FACTORS THAT ARE ASSOCIATED WITH WILLINGNESS TO BE VACCINATED AND THE PERCEIVED EFFECTIVENESS OF VACCINES FROM ABROAD AND LOCAL VACCINES

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ABSTRACT

FACTORS THAT ARE ASSOCIATED WITH WILLINGNESS TO BE VACCINATED AND THE PERCEIVED EFFECTIVENESS OF VACCINES FROM ABROAD AND LOCAL VACCINES

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The aim of this study is to examine the factors that predict people's vaccination decisions and the perceived effectiveness of vaccines developed and produced abroad and vaccines developed and produced in Turkey. 67.6% of respondents were willing to be vaccinated. The results showed that people who accepted vaccinations had higher levels of COVID-19-related anxieties, they reported more trust in vaccine companies and doctors, and scored low on trust in governmental institutions, but on the other hand, were more satisfied with the government's response to the pandemic, believed in COVID-19 conspiracy theories, thought that vaccines are effective, and they were more prone to catching the virus. Participants believed that the most effective vaccine was Pfizer (87.15%). 62.10% of the participants reported that local vaccines will be effective. A higher level of satisfaction with the government's response to the pandemic, getting information from governmental sources, trust in state, trust in healthcare workers, trust in vaccine companies and having Covid-19 or knowing someone who had Covid-19 were found to be predictive on the perceived success of local vaccines developed in Turkey. For the perceived effectiveness of vaccines that were developed abroad, trust in healthcare workers and vaccine companies were significant predictors. Belief in COVID-19 conspiracy theories was a significant predictor of the perceived effectiveness of vaccines from abroad and people's willingness to vaccinate. Overall different factors play a role in the perceived effectiveness of vaccines.

Keywords: vaccine hesitancy, conspiracy beliefs, trust in institutions, perceived effectiveness of vaccines, Turkish vaccines

ÖZ

AŞI OLMA İSTEĞİNİ, TÜRKİYE'DEKİ VE YURT DISINDAKI YEREL AŞILARIN ALGILANAN ETKİNLİĞİNİ YORDAYAN FAKTÖRLER

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Bu çalışma, insanların aşı kararlarını yordayan faktörleri, yurt dışı kaynaklı geliştirilip üretilen aşılar ve buna kıyasla Türkiye'de geliştirilip üretilecek olan aşılar olmak üzere ayırarak aşıların algılanan etkinliklerini incelemeyi amaçlamıştır. Araştırma sonuçlarına göre katılımcıların %67,6'sı aşı olmaya istekli olduklarını belirttiler. Araştırma sonuçları, aşıyı kabul edenlerin COVID-19 ile ilgili kaygı düzeylerinin daha yüksek olduğunu, aşı şirketlerine ve doktorlara güvendiklerini, devlete güven düzeylerinin genelde daha düşük olduğunu, bununla birikte hükümetin pandemi ile ilgili eylemlerinden daha memnun olduklarını, COVID-19 komplo teorilerine inandıklarını, aşıların etkin olduğunu ve kendilerinin virüse yakalanmaya daha yatkın olduklarını düşündüklerini gösterdi. Katılımcılar (%87,15) en etkili aşının Pfizer olduğunu düşündüler. Katılımcıların %62,10'u Türkiye'de geliştirilen aşıların etkili olacağını bildirdi. Hükümetin pandemiye olan tepkisinden memnuniyet, devlet kaynaklarından bilgi almak, devlete ve sağlık çalışanlarına duyulan güven, Türkiye'de geliştirilen yerel aşıların etkili olacağını yordayan faktörler olarak belirlendi. Yurt dışında geliştirilen aşıların algılanan etkinliği için ise sağlık çalışanlarına ve aşı şirketlerine duyulan güven önemli belirleyicilerdi.

COVID-19 komplo teorilerine olan inanç, farklı aşıların algılanan etkinliği ve aşı olma istekliliği için önemli yordayıcıydı. Aşıların algılanan etkinliğinde genel olarak farklı faktörler belirlendi; Türkiye için yerli faktörler (devlete güven ve hükümet memnuniyeti) yurtdışı aşılar için ise yabancı faktörler (aşı şirketlerine güven ve komplo inançları) kritik olarak bulundu.

Anahtar Kelimeler: aşı tereddütü, komplo inançları, kurumlara güven, aşıların algılanan etkinliği, Türk aşıları

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CHAPTER 1

INTRODUCTION

1.1. General Introduction

The development of vaccines is one of the most important achievements in the history of medicine because vaccines have prevented many deaths in the last fifty years (Dubé & MacDonald, 2016). Despite the fact that vaccines prevent millions of deaths each year (Hajj Hussein et al., 2015) and there is ample scientific evidence that vaccines are safe (Institute of Medicine (US) Immunization Safety Review Committee, 2004), vaccine hesitancy and refusal have been increasing in many countries in recent years (Dubé et al., 2021).

People weigh the risks against the benefits, and the advantages of vaccination have diminished precisely because they are so effective (Ropeik, 2013). Therefore, ironically, vaccination hesitancy and resistance stem from vaccination success. Disease rates have fallen due to higher vaccination rates, which leads people to think that vaccination is not necessary due to lower infection rates. (Fridman et al., 2021; Kestenbaum & Feemster, 2015).

Anti-vaccination movements have led to lower vaccine acceptance rates, concerns about the safety of vaccines and vaccination programs and increased outbreaks of vaccine-preventable diseases (E. Dubé et al., 2015). In 2019, the World Health Organization identified vaccine hesitancy as one of the ten threats to global health.

The COVID-19 pandemic has had devastating consequences not only on the health system but also on the economy, (Nicola et al., 2020), education (Rapanta et al., 2020) and social life (Prati & Mancini, 2021). The pandemic has resulted in more than 6.5 million deaths worldwide (World Health Organization, 2022). The development of COVID-19 vaccines at an unheard-of pace has been achieved thanks to decades of research and technological advances, the use of innovative platforms that enable the rapid development of candidates, the simultaneous conduct of many trials, large funding, and support from regulatory institutions and their experts working at a faster rate (Rzymski et al., 2021). While the rapid development of COVID-19 vaccines is a massive accomplishment, vaccinating the entire world has numerous obstacles (È. Dubé et al., 2021; E. Dubé & MacDonald, 2016; Murphy et al., 2021; Sallam, 2021). Moreover, other factors may also be involved in COVID-19 vaccinations. The rapid development and approval of vaccines in less than a year have raised public concerns about their safety (Rzymski et al., 2021). The perception of COVID-19 vaccine safety is significantly lower (10.1%) than the perception of overall vaccine safety (Syan et al., 2021). Another challenge is that there are many questions about how long the immune response lasts after vaccination. (Baldo et al., 2021). Lastly, the approval of the first COVID-19 vaccines was received with an excessive range of scientifically unsupported claims. Those claims widely circulated and promoted through social media, potentially reducing people's willingness to vaccinate (Loomba et al., 2021). Indeed, evidence shows that people who use social media intensively (more than three hours a day) have higher rates of vaccine hesitation compared to people who use it less. (Mascherini & Nivakoski, 2022).

The high vaccination resistance and hesitancy rates worldwide challenge achieving herd immunity (Coustasse et al., 2021). COVID-19 vaccination acceptance rates as low as 60% have been recorded in several studies, which pose a severe challenge to efforts to manage the COVID-19 pandemic. (Sallam, 2021). Overall, the Middle East, Eastern Europe and Russia have lower vaccine acceptance rates, while East and Southeast Asia have higher vaccine acceptance rates. (Sallam, 2021). COVID-19 vaccination acceptance rates in Turkey range between 54.7% - 79% (Hazar, 2021; İkiışık et al., 2021; Karabela et al., 2021; Kucukkarapinar et al., 2021; Nazlı et al., 2022; Salali & Uysal, 2020). Currently, only 68.33% (62.71% of them fully vaccinated) of the population got the COVID-19 vaccine (Ritchie et al., 2020).

Vaccines not only protect people from vaccine-preventable diseases, but also prevent the spread of these diseases in the community. The success of the vaccines results from herd immunity which is achieved when most of the population gets vaccinated (Dubé & MacDonald, 2016; Fine et al., 2011). Therefore, vaccinating a high percentage of the population is vital to prevent people from contracting vaccine-preventable diseases (Fine et al., 2011). Herd immunity can also be attained when diseases spread through the population, but this will cause plenty of avoidable suffering, illness, and death (World Health Organization, 2020).

