. Misinformation spreading from one person is shared by more than one person in a short time and increases like an avalanche " A similar comment is made by P4. According to P4, "I think that infodemic diffusion is supported by both traditional and new media. We know that especially social media is more effective in spreading information and news. Any sentence or news or video shared on social media quickly affects people".

It can be said that infodemia has become more pronounced and developed in times such as extraordinary periods and crises. In such cases, sharing on social media can cause an increase in infodemia. P2 put forward the opinion on this issue; "In extraordinary times, people show extraordinary reflexes. Because while it is easier to access information in normal periods, we do not have enough time and resources to access information in extraordinary periods. For this reason, we can easily believe any information to be said. In short, the spread and credibility of the information are more in this process. The spread of such news in newspapers, magazines, and TV programs occurs rapidly. However, I can say that the information expressed through official channels of official institutions is more realistic and accurate. When we look at it today, there is no control of Whatsapp groups. For this reason, false information is spreading rapidly. It has an increasing feature, like an avalanche, so to speak".

As the source of infodemia, some academics state that individuals spread false information in order to be popular or to attract attention on social media. Related to this, P9 state that, "We know that people want to attract attention. This is done through social media. This kind of information is widely spread over social media supported platforms such as Twitter and Instagram". Besides, P6 said that "people want to be popular on social media. For this, it started to distort information and increased the spread of false information. The increase in the use of social media has led to the rapid spread of information " but P1 said, "I can talk about two types of information emergence. Since people are sensitive in some subjects, they can spread information and add to it. On the other hand, I can say that it emerged consciously. With the interpretation that the information I mentioned is spread over social media." it is pointed out that infodemia may be done maliciously (social engineering, creating a climate of fear, etc.), and sometimes it is unintentionally exaggerated by additions by individuals. In this context, it can be interpreted that, based on the views of the academicians participating in the study, the rapid generation of news and information via smartphones may cause the infodemia to spread rapidly.

### **3.3 Findings Concerning the Evaluation of Infodemia in the Covid-19 Pandemic Process**

In this section, the findings obtained from the responses of the academicians regarding the evaluation of infodemia in the Covid-19 pandemic process are included. To the participants, "Can you evaluate infodemia within the Covid-19 pandemic?" The question has been posed. According to the answers received from the participants, codes such as "what happened at the beginning of the pandemic", "what happened during the pandemic process" and "what happened during the vaccination process" came to the fore. When "what happened at the beginning of the pandemic" is considered within the scope of these codes, the following expressions stand out. Firstly, when Covid-19 started, a serious infodemic process was encountered. This atmosphere of uncertainty and chaos at the beginning affected almost all states. In such an environment, information and conspiracy theories, mostly unfounded, began to emerge. In some countries, actions and protests were made against the masking and curfews, which are perceived as restrictions on freedoms. Recently, unfounded news and information about the vaccine started to be produced. Considering all these situations, a serious infodemic process has been experienced in the Covid-19 pandemic and continues to be experienced. Become a global problem that concerns the whole world. In this delicate situation, the news is a lie, its spread was falsely accelerated. In the early days of the pandemic, different news about the epidemic came up. However, when they were examined, we saw that such news did not reflect the original, in the last days of the epidemic. Different approaches and theories for both social and psychological effects associated with the outbreak in Turkey have been asserted. The view is made about the emergence of the epidemic, its spread, treatment, and many issues related to the drugs used.

On the other hand, P3 said, "It was stated that the virus was produced in a laboratory environment in China, and different directions were made in the next process. It was emphasized that it was necessary to gargle with salt water, and it was said that some herbs and foods were good" emphasizes the infodemic developments experienced at the beginning and the continuation of the pandemic. Especially, misinformation that traditional medical treatments and practices are good for the virus attracts attention. It is clear that most people are exposed to such information from social media.

