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### Determination of information, attitudes and behaviors about immune plasma donation of individuals diagnosed with COVID-19

#### COVID-19 tanısı alan bireylerin immün plazma bağıışı hakkında bilgi, tutum ve davranışlarının belirlenmesi

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#### ABSTRACT

**Background:** Immune plasma therapy is an effective solution in pandemic conditions until an effective and proven treatment is found. In this process, a large number of volunteers who accept to be immune plasma donors are needed. Therefore, being informed about the hesitation of the donors regarding plasma donation will be a guide for voluntary donor recruitment. The aim of this research was to evaluate the knowledge, attitudes, and behaviors of individuals diagnosed with Covid 19 about immune plasma donation.

**Materials and Methods:** This is cross-sectional research. Between January and May 2021, individuals between the ages of 18 and 60 who received treatment in a training and research hospital's Covid 19 clinics were included.

**Results:** The mean age of the participants was 43.79±11.47 years, 45.5% (n=100) female and 55% (n=120) male. 46.36% of the participants are considering becoming immune plasma donors. One of the factors that prevent being an immune plasma donor is the thought that "it may negatively affect my health." Half of the participants do not know whether sufficient immune plasma donation is made in the country.

**Conclusions:** The health care system needs to be strengthened about immune plasma donation during the pandemic process. In addition, efforts should be made to eliminate the hesitations of the public about donations.

**Keywords:** Immune plasma, Volunteer, Donor, Covid 19, Pandemic

#### ÖZET

**Amaç:** İmmün plazma tedavisi, pandemi koşullarında etkili ve kanıtlanmış bir tedavi bulunana kadar etkili bir çözümdür. Bu süreçte immün plazma bağıışçısı olmayı kabul eden çok sayıda gönüllüye gereksinim vardır. Bağıışçıların, plazma bağıışına ilişkin çekinceleri hakkında bilgi sahibi olmak gönüllü bağıışçı kazanımı konusunda yol gösterici olacaktır. Bu araştırmanın amacı, Covid 19 tanısı alan bireylerin immün plazma bağıışı konusundaki bilgi, tutum ve davranışlarını değerlendirmektir.

**Materyal ve Metot:** Bu araştırma kesitsel bir araştırmadır. Araştırmaya Ocak- Mayıs 2021 tarihleri arasında, bir eğitim ve araştırma hastanesi Covid 19 kliniklerinde tedavi almakta olan, 18-60 yaş arasındaki bireyler dâhil edilmiştir.

**Bulgular:** Katılımcıların yaş ortalaması 43,79 ±1 1,47, %45,5'i (n=100) kadın, %55'i (n=120) erkekti. Katılımcıların %46,36'sı immün plazma bağıışçısı olmayı düşünmektedir. İmmün plazma bağıışçısı olmaya engel olan faktörlerin başında ise 'Sağlığını olumsuz etkileyebilir' düşüncesi gelmektedir. Katılımcıların yarısı ülkede yeterli immün plazma bağıışının yapılıp yapılmadığını bilmemektedir.

**Sonuç:** Pandemi sürecinde sağlık bakım sisteminin immün plazma bağıışı konusunda güçlendirilmesi gerekmektedir. Ayrıca halkın bağıış konusunda çekincelerinin giderilmesi için çalışmalar yapılmalıdır.

**Anahtar Kelimeler:** İmmün plazma, Gönüllü, Bağıışçı, Covid-19, Pandemi

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## INTRODUCTION

Immune plasma therapy is a passive antibody therapy that has been tested to combat the Covid-19 virus effectively. Passive antibody therapy uses plasma-containing antibodies developed by the recovered individual against the infected pathogen in individuals with active disease for therapeutic purposes. It is stated that immune plasma is used to treat infectious diseases such as Ebola, H5N1, MERS and SARS-Cov, and Ebola (Hacıbekiroğlu, Yiğenoğlu & Kalpakçı, 2020; Rajendran et al., 2020; Stanworth et al., 2020).

Immune plasma can only be supplied by voluntary donors (Beköz, Bilgen & Anak, 2020). Volunteering is essential in donating blood, helping people help a stranger (Ferguson, Murray & O'Carroll, 2019). Therefore, a large number of volunteers who agree to be immune plasma donors are needed (Beköz et al., 2020; Masser, Hyde & Ferguson, 2020).