Plenty of terms have been used in the literature to define people's decisions regarding vaccination: vaccine acceptance, trust in vaccines, vaccine confidence, vaccine hesitancy, vaccine resistance, anti-vaccine, pro-vaccine, and vaccine demand. Because these terms are sometimes used interchangeably, vaccination intentions can be difficult to document, monitor and intervene in. (E. Dubé & MacDonald, 2016; National Vaccine Advisory Committee, 2015). It is important to note that this is not a strict dichotomous distinction. Rather, there is a spectrum from people who reject vaccines completely to people who accept vaccines completely. For instance, a vaccine-hesitant person might refuse to get vaccinated, delay getting vaccinated, or get vaccinated but still have concerns about the vaccines (E. Dubé & MacDonald, 2016).

Vaccination decisions, like many other health behaviours, are complex and multifaceted (Dubé & MacDonald, 2016). In the COVID-19 context, Prickett et al. (2021) found that almost 40% of respondents reported that the most compelling reason for getting vaccinated was to avoid contracting COVID-19 or becoming seriously ill if they did. The other three most common reasons for getting vaccinated were to prevent others from contracting COVID-19, the vaccine doesn't work unless most people are vaccinated, and to help society return to normal.

Vaccine hesitancy is a context-dependent and complex subject that changes by location, time and different vaccines (MacDonald & SAGE Working Group on Vaccine Hesitancy, 2015). As vaccine refusal and hesitancy are on the rise worldwide, this study aims to determine the prevalence of COVID-19 vaccine refusal in Turkey and the factors contributing to refusal or hesitation.

The next section will begin with a literature review on conspiracy beliefs, trust in institutions, satisfaction with the government's response to the pandemic, COVID-19-related anxiety, perceived susceptibility, sources of information, experiences with vaccination, perceived effectiveness of vaccines coming from abroad, perceived effectiveness of local vaccines, COVID-19 history, and chronic disease history. The links between these concepts and anti-vaccination attitudes will be examined. The materials and procedure for the current study will be provided after that. Finally, the present study's findings will be provided, and they will be evaluated in light of the literature and with references to the study's potential implications.

1.2. Predictors of Willingness to Vaccinate

Vaccine hesitancy is a complex subject; therefore, many variables predict vaccine hesitancy ranging from sociodemographic, psychological, health-related, political, and information sources (Murphy et al., 2021). Findings on sociodemographic variables are somewhat contradictory. In terms of sex differences, many studies found that women are less vaccine-accepting than men (Akarsu et al., 2021; Dror et al., 2020; Neumann-Böhme et al., 2020; Salali & Uysal, 2020), but there are also contrary findings (Murphy et al., 2021). But in general women are more interested in and more actively seek health-related information than men, pay more attention to potential outbreaks around the world, and are much more careful about how the products they buy in everyday life affect their health (Ek, 2015). Having children negatively predicts vaccine acceptancy (Dror et al., 2020; Salali & Uysal, 2020). Conversely, Akarsu et al. (2020) found that those with children were more willing to vaccinate. Most studies found that higher education level is a positive predictor (Akarsu et al., 2021; Bendau, Plag, et al., 2021; Salali & Uysal, 2020), but it was also found to be a negative predictor (Malik et al., 2020). People who lost their job during the pandemic were more willing to vaccinate (Dror et al., 2020). Lower-income increased vaccine resistance (Murphy et al., 2021; Paul et al., 2021). Some studies found that elderly people are more vaccine-hesitant compared to other age groups (Wang et al., 2021), but there are also contrary findings (Arvanitis et al., 2021).

The level of trust in institutions, cognitive reflection, altruism, social dominance, authoritarianism, conspiratorial beliefs, religious beliefs, big five personality traits, internal locus of control, belief in the natural origin of the virus, belief in chance, fear of infertility, COVID-19-related anxiety, governmental satisfaction, perceived effectiveness of the vaccine, COVID-19 risk perception, and sources of information are some of the variables found to predict vaccine hesitancy (Akarsu et al., 2021; Erdoğan et al., 2021; Murphy et al., 2021; Salali & Uysal, 2020). The following sections summarize the literature on predictors, which is the subject of the present study.

1.2.1. Conspiracy Beliefs

Conspiracy theories are unfounded beliefs that attempt to explain the absolute causes of certain events and suggest that these events are planned and executed by secret, evil or powerful groups (van Prooijen & Douglas, 2018). Conspiracy theories are not exclusive to modern times or any particular culture (van Prooijen & Douglas, 2017), and have been associated with many issues throughout history, such as prejudice, witch hunts, genocide, climate change denial, and anti-vaccinations (Douglas et al., 2019). However, it is only in the last decade that researchers have begun to examine these concepts comprehensively (J. van Prooijen & Douglas, 2018).

People have become so sceptical of mainstream medicine due to conspiracy theories that diseases that were once curable are now re-emerging in various parts of the world (Douglas et al., 2019). Conspiracy theories are extremely important for understanding vaccine resistance and hesitancy because previous research has shown that if people already believe in one conspiracy theory, they tend to believe in other conspiracy theories, even if these theories are unrelated (Sutton & Douglas, 2014; Swami et al., 2010; Wood et al., 2012). In fact, evidence suggests that the best predictor of belief in one conspiracy theory is belief in another conspiracy theory (J. van Prooijen & Douglas, 2018). In particular, some studies show a link between general conspiracy belief and COVID-19-related conspiracy belief (Alper et al., 2020; Imhoff & Lamberty, 2020). However, one study found that only vaccine-related conspiracy theories had a significant effect on vaccination intentions, while belief in more general COVID-19 conspiracy theories had no significant effect (Z. Yang et al., 2021).

COVID-19 conspiracy theories emerged soon after the first reports of the virus and continue to capture the interest of people worldwide (van Mulukom et al., 2020). As conspiracy theories tend to emerge during times of social crisis when there is a lot of uncertainty and fear (van Prooijen & Douglas, 2017), it is not surprising that they gained popularity during the COVID-19 pandemic (Bertin et al., 2020; Kouzy et al., 2020).

Conspiracy theories are very widespread in society because of social media. (Kouzy et al., 2020). On social media, rumours claiming that the pandemic is a hoax to sell vaccines are spreading faster than the virus (Dubé et al., 2021). Not surprisingly, tweets shared from unverified Twitter accounts contain more misinformation than healthcare and verified accounts (Kouzy et al., 2020). Therefore, to design successful vaccination campaigns, policymakers should be very careful about anti-vaccine conspiracy theories because people exposed to these theories show lower levels of vaccination intention (Jolley & Douglas, 2014).

Conspiracy beliefs have many predictors, ranging from the personal level to the contextual level (J. van Prooijen & Douglas, 2018). Trust in science and scientists is a very strong predictor: People with lower levels of trust are more likely to believe in COVID-19 conspiracy theories (Tonković et al., 2021). Countries differ in their levels of belief in COVID-19 conspiracy theories; for example, the US and the Philippines have higher levels of belief in COVID-19 conspiracy theories than Switzerland, Canada and New Zealand (De Coninck et al., 2021). One variable that explains this difference is that countries with polarised political and media landscapes are more likely to believe in conspiracy theories (De Coninck et al., 2021). Considering that political polarisation is rising in Turkey (Yurdakul, 2020), the belief in conspiracy theories might be vital in vaccine hesitancy. Another explanation for these country-level differences is that less socially inclusive countries and countries that protect a small elite group at the expense of the majority are more likely to believe in conspiracy theories (Alper, 2022). The psychological literature predominantly focuses on individual-level characteristics that make certain people more susceptible to such baseless beliefs (Alper, 2022), but it is vital to examine country-level factors in order to create effective policies.

Several studies have found that belief in conspiracy theories negatively predicts vaccine acceptance (Alper et al., 2020; Bertin et al., 2020; Nazlı et al., 2022; Salali & Uysal, 2020; Sallam et al., 2021). Alper and colleagues (2020) found that more religious and politically right people are more likely to believe in COVID-19 conspiracy theories. They also found a higher level of faith in intuition, impulsivity, uncertainty avoidance, and generic conspiracy beliefs predict belief in COVID-19 conspiracy theories.