P4 said, "At first, it was said that the pandemic was transmitted from animals. In one article, it was written that the virus started to spread as a result of an experiment on animals. In some internet-supported news, it was stated that the source of the virus was European countries. It was said that it affected men in terms of health. We have seen that this idea is rejected by some healthcare professionals and accepted by others. Many thoughts were put forward that would negatively affect daily life. In the early days, it was said that gargling with salt water and vinegar water kills and prevents the virus. Some experts claimed that the masks were protective, while some experts did not. As a result, the information in need of continuous confirmation has been pushed forward and the infodemia has always been experienced in every field", enlightened on the events experienced in the beginning and process of the pandemic. Again, at the beginning of the pandemic, there were negative thoughts about the use of masks. At first, while masks were said to be ineffective, it was suggested that the compulsory wearing of masks in the following processes significantly reduced the risk of transmission of the virus. In addition, a serious

infodemic process has been experienced and continues to be experienced in treatment protocols and drugs for Covid-19 patients. P5 emphasizes that Different thoughts were shared on this process as a mask. At first, they did not recommend the mask, but later it was emphasized how important the mask was. While some experts have emphasized that the drugs recently applied at the point of treatment have a triggering effect by some experts, some experts have stated that they protect the virus. Due to this information, some patients did not use medication and died. Would it be helpful if they used it? We do not know. In short, everyone is saying something". They stated with similar statements in P6, P7, P8, and P9 that false information about the use of masks was spread for the first time.

Finally, considering the developments and processes experienced in the Covid-19 pandemic, it shows that the information put forward in the early days is wrong and manipulative in the last process. With the production and implementation of vaccines, we witnessed a significant level of infodemia. It is seen that misinformation such as conspiracy theories, anti-vaccination, people with chips, to reduce the population of the world by sterilizing men spread through all communication channels and become infodemics. Many participants have almost the same feelings and views regarding vaccines.

Participants state that there is a serious infodemia about the vaccine. While P5 says that "There is a lot of information about the vaccine. Some people say that the vaccine should be made by china, some people say that the vaccine developed in partnership with Europe and the USA should be made. As a result of news on social media, we witnessed that some individuals stated that they would not be vaccinated " P6, on the other hand, said, "There has been an anti-vaccination lately. Much false information was put forward, such as the presence of chips in the vaccine. As an expert in this field, even I started to get pissed off. However, we need to know that such information is not correct". As a result, we have been exposed to a multifaceted infodemic process since the beginning of the Covid-19 pandemic. The transmitted statements showed that there was a lot of false and false information, with an emphasis on anti-vaccination and vaccination.

### **3.4. Findings Regarding the Effects of Infodemia**

It is clear that the Covid-19 pandemic we are experiencing has affected adversely the whole world and people in all aspects. We can say that this effect occurs through communication channels. In this context "What kind of consequences did infodemia have during the Covid-19 pandemic period?" and "What effects did it show in which areas?" The answers received from the academics with the last question were handled over four codes that emerged as "individual effects", "political effects", "social effects" and "economic effects". First of all, the effect of infodemia on individuals during the Covid-19 pandemic process is quite high. In accordance with the false information revealed, many people have caused serious psychological effects such as stress, anxiety, depression, illness, and fear of death. P1 states this situation, "Information pollution has increased people's anxiety levels. We have become unable to distinguish which information is correct or not". P4, on the other hand, "caused an increase in individual anxiety. Due to the constant news dissemination, most people have become extremely anxious. This has negatively affected human relations. He started to distance people from each other". However, P7 said, "The wrong statements about the epidemic caused discomfort in the people. The anxiety level of the people increased. Even with the slightest cough, the person started to doubt himself"; P9, "A healthy person may experience mental illness due to false information about the epidemic. In addition, inaccurate information can cause people to misdirect what they do right. For this reason, infodemia, as well as an epidemic, affects individuals and societies negatively." highlighting his view, he drew attention to the effect of infodemia on individuals.