Although the values and cultural aspects of each society are different from each other, this situation affects the behavior of individuals (Tagny et al., 2020). Being an immune plasma donor during the pandemic process expresses social responsibility, civic duty, and solidarity in different cultures (Sayedahmed et al., 2020; Suluhan et al., 2016; World Health Organization, 2020). Several factors are thought to influence people's decision to donate immune plasma. Beliefs shaped by the COVID-19 experience are at the forefront of these (Masser et al., 2020). Information such as having information about COVID-19, how the disease progresses, and mortality rates may affect being an immune plasma donor. In addition, some factors motivate and inhibit individuals related to immune plasma donation (Sayedahmed et al., 2020; Suluhan et al., 2016). In the studies, the experiences of the individual treated with the diagnosis of Covid 19, being grateful for getting rid of the virus and wanting to make a sacrifice in return, the thought of helping in the research of coronavirus treatments, the pride of saving lives, empathizing with those infected with the virus, thinking that it is beneficial for health and that it can be rewarded with immune plasma. Indicated that he might direct his donation (Ferguson et al., 2019; Masser et al., 2020; Suluhan et al., 2016). However, it is stated that factors such as fear of needles, distrust (to health institutions, blood centers, etc.), the thought that donating will prevent recovery, lack of logistics, religion, and knowledge can prevent being an immune plasma donor (Dhiman et al., 2021; Sayedahmed et al., 2020; Tagny et al., 2020).

Considering the consequences of the pandemic, it is seen that individuals infected and recovered with the Covid 19 virus play a vital role in the fight

against the epidemic (World Health Organization, 2020). Therefore, to increase the number of volunteers in immune plasma donation, individuals' knowledge, attitudes, and behaviors related to the subject should be addressed (Dhiman et al., 2021; Sayedahmed et al., 2020; Suluhan et al., 2016). It is thought that our research will be beneficial in understanding the impact of the pandemic process on potential immune plasma donors, raising awareness of immune plasma donation in the community, and developing strategies for adequate and safe immune plasma supply.

## MATERIALS AND METHODS

### Purpose and Study Design

This research was conducted as descriptive cross-sectional research to evaluate the knowledge, attitudes, and behaviors of individuals diagnosed with Covid-19 about immune plasma donation (Erdoğan, Nahcivan & Esin, 2015).

### Population and Sample of the Research

The universe of the study consisted of individuals diagnosed with Covid-19 and receiving inpatient treatment. The inclusion criteria were individuals between the ages of 18-60, who were conscious, received treatment in a training and research hospital's Covid-19 clinics between January and May 2021 and agreed to participate in the study. Individuals who did not want to participate in the study and could not communicate verbally were excluded from the study. Although the study began with 232 participations, 12 participations who did not complete all of the questionnaires were excluded. Consequently, the study was concluded with the participation of 220 participations. No sample selection was done, all participations who volunteered to answer the study questions were included in the study.

### Data Collection Tools

As a result of the literature review, a 14-question form was created by the researchers (Suluhan et al., 2016; Kebede et al., 2022). The form includes four socio-demographic characteristics (age, gender, marital and educational status) and ten questions on determining knowledge, attitudes, and behaviors about immune plasma donation.

### Data Collection Procedure

The researchers filled the data collection form in approximately ten minutes using the question-and-answer method. Interviews were held in inpatient rooms following the measures required by the pandemic conditions.

### Data Analysis

Statistical Package for the Social Sciences (SPSS) 21.0 for Windows program was used for statistical analysis in this research. Percentage, mean, and chi-square tests were used in statistical analysis to evaluate the data. A  $p < 0.05$  value was accepted for statistical significance.

### Ethical Considerations

After obtaining permission from the Ministry of Health for the research, its compliance with ethical principles was evaluated by the Ethics Committee of a training and research hospital and ethical permission was obtained with registration number

46418926 2020/515. It was explained to each participant that the purpose of the study, that they could leave the research at any time, that the information received would be kept confidential, and their written and verbal consents were obtained.

### RESULTS

The mean age of the participants was  $43.79 \pm 11.47$  years, 45.5% (n=100) female and 55% (n=120) male. There was no statistically significant difference between the participants' opinions about donating immune plasma and their gender, marital status, and educational status ( $p > 0.05$ ). 46.4% of the participants are considering becoming immune plasma donors.