1.2.2. Trust in Institutions

Trust in institutions is a critical determinant of vaccine acceptance (Dubé et al., 2021; Yaqub et al., 2014). Trust and legitimacy are crucial concepts in understanding why some sources of vaccine information are consulted more than others, how vaccine information is reinterpreted, and how attitudes that often oppose medical research are developed (Yaqub et al., 2014). Vaccine hesitancy typically reflects a growing distrust of doctors, pharmaceutical companies, government, and the vaccine research community, as well as underlying concerns about medicine, the state, the body, the safety and efficacy of vaccines, and immunization (Larson et al., 2018; Yaqub et al., 2014). Evidence suggests that it is not the vaccines themselves that are distrusted, but the institutions (through which vaccine information is transmitted) (Jamison et al., 2019; Yaqub et al., 2014). While the perceived credibility of institutions is more important than the content of information (Yaqub et al., 2014), people may prefer to acquire information from sources that match their beliefs (Collange et al., 2019). Therefore, it is difficult to say whether people prefer these sources because they perceive them as trustworthy or because they match their own beliefs.

Vaccine acceptance requires trust in three key areas: the product (the vaccine), the provider (the specific healthcare experts or administrative personnel involved in providing and administering vaccination), and the policymaker (the health system, government, and public health researchers who participate in approving and recommending the vaccine) (Larson et al., 2015). The most trusted institution and sources of vaccine information for the majority of individuals have been determined to be mainstream physicians and nurses (È. Dubé et al., 2021; Wang et al., 2021). Trust in pharmaceutical companies is very low as people think pharmaceutical companies are not interested in patients' well-being; instead, they are motivated to increase their profit (Jamison et al., 2019). Trust in pharmaceutical companies is crucial in vaccination decisions because people are more concerned about the risks posed by people or institutions they don't trust (Ropeik, 2013).

A common reason for vaccine hesitation was distrust in research and vaccines (e.g., rapid development, negative side effects, and other undesirable factors). (Geoghegan et al., 2020; Palamenghi et al., 2020) The evidence shows that trust in the scientific community is a strong predictor of receiving a COVID-19 vaccine (Bagasra et al., 2021; Dye et al., 2021). Trust in the medical sector is a crucial factor, as people who have a higher level of trust in the medical industry are less prone to believe in misinformation (Freitas et al., 2021). The hesitancy to get the COVID-19 vaccination and beliefs that vaccines are dangerous were found to be highly correlated with a low level of trust in the government (Sato, 2022).

It is important to note that ethnic minorities generally show a lower level of trust in institutions (Bagasra et al., 2021; Murphy et al., 2021). For instance, Arvanitis et al. (2021) found that vaccine hesitancy differed dramatically among Black participants depending on their level of trust in the federal government. Therefore, policymakers should consider and target that lower level of trust to increase the vaccination acceptance rate in minority populations.

1.2.3. Governmental Satisfaction

Medical discussions about vaccine safety are inextricably linked to political discussions about the role of public and private actors in vaccination. (Dubé et al., 2021). Some have highlighted the government's ineffective early response to the pandemic and conflicting messages from the scientific community regarding the COVID-19 pandemic as an explanation for their distrust of COVID-19 vaccines in the United States. (Kerr et al., 2021).

Evidence suggests that people who think the government is successfully dealing with the pandemic are more likely to believe that the origin of the coronavirus is artificial, but not less willing to get vaccinated (Salali & Uysal, 2020). Lower confidence in government response to the pandemic was found to be associated with lower confidence in the safety and efficacy of the vaccine (Arvanitis et al., 2021). However, another study found that vaccination was not associated with trust in the government's response (Bagasra et al., 2021). They found that COVID-19 vaccination hesitancy is more likely to be predicted by trust in information from scientists than by trust in government actions.

People vary in their level of trust in the government's response to the pandemic. One study found that black people have a lower level of confidence in the government's response (Arvanitis et al., 2021). Another study found that American Indian/Alaska Natives reported less trust compared to Whites, Blacks and Asians (Bagasra et al., 2021). Also, compared to individuals who identify themselves as other races, Asians have a much higher level of trust.

Political ideology is another variable found to be associated with the government's response to the pandemic. Conservative political ideology is associated with higher levels of trust in the government's response to the pandemic (Kerr et al., 2021). In that study, conservative political ideology was also found to be associated with less protective behaviours, such as wearing a mask or washing hands.

One aim of the current study is to measure people’s evaluation of local vaccines in Turkey. That is why people’s perception of how well the government deals with the pandemic might be relevant to the perceived effectiveness of local vaccines.

1.2.4. COVID-19-Related Anxiety

COVID-19-related fear and anxiety play a functional role in increasing public health compliance, which is crucial for improving public well-being. (Harper et al., 2020). Preliminary research shows that subjective anxiety, fear, and individual risk levels are important factors of vaccine acceptance; people with higher levels of COVID-19-related anxiety are more willing to be vaccinated (Akarsu et al., 2021; Detoc et al., 2020; Salali & Uysal, 2020).

While COVID-19-related anxiety and health-related fears were linked to greater willingness to vaccinate, fear of social and economic impacts followed the opposite path (Bendau, Plag, et al., 2021). This suggests that fears directly linked to one's or a loved one's physical health are associated with a more willingness to receive vaccines that promise to minimize the likelihood of negative effects (Bendau, Plag, et al., 2021). However, in the context of a pandemic, social and economic fears appear to be dysfunctional fears when pursuing public health measures (Bendau, Plag, et al., 2021).

Although experiencing anxiety about COVID-19 has a positive impact on vaccine acceptance, not all effects of this anxiety are positive: COVID-19-related anxiety has a negative impact on the ability to cope with stress when it comes to COVID-19 and overall health (Baloran, 2020; Chew et al., 2020; Yıldırım et al., 2021). One study found that when people struggle with COVID-19-related anxiety, they are more likely to be unable to cope with stress, leading to worsening overall health (Yıldırım et al., 2021).

Moreover, one study found that unvaccinated people were more prone to experience psychological anxiety than vaccinated people (J. Yang et al., 2021). This study measured people’s general psychological anxiety level, not the COVID-19- related anxiety level. As different types of anxiety are differentially associated with willingness to be vaccinated, policymakers should take these factors into account when developing intervention programs.

1.2.5. Perceived Susceptibility

People's perceptions of risk greatly influence how they respond to infectious disease outbreaks (Ferrer & Klein, 2015). For example, in the early stages of the COVID-19 pandemic in Europe, there was an optimistic bias, which meant that most individuals were probably too optimistic about the severity of the newly discovered disease and their chances of becoming infected (Raude et al., 2020). As underestimation of probability assessments of certain events is an important determinant of risky health behavior (Brewer et al., 2007; Chayinska et al., 2021), misinterpretation of such risks is linked to the spread of infectious infections (Abdulkareem et al., 2020).

Risk perception is a well-known variable when people decide whether or not to vaccinate (Dubé & MacDonald, 2016). Vaccine decisions can be influenced by risk perceptions in two ways; vaccine acceptance is influenced by the perceived risks of vaccine-preventable diseases, while vaccine refusal is influenced by the perceived risks of vaccines (E. Dubé & MacDonald, 2016). Risk perception is a subjective combination of facts and, more importantly, how these facts make us feel (Ropeik, 2013). Risk assessments are intuitive, automatic and often unconscious (E. Dubé et al., 2015), as many people have low numeracy skills and are unable to grasp mathematical ideas such as probability (Ropeik, 2013). For instance, children's risks are perceived as more serious than those of adults because children are more vulnerable. Similarly, risks from vaccination are perceived as more real because they are perceived to be closer to the disease being avoided (Ropeik, 2013). Risk perception is also influenced by the way information is presented: frequency formats (e.g. 1 in 10 infants will develop fever after vaccination) are perceived as riskier than probability formats (e.g. 10% of infants will develop fever after vaccination) (Peters, 2012).

People are more concerned about artificial threats than natural risks; thus, many anti-vaccine activists are willing to take the natural risk of infection to avoid the man-made risk of the drug (Ropeik, 2013). Distrust in science and belief in conspiracy theories are important determinants of risk perception (Chayinska et al., 2021; Lamberty & Imhoff, 2018). Risk perception and the willingness to take precautions and engage in protective behaviors can be significantly influenced by belief in conspiracy theories, science on new infectious diseases, and distrust in science (Chayinska et al., 2021; Lamberty & Imhoff, 2018). The use of the wide internet is an important factor in vaccine ambivalence, as many conspiracy theories circulate on social media (Dubé et al., 2021; Kouzy et al., 2020). Users' risk perceptions about vaccination increase when they visit anti-vaccination websites and read personal stories about the bad effects of vaccination (Dubé & MacDonald, 2016). In the context of the COVID-19 pandemic, the belief that COVID-19 is a hoax was found to be linked to lower levels of compliance with infection prevention behaviors (Imhoff & Lamberty, 2020).