The political effects of the infodemia, which came to the fore during the Covid-19 pandemic process, are also seen. The lack of transparent information sharing by the public authorities, the measures not taken and the weaknesses experienced in the management process brought along some discussions. Therefore, the issue of political trust in individuals has been damaged. In this context, P1 commentate, "The fact that the epidemic is not managed transparently causes political conflicts in the society. As a result of the evaluations made about the epidemic, we have seen that the ministry of health and the political communities are in conflict. As such, differences of opinion and polarization began to occur in

the society.” P3 said, “When the rumors combined with the facts, it shook many governments in the world. For example, we can say that England, Italy, and Spain shook the administration. Recently, there have been protests against the administration in Germany. Non-disclosure of the number of cases recently in Turkey, has only reduced the perception of the size of the epidemic disclosure of the number of patients. Then, when the number of cases disclosed that tens of thousands have confidence has decreased against the health authority in Turkey ” He tried to reveal the political reflections of infodemics and incomplete information sharing.

It was seen that infodemia had social and economic effects on the pandemic. P9, “The infodemia that developed with Covid-19 caused the economy to weaken. People have started not to invest. The unrest caused by infodemia also affected the investors negatively. The continuation of the pandemic caused an increase in foreign currency and product raw material prices. Production and consumption activities were interrupted” with his interpretation, he sheds light on the economic impact of the infodemia by creating an unsafe environment. In addition, P8 said, “With the implementation of the quarantine, that is, the bans, people have been closed to homes. Their workplaces are closed. This situation caused economic fluctuations in the society” he draws attention to the economic fluctuations. The intense infodemia experienced with the Covid-19 pandemic has affected most industries economically. In this process, the consumption habits of the individuals have changed. Due to this consumption changing, most sectors have been seriously affected. While some sectors had to be closed, some sectors started to work more intensely. For example; While the demand for some products and food materials that are said to cure Covid-19 disease has increased, some products and materials have not been in demand.

Infodemia with the pandemic process has also had a social impact in many ways. In this process, individuals started to migrate from cities to villages. Family and social relations are limited. Collective organizations have been canceled. People have experienced the anxiety process at both individual and social levels, acting with hearsay news and information. In this context, P2, “In this process, we are reviewing our attitudes and perceptions in our own lives. Who will we meet? How are we going to feed? It has been reported that the use of honey is good against the Covid-19 virus, and there has been an increase in honey sales. In the early days of the pandemic, there were processes such as not using the elevator, when we came home washing money, and separating the beds of the couples”. P5 said, “We have seen that social relations were partially postponed in this process. However, despite the prohibitions, mass ceremonies continued to be held. Recently, new thoughts on contagiousness have been expressed. Measures were taken from time to time in public transport, but later it returned to normal. All this increased the spread of the virus. Some people quit avoiding the epidemic. Many people living in the city migrated to villages and plateaus. Differences occurred in the social and economic context, and the infodemia supported this. There were conflicts between people who protected themselves from the epidemic and those who were not protected. People got into psychological conflict. They draw attention to the social effects of the infodemia experienced with Covid-19.

In addition, in this section, ask some participants “Are the effects of infodemia as serious as the effects of the Covid-19 pandemic? Does the infodemic affect the consequences of the pandemic? In the end, important answers to the question were received. Participants stated that infodemia has as serious effects as the Covid-19 pandemic. Regarding this, P4 said, “It is absolutely as important to communicate information about the epidemic as well as the epidemic. Because knowledge is a great power that affects and directs people. While correct information produces correct results, false information leads to incorrect results. In this process, we experienced infodemia a lot”. At the end of question P5, “Of course it is effective. Individuals acting within the scope of infodemia have begun to turn to false facts. A problem started at the point of income and expense. People have lost their sensitivity as a result of the news they have read on social media. The epidemic can be controlled with drugs or vaccines, but it is extremely difficult to prevent the spread of false information and to get people to believe the correct information”. The sentence points to the danger of infodemia. In addition, in P6, “The epidemic affected societies, but misinformation has affected people negatively as well as the epidemic. It is extremely difficult to control erroneous information” and expresses the effect of infodemia. As a result, the infodemic process experienced with the Covid-19 pandemic; individuals (psychological) starting from

the private (social, political and economic, etc.) has serious negative consequences. Infodemia must be tackled seriously to minimize these negative consequences.