<b>Table 1:</b> Distributions of factors that predispose and prevent participants from becoming immune plasma donors.			
Questions	Answers	n*	%
<b>Consideration to be an immune plasma donor</b>	I think	102	46.4
	I don't think	48	21.8
	I am undecided	70	31.8
<b>Factors leading to donor</b>	By being a donor, I can save someone's life.	114	37.6
	One day, my relatives may also need immune plasma.	93	30.7
	I can acquire merit.	54	17.8
	If I have enough information, I can be a donor.	42	13.9
<b>Factors that hinder being a donor</b>	It can negatively affect my health.	96	34.9
	I am afraid of giving blood (injection etc.).	54	19.6
	It is not in line with my religious beliefs.	7	2.5
	I do not have enough information about immune plasma donation.	90	32.7
	I can be reinfected when I go to donate	28	10.2
<b>(*n folded )</b>			
<b>Table 2:</b> Distribution of responses to statements about immune plasma donation.			
Questions	Answers	n*	%
<b>Which age group can donate immune plasma?</b>	Between the ages of 18-60 (Correct answer)	91	41.4
<b>Who can be an immune plasma donor?</b>	Have not become pregnant, have not had a miscarriage have not had an abortion, have not had a blood transfusion before (Correct answer)	70	31.8
<b>How often can immune plasma be donated?</b>	Maximum 3 times in 1 month (Correct answer)	85	38.6
<b>Where can immune plasma be given?</b>	In blood centers (Correct answer)	48	21.8
<b>What does immune plasma donation mean to you?</b>	It is a social responsibility	112	29.9
	It is to cooperate.	89	23.7
	It's a civic duty	60	16
	It's an honorable act	49	13.1
	It is spiritual satisfaction	49	13.1
	It means nothing	16	4.3
<b>Do you think that sufficient amount of immune plasma is donated in our country?</b>	Yes	21	9.5
	No	89	40.5
	No idea	110	50
<b>What can be done for voluntary immune plasma donation?</b>	More information should be given to the community about immune plasma donation.	135	30.1
	The staff should be interested and knowledgeable in the places where donations will be made.	105	47.7
	The places where donations will take must be clean and accessible.	96	43.6
	Donors and their relatives should be guaranteed to find immune plasma when they need it.	63	14
	Donors should be given prizes/gifts.	44	9.8
	Immune plasma donation should be covered more in the media.	6	1.3
<b>(*n folded )</b>			

One of the factors that lead the participants to become immune plasma donors is the idea that 'I can save someone's life as a donor.' At the beginning of the factors that prevent being an immune plasma donor, there is the idea that 'it may adversely affect my health.' (Table 1).

The participants answered the questions about the criteria sought for the people who will donate immune plasma, 41.4% for the age group who can donate, and 31.8% for the appropriate people. 38.6% of the participants correctly answered how often the immune plasma donation was made, and 21.8% where. 29.9% of the participants think that donation is a 'Social responsibility'.

Half of the participants 'do not know plasma, whether adequate immune plasma donations are made in the country'. They think that 'the places where donations will take place should be clean, accessible and the staff should be interested and knowledgeable' to increase voluntary donation (Table 2).

## DISCUSSION

When the literature is examined, studies demonstrate a relationship between thinking about and donating blood and socio-demographic characteristics (Burgdorf et al., 2017; Patel et al., 2019). However, contrary to the literature, no significant difference was found between the gender and age in our research.

It is thought that this result may be related to the restrictions imposed by the administration, the subjective and cultural aspects of potential donors, and their desire to protect themselves, regardless of gender, marital and educational status, considering donating blood during the pandemic period compared to the normal process (Tagny et al., 2020).

In our research, the opinion that "I can save someone's life by being a donor" is one of the factors that lead the participants to become immune plasma donors. At the beginning of the factors that prevent being an immune plasma donor, there is the idea that 'it may adversely affect my health'. One of the social psychological theories used to understand and predict human behavior is the Planned Behavior Theory. According to this theory, intention is the most important factor in predicting behavior. On the other hand, "beliefs about the possible consequences of the behavior" and "beliefs about the factors that prevent the behavior" are effective in the realization of the behavior (Ferguson et al., 2019).

According to our research results in terms of Planned Behavior Theory, it is estimated that those who do not intend to donate plasma (%53.6) will not donate. In the study of Masser et al., a significant relationship was found between the intention to

donate blood during the pandemic process and the behavior of donating blood (Masser et al., 2020).