As mentioned, individuals who are overly optimistic in their assessment of potential health risks tend to underestimate the severity of the perceived threat and are less inclined to follow precautions and protective actions (Chayinska et al., 2021). Therefore, not surprisingly, perceived risk of contracting COVID-19 predicts willingness to be vaccinated (Kucukkarapinar et al., 2021; Salali & Uysal, 2020). Furthermore, these individuals are more likely to agree to participate in a vaccine clinical trial (Detoc et al., 2020).

1.2.6. Sources of Information

The widespread use of the Internet is an important factor in vaccine hesitancy (E. Dubé & MacDonald, 2016). High-speed information sharing and cross-platform information cascades between news media producers and users are made possible by social media and digital technologies (Shu et al., 2017). The availability heuristic is a mental shortcut based on examples that immediately come to mind when assessing the riskiness of an event (Blumenthal-Barby & Krieger, 2015). The internet has increased that bias (E. Dubé & MacDonald, 2016). Individuals who delay or refuse vaccinations are much more likely to seek information online (Dubé & MacDonald, 2016). Social media, in particular, appears to play a significant role: Several studies have linked social media to fears about the COVID-19 pandemic, as well as vaccine hesitancy and conspiracy theories (Bendau, Petzold, et al., 2021; Kennedy, 2020; Mascherini & Nivakoski, 2022). One study found that vaccine-resistant people consume more information from social media than vaccine-accepting people (Murphy et al., 2021). It was also found that vaccine-resistant people were less likely to obtain and trust information from traditional sources, but slightly more likely to get information from social media channels.

Social media use may not always be linked to vaccine hesitancy: Bendau et al. (2021) found that individuals who reported using neither official websites nor social media had the lowest level of vaccine acceptance, followed by those who only used social media. They also found that participants who reported using only official websites were, on average, more likely to be vaccinated, and those who reported using both formats had the highest vaccine acceptance scores.

For many individuals, health professionals have been found to be the most reliable source of information about vaccination (Charron et al., 2020; Freitas et al., 2021; Glanz et al., 2013; Salmon et al., 2005). Compared to vaccine-accepting participants, those who showed resistance to the COVID-19 vaccine were less likely to receive information about the pandemic from traditional and authorized sources (Murphy et al., 2021).

1.2.7. Experiences with Vaccination

Wang et al. (2021) found that low risk of infection, waiting and seeing others vaccinated, vaccine efficacy, price and concerns about vaccine safety were the main reasons for vaccine hesitancy. Similarly, COVID-19 vaccine safety was rated significantly lower (10.1%) than vaccine safety in general (Syan et al., 2021). Therefore, it can be assumed that vaccine hesitancy for COVID-19 may be lower when more people are vaccinated, at least for individuals who are concerned that a new and rapidly produced vaccine may have side effects.

However, vaccinating more people may lead to increased vaccine hesitancy and resistance in the long term. In the modern era, people are less exposed to vaccine-preventable diseases as a result of vaccine effectiveness; therefore, people are less concerned about vaccine-preventable diseases (Fridman et al., 2021; Kestenbaum &

Feemster, 2015). As a result, people's hesitancy and resistance to vaccines have been counterintuitively increasing (Fridman et al., 2021; Kestenbaum & Feemster, 2015).

When people make decisions, they frequently use heuristics that simplify problem domains (Azarpanah et al., 2021). They can be quite useful when appropriate factors activate heuristics, but under the influence of the wrong factors they can lead to systematic errors such as cognitive biases (Tversky & Kahneman, 1973). For instance, when assessing the likelihood of events occurring, a person often uses the availability heuristic, which indicates how easily relevant examples come to mind (Tversky & Kahneman, 1973). In the context of the COVID-19 vaccine, people may use availability heuristics when they think of an acquaintance who has been vaccinated. If they see that the person has not experienced any negative side effects, they may be more willing to get vaccinated. However, the reverse is also true; if they see that someone they know has experienced negative side effects, or if they read on social media about a negative side effect of vaccines that someone has experienced, they may be more hesitant. It is worth mentioning that people respond differently to gains and losses: The tendency to prefer avoiding losses to equal gains is known as loss aversion(Novemsky & Kahneman, 2005). Therefore, negative experiences with vaccines may have more influence on people's decision to vaccinate than positive experiences.

1.2.8. Perceived Effectiveness of the Vaccine

A common reason for vaccine hesitancy is mistrust of research and vaccines (e.g. due to rapid development, adverse side effects and other negative outcomes) (Geoghegan et al., 2020; Palamenghi et al., 2020). Similarly, another study found that skepticism about vaccine benefits, concerns about side effects, and a preference for natural immunity over vaccines contributed to vaccine hesitancy and refusal (Sonawane et al., 2021). Some concerns about COVID-19 vaccines include that vaccines were deliberately not tested before approval, that vaccines can cause serious side effects, that vaccines can overload or weaken the immune system, and cause the disease they are supposed to protect against (Vulpe & Rughiniş, 2021).

Attitudes and beliefs about the vaccine strongly influenced the probability of vaccination uptake (Chen et al., 2021). Vaccines with greater reported efficacy and safety are more likely to be accepted by people (Merkley & Loewen, 2022). Lack of confidence in vaccine safety and concern about post-vaccination side effects contribute to vaccine hesitancy at two different levels: general vaccine hesitancy and specific vaccine hesitancy, both linked to reduced vaccination (Azarpanah et al., 2021). Because of the rapid development of COVID-19 vaccines (Rzymski et al., 2021), the perceived effectiveness of vaccines may be crucial for willingness to vaccinate. For instance, one study showed that COVID-19 vaccine safety was rated significantly lower (10.1%) than vaccine safety in general (Syan et al., 2021). In another study, many participants who were hesitant about the COVID-19 vaccine indicated that they would accept the vaccine if provided with reliable information on its safety and efficacy (A. Fisher et al., 2020). Many participants said they would rather wait months for their chosen vaccine than receive another COVID-19 vaccine immediately (Merkley & Loewen, 2022).

Although inactivated vaccines have a long history and have been shown effective and safe (Plotkin, 2014), the highest level of trust was seen in vaccines made using mRNA technology (Rzymski et al., 2021). Women, the elderly and people with less than a bachelor's degree perceive the COVID-19 vaccine as less safe (Syan et al., 2021). High knowledge of COVID-19 vaccines was found to be associated with higher educational background, higher income, and living with people at higher risk of contracting severe COVID-19 (Mohamed et al., 2021).

One way to reduce COVID-19 vaccine hesitancy is to address concerns about the effectiveness of COVID-19 vaccines (Latkin et al., 2021). However, it is also vital to consider other factors influencing vaccine hesitancy because COVID-19 vaccine development has been politicized and people's perceptions of vaccine safety and efficacy may be influenced by politics rather than public health policy or scientific facts (Wagner et al., 2021). People who trusted COVID-19 information from the Centers for Disease Control and Prevention, state health departments, mainstream media, and a university known for disseminating COVID-19 data were also more inclined to trust the COVID-19 vaccine (Latkin et al., 2021).

1.2.9. Local Vaccines Developed in Turkey

Vaccine supply is vital for governments to prevent deaths from COVID-19 and normalize the social life of the population. Controlling the pandemic depends on disease management in all countries: The world will not be safe as long as any one country continues to fight the virus (Vanderslott et al., 2021). Therefore, the goal for all countries, including developed, developing and underdeveloped countries, is to have access to COVID-19 vaccines (Esen, 2021).

Vaccine nationalism is the pursuit of vaccines in the national interest, for instance, through export bans or supply agreements, even if doing so could harm other nations (Vanderslott et al., 2021). Low-income countries are often unable to arrange appropriate vaccine supply agreements and may lack the necessary infrastructure to build local production capabilities (Vanderslott et al., 2021). While Turkey is one of the countries with relatively easy access to vaccines, Turkey-based vaccine production would strengthen Turkey's vaccine diplomacy in foreign policy (Esen, 2021).