### **3.5. Findings Regarding Infodemia Management**

“Do you think the infodemic process was managed in the Covid-19 pandemic?” With the question, “How should be infodemic management at the point of preventing the effects mentioned in pandemic periods?” the last question was asked to participants.

First of all, most of the participants stated that infodemia could not be managed effectively during the pandemic process. Regarding this, P1 said, “I think we could not manage infodemia well. When people cannot reach the correct information, they start to fill the gap in their minds with different information. In fact, if the information were given transparently and accurately by WHO, the Ministry of Health, and our physicians, perhaps there would be no need for infodemia. If the information transferred were correct, we would not be occupied with different information. The process could be better managed by all countries of the world. I can say that if the Ministry of Health had been able to transmit the data transparently from the first day in our country, society would have been more cautious”.

P3 said, “The issue of managing the pandemic process differs from country to country. For example; Many developed countries such as America, Italy, and Spain could not manage this process. In fact, they could not manage the infodemia because they could not manage Covid. Covid-19 and infodemia concepts should not be considered separately. When he could not manage the Covid-19 pandemic, the doors of the infodemia were opened. An excessive reaction started to occur in individuals”. Thus, it can be stated that the infodemia that occurs in the Covid-19 pandemic axis cannot be managed effectively.

It has the responsibility of the official authorities as well as the individuals in the formation of infodemia. Infodemia may arise as a result of the official authorities not providing information and explanation in a transparent manner. This situation can make process management even more difficult. Regarding P1, “Responsibility for the management of infodemia belongs to official authorities. From the point of view of our country, our managers have a great job. The data should be transferred to the public in an accurate and transparent manner. In the world perspective, WHO should approach the process correctly”. In addition, P2, “Due to the nature of human beings, it exaggerates real knowledge. No matter what happens there will be false information propagation. It would be appropriate to establish an information commission including sociologists, psychologists, physicians, and communication experts and to manage the infodemia”. It points out the responsibility of the official authorities with the idea that “the official institutions should inform the society with data that will enlighten the society in a transparent way”.

Participants said, “How should be infodemia management? In the end, the idea that social media should be audited, individuals should be educated and informed about media literacy, digital literacy, and health literacy came to the fore”. They also drew attention to the need for informative, reliable, and transparent explanations in TV programs. Regarding this, P9 said, “News from social media and television channels should have been limited. Sanctions should be imposed on people and institutions that make false information. In addition, people should be educated about the use of social media and digital literacy. It would be correct to broadcast public service advertisements frequently on TV channels”. P8, “posterity may face a larger epidemic. One of the most important aspects of preventing infodemia is training on digital media literacy. It is beneficial for it to be taught as a course in schools. It is also important to obtain information from reliable sources.”

Finally, with the view of media literacy and health literacy, P4 explains infodemic management by this means; “Training on media literacy should be given starting from the primary school level. This type of training is necessary for them to understand whether any information is consistent, true, or false. Health literacy needs to be instilled in society. In this process, health professionals and academicians have a great job. Of course, the media plays an active role in this process. It is necessary to manage this process well by using traditional and digital media. It is also important to establish a mechanism that

will punish those who spread false, false, and erroneous information. Providing completely transparent, accurate, and timely information about the epidemic greatly affects the spread of false-erroneous information". As a result; individuals have a responsibility in the infodemic management process, which is an obtrusive concept that develops with the Covid-19 pandemic. Especially, public institutions and competent authorities should make studies and allocate resources in this area, taking into account the situations (such as pandemics, crises, natural events, etc.) that may occur. Media and health literacy training should be given to the individuals. In addition, timely accurate and consistent information sharing should not be allowed infodemia to emerge.