Considering that plasmas contribute to the treatment of severe Covid cases, our research finding is critical in encouraging individuals who are unwilling or undecided to donate. One of the factors that prevent donating, the thought of "It may adversely affect my health" (34.9%), is among our findings as an issue that needs to be addressed for public health. Wrong beliefs need to be corrected within the framework of "beliefs about the factors that prevent behavior realization." The "altruism" that we encounter in social psychology is defined as any behavior that is done only for the benefit of others, without any expectation of benefit (Ferguson, 2015). When we look at the literature, it is seen that altruism is among the factors that motivate blood donation (Ferguson et al., 2019; Sayedahmed et al., 2020; Suluhan et al., 2016). Sayedahmed et al. In his study, the phrase "I wanted to help other people," is stated at the beginning of the factors that motivate blood donation during the pandemic process (Sayedahmed et al., 2020). Masser et al. in their study, it was stated that there was a positive relationship between solid altruism and the intention to donate (Masser et al., 2021). In our research, "I can save someone's life by being a donor" is one factor that leads the participants to donate. Our finding is that altruism is a characteristic of human nature. A donation is a relatively easy way to help someone during a pandemic. It is thought that there may be a relationship between altruistic behavior (donating) and the person's instinctive satisfaction. In our study, less than half of the participants gave correct answers to the criteria sought for people who donate immune plasma, how often, and where the donation was made. In addition, half of the participants do not know whether adequate immune plasma donation is made in the country (Table 2). Masser et al. in his study, similar to our research finding, the participants' awareness about the immune plasma was found below. It was reported that 55% of them did not know about the immune plasma (Masser et al., 2021). Awareness and attention to immune plasma can be the first step towards effective persuasion to donate (Ferguson et al., 2019; Suluhan et al., 2016). Therefore, relevant institutions should focus on disseminating information on the importance and eligibility criteria of immune plasma donation through the most appropriate channels to reach the community (Masser et al., 2021; Tagny et al., 2020; World Health Organization, 2020).

Blood donation is a safe process. The most critical priority for donation is the safety of the donor and the person in need of blood (World Health Organization, 2020). Our research concluded that to increase voluntary donations, the places where donations will take place should be clean and accessible, and the staff should be interested and



knowledgeable. Similarly, Tagny et al. in their study, the participants reported that the most important measures to be applied for safe donation during the pandemic process are the distribution of face masks and hydroalcoholic solutions, the protection of social distance, the provision of hygiene, and the warm welcome of the staff (Tagny et al., 2020). During the donation, hand hygiene practice, environmental infection control, use of personal protective equipment are among the measures taken to protect both the donor and the health personnel (Stanworth et al., 2020). These measures have also been shown to be effective in the previous SARS outbreak (Lee, 2020). In addition, it is thought that our participants' thought that "it may adversely affect my health" as the first obstacle to donation may be related to our finding that when this obstacle is removed or reduced, the fear of the donor will be greatly reduced. As a result, the rate of voluntary donations may increase. For this reason, it can help ensure safe and more plasma supply by blood centers giving reliable, clear messages about the donation process about the potential risks and how protective measures are taken during immune plasma donation during the pandemic process (Masser et al., 2020; World Health Organization, 2020). However, it is thought that strengthening the health care system in immune plasma donation during the pandemic process will contribute to the provision of more qualified and safe health services and the application of immune plasma as a fast and safe treatment method in the fight against Covid-19.

Voluntary donation should be seen as a civic duty. Therefore, attention should be drawn to the issue in public service ads and health centers. Volunteer donor acquisition can be achieved by having the necessary information about donation, identifying and eliminating the reservations of the donor candidates.

This research was limited to patients hospitalized in the Covid clinics of a training and research hospital. Therefore, the results can only be generalized to this group. The authors declare that there are no conflicts of interest.

## CONCLUSION

Despite the fact that the need for immune plasma in the fight against Covid-19 continues to increase, the low number of regular and voluntary donors reveals the necessity of this study. Health services need the help of volunteer donors in this process. In clinical practice, health professionals play a crucial role in encouraging individuals to donate blood. Because they are a professional group that leads the society in this regard with both their behaviors and health education. One of the most important conditions for gaining more immune plasma donors is the continuous informing of the society on this issue. In this way, the habit of

donating can be gained to individuals. However, in order to achieve this gain, health professionals must determine the knowledge level of the society about blood donation, determine, manage and meet the expectations of the donors. Based on the findings of our study, it will be beneficial for health professionals to plan and implement trainings on immune plasma donation, taking into account the social characteristics. In addition, these health professionals are recommended to be donors if they meet the conditions in order to be a role model for the society.

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## Author Contributions:

**Idea/Concept:** Reyhan Doğan, Serap KORKMAZ; **Design:** Reyhan Doğan, Serap KORKMAZ; **Supervision/Consulting:** Reyhan Doğan, Serap KORKMAZ; **Data Collection and/or Processing:** Reyhan Doğan, Serap KORKMAZ; **Analysis and/or Interpretation:** Reyhan Doğan, Serap KORKMAZ; **Literature Review:** Reyhan Doğan, Serap KORKMAZ; **Writing of the Article:** Reyhan Doğan, Serap KORKMAZ; **Critical Review:** Reyhan Doğan, Serap KORKMAZ.

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