Fourteen COVID-19 vaccine development studies are ongoing in Turkey, seven of which are supported by TÜSEB and seven by TÜBİTAK (DHA, 2021). One of these is TURKOVAC; phase 3 trials of this vaccine started on June 21, 2021 and continued in 30 centres in cooperation with the Health Institutes of Turkey (TÜSEB) and Erciyes University (Anadolu Ajansı, 2021). Phase 3 of the vaccine trials has been completed and shows that the vaccine is safe to use (COVID19 Vaccine Tracker, 2022). TURKOVAC has received emergency use approval and is currently available in all cities in Turkey (Hürriyet, 2022; Reuters, 2021).

For countries to be independent and strong, it is vital that they have their own vaccines so that they do not have to rely on other countries for vaccine supplies. Turkovac is ready for use and the question now is whether people think the vaccine is effective. The perceived efficacy of a vaccine is a well-established determinant of willingness to vaccinate (Geoghegan et al., 2020; Palamenghi et al., 2020; Sonawane et al., 2021). Therefore, it is crucial to understand people's attitudes towards local vaccines in Turkey. Currently, there are no studies on people's attitudes towards COVID-19 vaccines developed in Turkey. One of the aims of this study was to examine the perceived effectiveness and side effects of vaccines developed in Turkey.

1.2.10. COVID-19 History

As noted, individuals' risk perceptions greatly influence how they respond to infectious disease outbreaks (Ferrer & Klein, 2015). Therefore, it can be argued that having previously contracted COVID-19 and having mild or severe symptoms may influence people's willingness to get vaccinated. In fact, one study found that people who knew someone who had COVID-19 were more likely to get vaccinated(Al-Qerem & Jarab, 2021). One of the aims of this study is to find out whether having had COVID-19 or knowing someone who has had COVID-19 and the severity of symptoms are associated with willingness to get vaccinated.

1.2.11. Chronic Diseases History

Vaccination of vulnerable groups (e.g. the elderly and people with an underlying condition) is crucial as they are at higher risk of infection and severity of COVID-19 diseases (Javanmardi et al., 2020). Therefore, it is vital to understand vaccine hesitancy in these groups (Ma et al., 2021).

Findings in the literature on having an underlying chronic disease and willingness to be vaccinated are inconsistent. Some studies suggest that having a chronic disease and worrying about significant others are significant predictors of willingness to be vaccinated (Kucukkarapinar et al., 2021). Luma et al. (2022) found that people who reported poor health and having a chronic illness were more hesitant than those who reported good health. Similarly, compared to individuals without chronic conditions, people with chronic diseases were more willing to be vaccinated (Ma et al., 2021). However, some studies have found that there is greater resistance to vaccination among people with an underlying health condition (Murphy et al., 2021). The authors suggest that this may be due to people's concerns that vaccination will worsen their chronic illness.

One possible factor that could explain this inconsistency is that COVID-19 severity is not equal for everyone with an underlying chronic condition. For example, while diabetes, mellitus and heart-related conditions are known to increase the severity of COVID-19 (Javanmardi et al., 2020), COVID-19 severity is unrelated to epilepsy or psychiatric disorders (Asadi-Pooya et al., 2021). Furthermore, the perceived severity of COVID-19 may not match the actual severity of COVID-19. Even if people are objectively vulnerable to illness, they may not perceive it as such. Therefore, it is important to ask people whether they think their chronic illness makes them vulnerable to COVID-19.

1.3. The Current Study

The current study aims to identify the predictors of vaccination acceptance in Turkey. There are many variables that predict vaccine hesitancy. This study aims to focus on the variables that might be important and relevant to Turkish context. Another aim of the current study is to explore the predictors of the perceived effectiveness of local vaccines in Turkey. The summary of hypothesis of the thesis can be found here.

H1: Belief in COVID-19 conspiracy theories will negatively predict vaccine acceptance.

H2: COVID-19-related anxiety will positively predict vaccine acceptance.

H3: Trust in Institutions will positively predict vaccine acceptance

H3a. Trust in state will positively predict vaccine acceptance.

H3b. Trust in scientists will positively predict vaccine acceptance.

H3c. Trust in doctors will positively predict vaccine acceptance.

H3d. Trust in other health professionals will positively predict vaccine acceptance.

H3e. Trust in vaccine companies will positively predict vaccine acceptance.

H4: COVID-19 risk perception will positively predict vaccine acceptance.

H5: Knowing someone who is vaccinated will positively predict vaccine acceptance.

H6: Being a woman will positively predict vaccine acceptance.

H7: Having severe COVID-19 symptoms or knowing someone that had severe COVID-19 symptoms will positively predict vaccine acceptance.

H8: Governmental satisfaction will positively predict vaccine acceptance.

H9: The perceived effectiveness of the different vaccines will positively predict vaccine acceptance.

CHAPTER 2

METHOD

2.1. Participants

797 participants completed the study; however, 70 of them were under the age of 18, 6 of them lived abroad, and 27 of them gave inconsistent responses to the reverse items, so the final sample consisted of 694 participants (387 Female, 248 Male, 59 Non-respondents). Participants were recruited through social media using convenience sampling. In this study, vaccine acceptance was 67.6%, vaccine hesitation was 17.7% and vaccine refusal was 14.7%. The data was collected between 27.05.2021-13.07.2021. All of the descriptive statistics can be seen in Table 1.

2.2. Instruments

2.2.1. COVID-19 History

Participants' history of COVID-19 was assessed by three questions: "Have you had COVID-19?", "Have you had a relative with COVID-19?", and "Did you know someone who died from COVID-19?". Also, they were asked when they had COVID-19 and how severe their symptoms were.

2.2.2. Chronic Diseases History

Participants were asked two questions: "Do you have a chronic disease that you think will make it difficult for you to get over it if you catch COVID-19?" and "Is there someone in your family who has a chronic illness that you think will make it difficult for them to get over it if they have COVID-19?

2.2.3. Perceived Susceptibility

Participants indicated their perceived risk of catching COVID-19 was measured with one item designed by Salali and Uysal (2020). Participants who never caught COVID-19 were asked, "If you haven't been tested positive for COVID-19 or did not show COVID-19 symptoms, what do you think is the probability of you catching the coronavirus?" Unlike the original study, the current study asked the following item to participants who had COVID-19 before: "If you have tested positive for COVID-19, what do you think is the probability of you catching the coronavirus again?"

2.2.4. COVID-19-Related Anxiety

Respondents' level of COVID-19-related anxiety was measured with a 7-item scale developed by Salali and Uysal (2020). The original scale consisted of 6 items. 1) I'm worried about the health of my family member(s) and/or friends. 2) I am worried about my health. 3) I'm worried about losing my job or experiencing financial loss. 4) I'm worried about passing coronavirus on to others. 5) I am feeling anxious and fearful. 6) I feel stressed about leaving my house); this study added one reverse item: 7) I am not worried about my health. Participants requested to indicate to which extent (1 = does not apply at all, 2 = applies a little, 3= somewhat applies, 4 = applies very much) the following items apply to them. The Cronbach's alpha was 0.83

2.2.5. Government's Response to the Pandemic

Satisfaction with the government's response to the pandemic was measured with one item from Salali and Uysal's (2020) study. Participants were asked how much the following item applies (1 = does not apply at all, 2 = applies a little, 3= somewhat applies, 4 = applies very much) to them: "I am satisfied with my government's response to the pandemic."

2.2.6. Belief in COVID-19 Conspiracy Theories

Respondents' belief in COVID-19 conspiracy theories was measured using the 2-item Belief in COVID-19 Conspiracy Theories Scale (Alper et al., 2020). Participants indicated how much do they agree (1 = strongly disagree, 7 = strongly agree) with the following items: "Coronavirus was developed and spread around the world by certain people for their own purposes" and "There is no intentional plan of a person or a group behind the spreading of coronavirus around the world" (reverse item). For the original study, Cronbach's alpha for the two items was 0.81; in the current study, Cronbach's alpha was 0.82.

2.2.7. Trust in Institutions

Participants indicated the level of trust they have in political parties, the parliament, the government, the police, the legal system, scientists, doctors and other health professionals, and vaccine companies. The scale was initially used in Murphy et al. (2021), but vaccine companies were not asked to participate in that study. This study includes trust in vaccine companies because it is highly relevant to vaccine acceptance. Participants were asked to what extent (1 = do not trust at all, 5 = completely trust) they trust those institutions. The responses to the first five institutions were added together to obtain a total score for 'trust in the state' in this study. Levels of trust in scientists, doctors and other health professionals, and vaccine companies were treated individually. The Cronbach's alpha for trust in the state was 0.86.