#### IV. DISCUSSION AND CONCLUSION

In this part of the study, the data, obtained as a result of interviews with academicians, were interpreted. In this context, academicians first expressed their thoughts on infodemia. Infodemia has been found to be information pollution, incomplete information sharing, inconsistent information, and fake news. During the pandemic process, it has been understood that infodemia is the dissemination of information that has no scientific basis and such information affects the members of the society. When the studies in the literature (Depoux et al., 2020) are examined, it is stated that infodemia is the spread of false information and this false information is made for the purpose of poisoning society. In another study (Akyüz, 2020), it was stated that there are prophecy and conspiracy theory claims and fake news that were put forward to manipulate people's lack of knowledge, fear, and confusion about infodemia.

Information about the infodemia is spreading rapidly. In the current time frame, the use of tools and equipment is extremely common depending on technology. In this way, information can reach millions of people within seconds. It is known that the spread of infodemia takes place through both traditional media and social media accounts. Millions or even billions of people use social media and watch television in the national and international arena. The scope of the study has shown that the rate of spread of infodemia is directly proportional to the number and duration of social media usage. Cinelli et al. (2020), in a study they conducted, reveal the existence of findings about the communication channels through which news originating from infodemia spread. When Twitter, Instagram, and YouTube social media tools were examined during the Covid-19 pandemic process, it was found that the highest interaction volume in terms of publishing and commenting was found on main platforms such as YouTube and Twitter. In the study made by Sezerer Albayrak (2020), it has been concluded that it has become a media that harms society since news about the Covid-19 pandemic can be shared repeatedly, especially on social media (Facebook, Twitter, Instagram, etc.).

The process from the beginning of the epidemic to the present time was taken as the basis for the evaluation of infodemic in the context of a pandemic. In this process, it is seen that different interpretations and approaches are exhibited about the same situation and concepts at different times. The current study has shown that the thoughts raised in the early days of the pandemic led to different approaches over time. In the early days of the pandemic, the thought that the use of masks was not important prevailed in society, and it was claimed that the mask reduced the spread of the virus in the following process. The dominance of this fact has been set forth as an important example at this point.

Similarly, there were those who said that the medicines applied for therapeutic purposes during the pandemic process are beneficial as well as harmful to human health. It is known that there are ideas that gargle with salt water and consuming foods such as beef broth protect from the virus. The same situation is experienced with the vaccination process. Many unfounded information and conspiracy theories have been put forward that chips will be placed in the human body, human DNA will be changed, people will be sterilized, and that it is ineffective against the mutated virus, especially with vaccines. However, it is known that this information is not based on a scientific result, and it can be interpreted that it is a part of the infodemic process. Many misinformation of this kind can be found in almost all societies and countries. When examined, Akyüz (2020) expressed that, while WHO engages in intensive information activities to prevent misinformation about the epidemic and disease, claims and conspiracies such as "alcohol defeated Covid-19", "the disease is a planned experiment", "the virus is produced in the laboratory". Upon the widespread use of this theories, it started new studies by defining such information

with the concept of "infodemia" and organized "infodemiology" conferences. This kind of approach has been made to prevent infodemia.