2.2.8. Sources of Information

To measure how much information participants get from different sources, a questionnaire from Murphy et al. (2021) was used. Participants were asked, 'How much information about COVID-19 have you obtained from each of these sources?', and nine choices were presented to them: Newspapers, Television, Radio, Internet websites, Social media, Your doctor, Other health professionals, Government agencies, and Family or friends. (1 = none, 2 = a little, 3 = some, 4 = a lot). Table 2 shows the means of how much information the participants obtained from different information sources

2.2.9. Experiences with Vaccination

Participants' experiences with vaccination were measured with two items that developed by KFF (2021): "Have you personally received at least one dose of the

COVID-19 vaccine, or not? (yes / no)", "Do you personally know anyone who has been vaccinated for COVID-19 or not?". In the original study both item was treated as personal experiences with vaccination; however, the current study will classified it as personal experiences with vaccination (first item) and vicarious experiences with vaccination (second item).

2.2.10. Perceived Effectiveness of Vaccines from Abroad

Participants asked to indicate how effective (1= not effective 4= very effective) they think different vaccines are. The choices were Pfizer-BioNTech (Almanya'da üretilen aşı), Moderna Amerika'da üretilen aşı), (Sinovac (Çin'de üretilen aşı), Johnson & Johnson (Belçika'da üretilen aşı), and Sputnik (Rusya'da üretilen aşı). They were also asked to indicate how much they think those vaccines will have side effects (1= no side effect 4 = too many side effects). Five scores for first five the perceived effectiveness of different vaccines were combined

2.2.11. Perceived Effectiveness of Local Vaccines in Turkey

Two items were used to assess participants' evaluation toward vaccines that have been developing in Turkey: "How effective do you think the COVID-19 vaccines, whose phase studies continue in Turkey, will be?" (1= will not be effective 4= will be very effective) and "How many side effects do you think the COVID-19 vaccines, whose phase studies continue in Turkey, will have?" (1= will have no side effect 4 = will have too many side effects).

2.2.12. Demographics

At the end of the study, respondents filled out a sociodemographic form including questions on age, sex (male, female, or don't want to answer), education level (Primary School, Middle School, High School, Associate degree, Undergraduate degree, Graduate degree), Income (1000 TL'den az, 1000-2999 TL, 3000 – 4999 TL, 5000 – 6999, 7000 TL ve üzeri), employment status (Çalışıyorum, Emekliyim, İşsizim, iş arıyorum, İşsizim, iş aramıyorum, Öğrenciyim), house population (1, 2, 3, 4, 5+), marital status (married, single), children (have a child, no child) and the city they live in.

2.3. Procedure

After the ethical approval from the Middle East Technical University, Human Participants Ethic Committee, participants were invited to participate in the study through social media platforms. The data collection began on 24 May 2021 and finished on 12 July 2021. Participants completed the study in Qualtrics Online Survey Platform. After participants gave their consent to participate in the study, they filled out questionnaires and then demographic questions.

Table 1
Demographics of Study Sample

		Mean	N	%
Vaccination Intention				
	Acceptance		469	67.58
	Hesistance		123	17.72
	Refusal		102	14.7
Gender				
	Female		387	55.76
	Male		248	35.73
	NA		59	8.5
Age		30.6	694	100
	Young adults	21.3	437	62.97
	Middle aged adults	38.52	107	15.42
	Old aged adults	52.03	150	21.61
Highest education				
	Middle School		1	0.14
	High School		207	29.83
	Associate degree		45	6.48
	Undergraduate degree		280	40.35
	Graduate degree		161	23.2
Income				
	1000 TL'den az		232	33.43
	1000-2999 TL		70	10.99
	3000 – 4999 TL		69	9.94
	5000 – 6999		107	15.42
	7000 TL ve üzeri		216	31.12
Employment status				
	Çalışıyorum		296	42.65
	Emekliyim		21	3.03
	İşsizim, iş arıyorum		30	4.32
	İşsizim, iş aramıyorum		15	2.16
	Öğrenciyim		327	47.12

Table 1 (cont'd)

House population			
	1	232	33.43
	2	70	10.09
	3	69	9.94
	4	107	15.42
	5+	216	31.12
Marital status			
	Married	228	32.85
	Single	466	67.15
Child			
	Have a child	214	30.84
	No child	480	69.16
Region			
	Marmara	369	53.17
	Ege	51	7.35
	Akdeniz	178	25.65
	İç Anadolu	67	9.65
	Karadeniz	9	1.3
	Doğu Anadolu	12	1.73
	Güneydoğu Anadolu	8	1.15

Table 2

The means of how much information the participants obtained from different information sources

	News	TV	Radio	Social Media	Doctor	Healthcare Workers	Governmental Sources	Family & acquaintances
Total sample	1.86	3.54	1.45	3.54	2.15	2.4	2.18	2.9
Acceptance	1.86	3.54	1.48	3.54	2.19	2.46	2.46	2.93
Refusal	1.81	3.52	1.38	3.52	1.94	2.16	2.16	2.71
Hesitancy	1.93	3.55	1.38	3.55	2.19	2.39	2.39	2.94

CHAPTER 3

RESULTS

3.1. Data Screening

All analysis was performed in R (version 4.1.2) (R Core Team, 2021). Participants younger than 18, were living abroad and gave inconsistent responses to reverse items removed from the dataset. All of the continuous variables were transformed into standardised z scores to assess outliers. All z scores fell between -3 and +3, so there was no outlier.

3.2. Correlations

A Pearson two-tailed correlation analysis was computed to assess the relationship between continuous variables. There were some significant correlations between variables as a result of the findings. Figure 1 shows the moderate to strong correlations among variables.

There was a positive and strong correlation between trust in state and governmental satisfaction ($r = .73$, $p < .001$). There were a positive and moderate correlations between trust in state and three other variables: perceived effectiveness of the vaccines that are developing in Turkey ($r = .49$, $p < .001$), age ($r = .41$, $p < .001$), and getting information from the governmental sources ($r = .37$, $p < .001$).

There was a positive and strong relationship between trust in doctors and trust in healthcare workers ($r = .66$, $p < .001$), and also trust in doctors and trust in scientists ($r = .62$, $p < .001$). There was a positive and moderate correlation between trust in doctors and trust in vaccine companies ($r = .40$, $p < .001$).

There were positive and strong correlations between trust in scientists and trust in healthcare workers ($r = .62$, $p < .001$). There was positive and moderate correlations between trust in scientists and two other variables: trust in vaccine companies ($r = .48$, $p < .001$), COVID-19-related anxiety ($r = .30$, $p < .001$). There was a negative and moderate correlation between trust in scientist and belief in conspriacy theories ($r = -.35$, $p < .001$).

There were a positive and moderate correlations between governmental satisfaction and three other variables: age ($r = .51$, $p < .001$), perceived effectiveness of the Turkish vaccines ($r = .5$, $p < .001$), and getting information from the governmental sources ($r = .34$, $p < .001$).

There were positive and moderate correlations between trust in vaccine companies and perceived effectiveness of the vaccines ($r = .45$, $p < .001$), and also trust in vaccine companies and trust in healthcare workers ($r = .42$, $p < .001$). There was a negative and moderate correlation between trust in vaccine companies and belief in conspiracy theories ($r = -.42$, $p < .001$).

There were negative and moderate correlations between age and getting information from social media ($r = -.41$, $p < .001$), and also age and COVID-19-related anxiety ($r = -.31$, $p < .001$). There were positive and moderate correlations between age and getting information from the news ($r = .30$, $p < .001$), and also age and perceived effectiveness of the vaccines that are developing in Turkey ($r = .32$, $p < .001$).

There was a negative and moderate correlation between the perceived effectiveness of the vaccine and belief in conspiracy theories ($r = -.31$, $p < .001$). There was a positive and moderate correlation between the perceived effectiveness of different vaccines and the perceived effectiveness of the Turkish vaccines ($r = .33$, $p < .001$). There was a positive and moderate correlation between COVID-19-related anxiety and perceived susceptibility ($r = .31$, $p < .001$). Figure 1 shows moderate and strong correlations between the perceived effectiveness of different vaccines, trust in institutions, and governmental satisfaction.

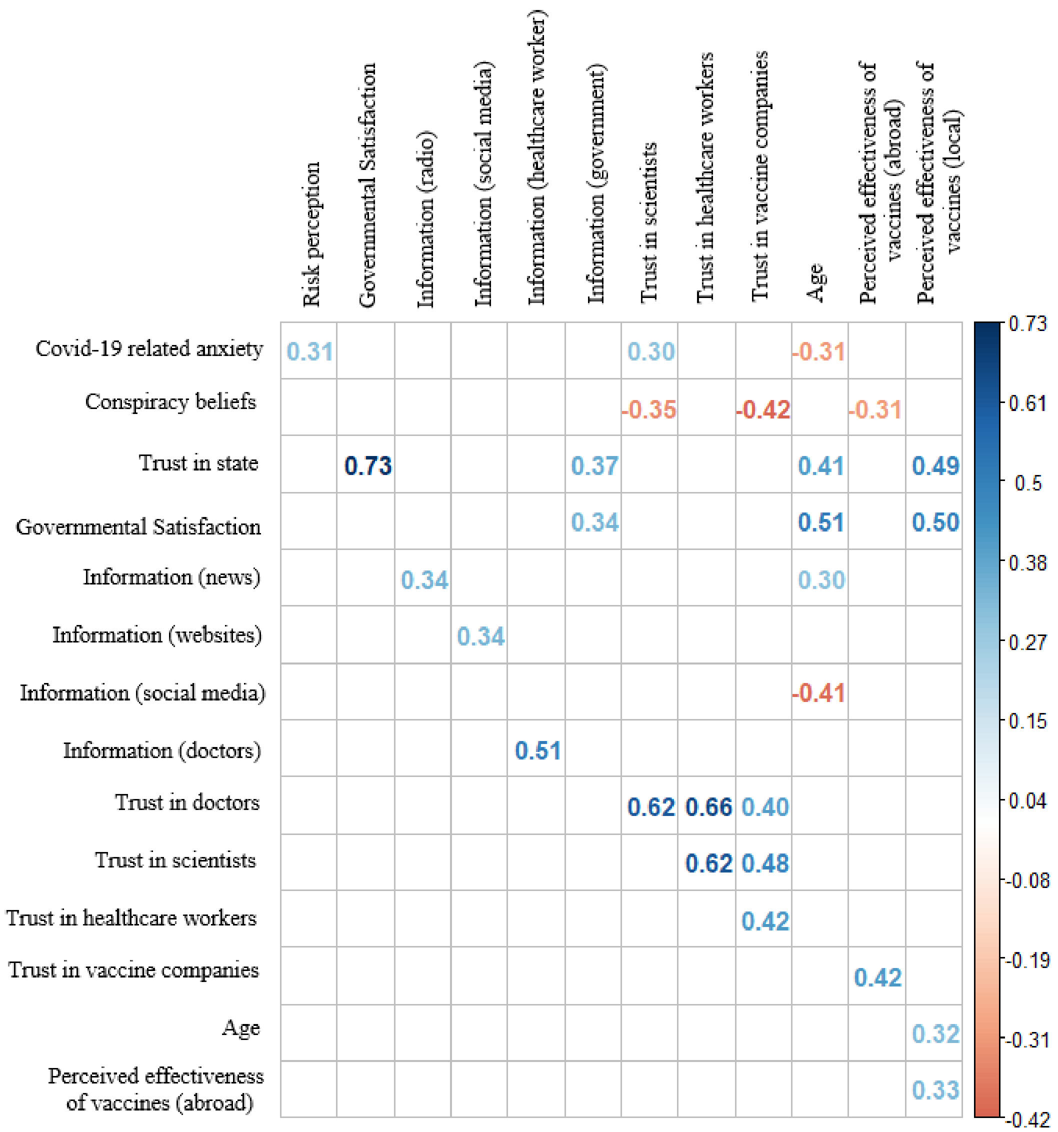

Figure 1. Moderate and Strong Correlations Between Variables

There were positive and moderate correlations between the perceived effectiveness of the vaccines that are developing in Turkey and governmental satisfaction (r = .50, p < .001), and also perceived effectiveness of the vaccines that are developing in Turkey and trust in state (r = .50, p < .001). There were a positive and moderate correlations between trust in vaccine companies and five other vaccines: Pfizer (r = .40, p < .001), Moderna (r = .36, p < .001), Sinovac (r = .32, p < .001), Sputnik (r = .29, p < .001), and J&J (r = .29, p < .001). The correlation between trust in vaccine companies and perceived effectiveness of the vaccines that are developing in Turkey was weaker (r = .19, p < .001).

Lastly, Table 3 shows all of the correlations between trust in state, governmental satisfaction, and the perceived effectiveness of local vaccines.

Table 3

Means, standard deviations, and correlations between trust in state, governmental satisfaction and the perceived effectiveness of different vaccines

Variable	*M*	*SD*	1	2	3	4	5	6	7
1. Trust in state	2.14	1.06							
2. Governmental satisfaction	1.90	1.10	.73**						
3. Perceived Effectiveness of Sinovac	2.74	0.79	.19**	.26**					
4. Perceived Effectiveness of Pfizer	3.25	0.79	-.03	.03	.51**				
5. Perceived Effectiveness of Moderna	2.73	0.86	-.06	-.03	.43**	.55**			
6. Perceived Effectiveness of J&J	2.58	0.87	.00	-.01	.38**	.45**	.75**		
7. Perceived Effectiveness of Sputnik	2.55	0.88	.11**	.13**	.52**	.40**	.65**	.67**	
8. Perceived Effectiveness of local vaccines	2.65	0.91	.49**	.50**	.41**	.24**	.17**	.19**	.33**

Note. *M* and *SD* are used to represent mean and standard deviation, respectively * indicates $p < .05$. ** indicates $p < .01$

3.3. Binary Logistic Regression

Because the outcome variable is dichotomous (acceptance, refusal and hesitancy), a binary logistic regression was conducted to test the hypotheses of this thesis. Binary Logistic regression (forward method) was used to determine the influencing variables. The model aims to determine the predictors of vaccine acceptance. In the model, vaccination acceptance was coded as 1, and vaccination refusal or hesitancy was coded as 0. Predicted probabilities can be seen in figure 1.

Linearity in the logit for continuous variables, lack of strongly influential outliers, and absence of multicollinearity assumptions were checked. Firstly, the linearity in the logit for continuous assumption was checked with Box-Tidwell Transformation. Except for COVID-19-related anxiety and the perceived effectiveness of different vaccines, all of the Box-Tidwell Transformation results were nonsignificant, meaning that only the variables of COVID-19-related anxiety and the perceived effectiveness of different vaccines don't linearly associate with the logit values. Next, Cook's distances were examined to check the lack of strongly influential outliers assumption. The highest Cook's distance value was 0.02, showing that none of the cases had an excessive influence on the model, so the lack of strongly influential outliers assumption was met. Lastly, the multicollinearity assumption was checked; all of the variables had a multicollinearity value lower than 3, so the multicollinearity assumption was met.

The model explained 38.0% (McFadden Pseudo R2) of the variance in willingness to vaccinate. The logical regression analysis showed that belief in conspiracy theories was a negative predictor of vaccine acceptance (OR .73, 95% CI -0.47–-5.96, $p < 0.001$); Participants who believe in COVID-19 related conspiracy theories were .73 times less likely to accept the vaccination. So, hypothesis 1 is supported. Moreover, COVID-19 related anxiety was also found to be a predictor of vaccine acceptance (OR 1.53, 95% CI 0.06–0.76, $p = 0.02$), which supported hypothesis 2. Participants who have higher level of COVID-19 related anxiety were 1.53 times more likely to accept the vaccination.

Participants who had lower trust in state (OR 0.44, 95% CI -1.18– -0.48, $p < 0.001$), and higher trust in vaccine companies (OR 2.32 , 95% CI 0.62–1.07, $p < 0.001$), and doctors (OR 1.43, 95% CI 0.83 –0.63, $p = 0.01$) had higher odds of vaccine acceptance. So, participants who had a lower trust in state were 0.44 times less likely to accept the vaccination. On the other hand, participants who had a higher trust in vaccine companies 2.32 times more likely to vaccine acceptant. Participants who had a higher trust in doctors 1.43 times more likely to accept the vaccine. Hypothesis 3b and H3e are supported.