The infodemia related to the pandemic has negatively affected social life, human relations, and social life at many points. As a result of the spread of news whose accuracy was not proven, an atmosphere of panic occurred in people, and social life was interrupted. Individuals are starting to have trouble distinguishing which news is true or false. Considering in the context of individual or psychological effects; individuals have started to worry even with some symptoms such as sneezing, cough, and fever. In addition, due to the ways of transmission of the virus, there has been an increase in behaviors such as washing the money we use, wiping the mobile phone frequently, constantly washing clothes, and taking a shower. In this process applied social distance rules and quarantines have kept people away from each other. Considering in a political context; The fact that the data on the Covid-19 pandemic were not shared with clear figures from the first days and the information was not given enough, caused serious criticism and infodemia. In this case, polarization and conflicts have occurred between political parties and society. When viewed in an economic context; with the pandemic, many restrictions have come up. Workplaces belonging to different sectors have been closed for precautionary purposes. Also, curfews prevented people from engaging in economic activity. On the other hand, individuals started to migrate from the city to the villages and plateaus and preferred a more isolated life. As a result, economic fluctuations, bankruptcies, business closures, and collapses have created. Finally, when viewed in the context of social effects; human relations have been weakened and social activities have decreased significantly.

Studies have shown that infodemia causes many negative repercussions in society. In a study conducted by Secosan et al. (2020), it was revealed that healthcare workers are affected by false news and experience different levels of psychological disorders such as stress and insomnia. In the study carried out by Akyüz (2020), it was stated that as a result of fake news and false information, people did not take measures or resort to extreme measures, applied wrong protection and treatment methods, shaken trust in public authorities, and emerged new problems in terms of health and sociology during the pandemic period. Cathal and Michelle (2020) also showed in their research that almost half of the participants experienced negativity in their professional activities due to false news. According to the study of Tam et al. (2020), it was determined that doctors and nurses affected by inaccurate news are more stressful than healthcare professionals who are not affected by false information. Finally, in the study conducted by Bansal et al. (2020), it was determined that fake medical news, which was put forward, caused stress on healthcare professionals in their professional and personal lives. As a result, human life has been negatively affected in different areas due to the Covid-19 pandemic and the resulting infodemia. These negativities appeared both individually and socially. The result of this study can be expressed that infodemia is as dangerous as a pandemic. In addition, it can be stated that a drug or a more effective vaccine can be found for the Covid-19 pandemic, but it is extremely difficult to prevent the spread of infodemia and to prove the accuracy of the news. For this reason, it can be interpreted that infodemia is as harmful and dangerous as the pandemic.

As mentioned, it is important to control the infodemia, which has many negative effects, in pandemic processes. In the scope of the study, the participants put forward different opinions about the management of infodemia. As a result of the findings, it was emphasized at this point that it was necessary to establish information commissions in societies, to make continuous guidance, information, and announcements on the pages of the WHO and the official institutions of the countries (Ministry of Health and related institutions), and to impose sanctions on those who make unfounded news and spread information about the pandemic. In addition, it has been demonstrated that media literacy and health literacy are extremely important in infodemic management.

Considering the studies conducted on the subject, it is seen that different approaches are displayed at the point of infodemia management. In a study, the classical structuring of public authorities and traditional media is insufficient in combating misinformation, especially fake news circulating on social media that causes nonrecoverable damages (Akyüz, 2020). People who influence society, including healthcare professionals, health authorities, and leaders of the society, media organs should take

responsibility for reducing social discrimination. It is important that the right information is transferred to the public (Başterzi et. al., 2020). It is recommended to provide digital media literacy training to society through individuals and organizations such as scientists, communicators, academics, NGOs, and municipalities in order to manage infodemia (Sezerer Albayrak, 2020). On the other hand, it was emphasized that social and behavioral dimensions should be taken into consideration in combating infodemia. In addition, it was emphasized that "moral values" should be taken into consideration in combating misinformation (Ecker et. al., 2020). In addition, it was stated that healthcare professionals should provide correct information by refuting misleading information about health in order to manage infodemia (Cathal and Michelle, 2020). Finally, it was stated that academics should wage a scientific war against those who spread fake news. In the Covid-19 pandemic process, it was emphasized that academicians should express the truth with scientific publications in response to the news of people who made and spread fake, false, pretense news and spread them (Tapia, 2020).

It is likely that this Covid-19 pandemic we experience in the end and new pandemics, crises, elections, wars, and natural events will occur from now on. With these new situations, there is always the potential for new infodemics to occur. In the current period of time, we live in the communication age and the rapid spread of information afterward, conspiracy theories, fake news, false information without a scientific basis will cause an increase in our lives. This increase will definitely affect us in many ways. This increase will definitely affect us in many ways. Every individual, social, institutional, and state level is responsible for minimizing this impact. It is necessary to reach the capacity for individual critical thinking, adequate knowledge, and education level. At the same time, individuals should be trained in media and health literacy. Common synergy must be attained by reaching the level of the information society socially. Finally, both international organizations and institutions, as well as national institutions and states, should be ready for the struggles against infodemia that may develop together with the problems experienced. Agreements should be made with international social media and communication technology companies. Content restrictions and restrictions should be applied to infodemic news surfing on social media through these companies. In this way, the dissemination of the statement will be prevented. In this way, the dissemination of the statement will be prevented. In order to prevent infodemia, governments, official institutions, and organizations need to inform citizens sufficiently about the events experienced. When there is incomplete information, individuals complete this deficiency with false and false news. Therefore, the issue of informing and making sufficient explanations should be emphasized and always be transparent at the point of information.

## V. PRACTICE IMPLICATIONS

Healthcare professionals, healthcare administrators and governments should inform the public about the infodemic and provide accurate, transparent and unbiased information throughout the pandemic process. International organizations and institutions, as well as national institutions should be ready for the struggles against infodemia that may develop together with the problems experienced. The pandemic process is a tiring period. For this reason, trainings such as coping with stress should be given to nurses, doctors and other health workers in this process.

**Ethical Approval:** The present study was approved by the Süleyman Demirel University, Social and Humanities Ethics Committee (Date: 25.05.2021; Number of Meetings: 107; Number of Decisions: 1).

## REFERENCES

- Ahinkorah, B. O., Ameyaw, E. K., Hagan Jr, J. E., Seidu, A. A., & Schack, T. (2020). Rising above misinformation or fake news in Africa: Another strategy to control COVID-19 spread. *Frontiers in Communication*, 5, 45.
- Akyüz, S. S. (2020). Misinformation outbreak: fake news circulation in Turkey during Covid-19 pandemic. *Mediterranean Journal of Communication*, 34, 422-444.

- Aydın, A. F. (2020). Disinformation in social media in post-truth period: the Covid-19 (new coronavirus) pandem process. *Academic Social Studies*, 4(12), 76-90.
- Bansal, P., Bingemann, T. A., Greenhawt, M., Mosnaim, G., Nanda, A., Oppenheimer, J., Sharma, H., Stukus, D., & Shaker, M. (2020). Clinician wellness during the COVID-19 pandemic: Extraordinary times and unusual challenges for the allergist/immunologist. *J. Allergy Clin. Immunol. Pract.*, 8(6), 1781-1790.
- Başterzi, A. D., Cesur, E., Güvenç, H.R., Taşdelen, R., & Yılmaz, T. (2020). Covid-19 and stamping. *The Sixth Month Assessment Report of the Turkish Medical Association Covid-19 Pandemic*, 415-424.
- Cinelli, M., Quattrocioni, W., Galeazzi, A., Valensise, C. M., Brugnoli, E., Schmidt, A. L., Zola, P., Zollo, F. & Scala, A. (2020). The covid-19 social media infodemic. *Scientific Reports*, 10, 16598.
- Creswell, J. W. (2017). *Research design, qualitative, quantitative and mixed method approaches*. (translator: S. B. Demir), 3rd Edition. Ankara: Educational Book.
- Creswell, J. W., & Miller, D.L. (2000). Determining validity in qualitative inquiry. *Theory into Practice*, 39(3), 124-130.
- Demir, O. Ö. (2017). Qualitative research methods. In K. Boke (Ed.), *Research Methods in Social Sciences (pp.285-318)*, 5th Edition. Istanbul: Alfa Publications.
- Depoux, A., Martin, S., Karafillakis, E., Preet, R., Wilder-Smith, A., & Larson, H. (2020). The pandemic of social media panic travels faster than the COVID-19 outbreak. *Journal of Travel Medicine*, 27(3), 031.
- Ecker, U., O'Reilly, Z., Reid, J. S., & Chang, E. P. (2020). The effectiveness of short-format refutational factchecks. *British Journal of Psychology*, 111(1), 36-54.
- Erku, D. A., Belachew, S. A., Abrha, S., Sinnollareddy, M., Thomas, J., Steadman, K. J., & Tesfaye, W. H. (2020). When fear and misinformation go viral: Pharmacists' role in deterring medication misinformation during the 'infodemic' surrounding COVID-19. *Research in Social and Administrative Pharmacy*, 17(1), 1954-1963.
- García-Marín, D. (2020). Infodemia global. Desórdenes informativos, narrativas fake y fact-checking en la crisis de la Covid-19//Global infodemic: Information disorders, false narratives, and fact checking during the Covid-19 crisis. *Profesional de la Información*, 29, 1-20.
- Gupta, L., Gasparyan, A. Y., Misra, D. P., Agarwal, V., Zimba, O., & Yessirkepov, M. (2020). Information and misinformation on COVID-19: A cross-sectional survey study. *Journal of Korean Medical Science*, 35(27), 1-11.
- <https://en.wikipedia.org/wiki/Infodemic>. Date of access: 11.12. 2020.
- [https://en.wikipedia.org/wiki/Misinformation\\_related\\_to\\_the\\_COVID-19\\_pandemic](https://en.wikipedia.org/wiki/Misinformation_related_to_the_COVID-19_pandemic). Date of access: 12. 12. 2020.
- <https://www.lexico.com/definition/infodemic>. Date of access: 11.12. 2020.
- <https://www.washingtonpost.com/archive/opinions/2003/05/11/when-the-buzz-bites-back/bc8cd84f-cab6-4648-bf58-0277261af6cd/> Date of Access: 23.02.2022.
- <https://www.who.int/director-general/speeches/detail/munich-security-conference>. date of access: 12. 12. 2020b.

<https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200202-sitrep-13-ncov-v3.pdf> Date of access 23.02.2022a.

Mesquita, C. T., Oliveira, A., Seixas, F. L., & Paes, A. (2020). Infodemia, fake news and medicine: Science and the quest for truth. *International Journal of Cardiovascular Sciences*, 33, 203-205.

O'Connor, C., & Murphy, M. (2020). Going viral: doctors must tackle fake news in the covid-19 pandemic. *BMJ*, 369, 1587.

Secosan, I., Virga, D., Crainiceanu, Z. P., Bratu, L. M. & Bratu, T. (2020). Infodemia: Another enemy for romanian frontline healthcare workers to fight during the COVID-19 outbreak. *Medicina*, 56(12), 679.

Sezerer Albayrak, E. (2020). Covid-19 döneminin doğurdukları: yeni toplum düzeni ve medyada ortaya çıkan sahte haberler. *İletişim Çalışmaları, Sakarya Üniversite Yayınları*. 1-14.

Stephens, M. (2020). A geospatial infodemic: Mapping Twitter conspiracy theories of Covid-19. *Dialogues in Human Geography*, 10(2), 276-281.

Tam, C. W. C., Pang, E. P. F., Lam, L. C.W. & Chiu, H. F. K. (2004). Severe acute respiratory syndrome (SARS) in Hong Kong in 2003: Stress and psychological impact among frontline healthcare workers. *Psychological Medicine*, 34(7), 1197-1204.

Tapia, L. (2020). COVID-19 and fake news in the Dominican Republic. *American Journal of Tropical Medicine and Hygiene*, 102(6), 1172–1174.

Yıldırım, A., & Şimşek, H. (2016), *Qualitative research methods in the social sciences*, 10. Edition. Ankara: Seçkin Publishing.