Perceived susceptibility (OR 1.02 , 95% CI 0.008–0.03, $p < 0.001$), governmental satisfaction (OR 1.47 , 95% CI 0.02–0.05, $p = 0.02$),the perceived effectiveness of vaccines developed in abroad (OR 0.67 , 95% CI 0.14–0.92, $p < 0.001$), and local vaccines that are developing in Turkey (OR 0.15 , 95% CI 0.06–0.80, $p < 0.001$) were also found to be a predictor of vaccine acceptance. Participants who were scored higher in perceived susceptibility were 1.02 more likely to accept the vaccine. Participants who are satisfied with government response to the pandemic were 1.47 times more likely to accept the vaccine. Participants who think the vaccines that are developed is effective were 0.67 times more likely to accept the vaccination. Participants who think the local vaccines will be effective were 0.15 times more likely to accept the vaccination. Hypothesis 4, 8 and 9 is also supported. Participants who said they obtained information from TV were more willing to vaccinate (OR 1.23, 95% CI 0.01–0.51, $p = 0.04$). Participants who obtained information from TV were 1.23 times more likely to accept the vaccination. Trust in vaccine companies found to be the strongest predictor in this study for vaccination acceptance.

3.4. The Perceived Effectiveness Vaccines from Abroad and Local Vaccines Developed in Turkey

62.10% of the participants said that local vaccines developed in Turkey will be effective, and 57.93% of them stated that they will have side effects. Descriptive statistics for the result of perceived effectiveness and side effects of the vaccines can be seen in Table 4. A One-way ANOVA was conducted to find out whether there is a difference between the perceived effectiveness of different vaccines. The result indicated a significant difference, $F(5,4158) = 63.24$, $p<.001$. Post hoc analysis with a Bonferroni adjustment revealed that participants thought that Pfizer ($M = 3.25$, $SD = 0.91$) is more effective than all other vaccines: Moderna ($M = 2.73$, $SD = 0.88$, $p<.001$), Sinovac ($M = 2.74$, $SD = 0.79$, $p<.001$), Sputnik ($M = 2.55$, $SD =0.88$, $p<.001$), J&J ($M = 2.58$, $SD =0.87$, $p<.001$), and TR ($M = 2.65$, $SD =0.91$, $p<.001$). Moreover, Moderna was perceived as more effective than Sputnik ($p= .001$) and J&J ($p=.01$). Sinovac was also perceived as more effective than Sputnik ($p<.001$) and J&J ($p=.01$).

Table 4
Descriptive statistics of the perceived effectiveness and side effects of different vaccines

	Effectiveness				Side effect			
	Mean	SD	N	%	SD	Mean	N	%
Turkish	2.65	0.91	431	62.10	0.75	2.63	402	57.93
Sinovac	2.74	0.79	479	69.20	0.82	2.36	479	69.02
Pfizer	3.25	0.79	605	87.18	0.81	2.66	411	59.22
Moderna	2.73	0.86	482	69.45	0.77	2.69	427	61.52
J&J	2.58	0.87	424	61.10	0.81	2.76	451	64.99
Sputnik	2.55	0.88	411	59.23	0.76	2.62	410	59.08

Two multiple linear regressions (forward method) were used to test the predictors of the perceived effectiveness of vaccines from abroad and local vaccines developed in Turkey. Based on forward selection results, in the model for perceived effectiveness of vaccines from abroad, conspiracy beliefs, getting information from a doctor, trust in healthcare workers, trust in vaccine companies, experiences with vaccination, sex and income entered as predictors. In the model for perceived effectiveness of local vaccines developed in Turkey, governmental satisfaction, trust in state, trust in healthcare workers, trust in vaccine companies, chronic disease history, COVID-19 history, conspiracy beliefs, getting information from governmental sources, getting information from websites, getting information from news and age entered as predictors. Linearity, homogeneity of variance, multicollinearity, normality of residuals, and influential observations assumptions were checked; they were all met.

The regression results indicated that the perceived effectiveness of vaccines from abroad explained 24% of the variance and that the model was a significant predictor, *F*(11,682) = 20.36, *p* < .001. Belief in conspiracy theories (*β*= -.06, CI [-.09, -.04], *p* <.001), trust in healthcare workers (*β*= .09, CI [0.04, 0.14], *p* <.001), trust in vaccine companies (*β*= .14, CI [0.12, 0.20], *p* <.001), being vaccinated or knowing someone who was vaccinated (*β*= .31, CI [0.11, 0.51], *p* <.01), being a man (*β*= .16, CI [.06, 0.27], *p* <.01), and high income (*β*= .13, CI [.01, .27], *p* =.04) were all signifcant predictors of the percieved effectiveness of vaccines from abroad.

The regression results for the model for the perceived effectiveness of local vaccines developed in Turkey explained 33% of the variance and that the model was a significant predictor, *F*(12,681) = 29.43, *p* < .001. Governmental satisfaction (*β*= .16, CI [0.10, 0.22], *p* <.001), trust in vaccine companies (*β*= .06, CI [0.02, 0.10], *p* <.01), trust in state (*β*= .10, CI [0.04, 0.16], *p* <.01), trust in healthcare workers (*β*= .07, CI [0.04, 0.16], *p* <.01), people who have had Covid-19 or know someone who has had Covid-19 (*β*= .12, CI [0.002, 0.24], *p* <.05) and getting information from governmental sources (*β*= .05, CI [0.002, 0.10], *p* <.05) were all significant predictors of the perceived effectiveness of local vaccines developed in Turkey.

3.5. Parallel Mediation Analysis

The parallel mediation analysis revealed that trust in the state had a significant direct effect on both the perceived effectiveness of local vaccines (b = .30, SE = .02, 95% CI [.10, .30], p < .001) and vaccine acceptancy (b = .-32, SE = .10, 95% CI [-.51, -.13], p < .001). Additionally, the perceived effectiveness of local vaccines also had a significant direct effect on vaccine acceptancy (b = .64, SE = .15, 95% CI [.33, .94], p < .001).

The indirect effect of trust in state on vaccine acceptancy through the perceived effectiveness of local vaccines was significant (b = .04, SE = .03, 95% CI [-.02, .10]). However, the indirect effect of trust in state on vaccine acceptancy through the perceived effectiveness of vaccines from abroad wasnot significant (b = .19, SE = .05, 95% CI [.10, .29]).

3.6. Exploratory Analysis

A multiple linear regression was used to determine which information sources predict conspiracy beliefs. The results of the regression indicated that the model explained 4% of the variance and that the model was a significant predictor of exam performance, $F(9,684) = 3.09$, $p < .01$. Obtaining information from news ($\beta = .22$, CI [0.08, 0.36], $p < .01$), and TV ($\beta = .24$, CI [0.08, 0.38], $p < .01$), were significant predictor of conspiracy beliefs.

An independent sample t-test was conducted to see whether there is a difference in perceived susceptibility to the virus between people who have had COVID-19 before and who have not. Results showed that people who had COVID-19 ($M = 51.28$, $SD = 25.66$) scored higher on perceived susceptibility to the virus than participants who had not had COVID-19 ($M = 45.01$, $SD = 23.77$) conditions; $t(692) = 2.75$, $p < .01$

CHAPTER 4

DISCUSSION

The aim of this study is to investigate the factors that may be associated with willingness to be vaccinated and predictors of the perceived effectiveness of vaccines from abroad and local vaccines developed Turkey. In this section, the findings of the current study will be discussed in the light of the literature, followed by the contributions, conclusions, strengths and limitations of the study and recommendations for future research.

4.1. Findings of the Willingness to Vaccination

In the current study, 67.6% of participants were willing to be vaccinated, 17.7% were undecided and 14.7% refused to be vaccinated. Overall, the findings showed that people who were willingness to vaccinate had higher levels of anxiety about COVID-19, were more satisfied with the government's response to the pandemic, believed in COVID-19 conspiracy theories, thought the vaccines were effective and thought they were more susceptible to contracting the virus, obtained information from TV, had higher levels of trust in vaccine companies and doctors, but lower levels of trust in state.

Trust in institutions was expected to predict vaccine acceptance and results showed that people with higher levels of trust in vaccine companies and doctors were more willing to be vaccinated. This result is consistent with findings in the literature; vaccine hesitancy is often a result of underlying concerns about medicine, government, immunization, vaccine safety and efficacy, as well as growing distrust of doctors, pharmaceutical companies, government, and vaccine researchers (Larson et al., 2018; Yaqub et al., 2014). Previous studies show that people are skeptical of pharmaceutical companies because they perceive them to be corrupt, prioritizing profits over people's health (Ropeik, 2013).

However, in this study, trust in the state was found to be a negative predictor of willingness to be vaccinated. This finding is understandable when the other results of the current study are taken into consideration. While trust in the state was a significant predictor of the perceived effectiveness of local vaccines developed in Turkey, it was not a significant predictor of the perceived effectiveness of vaccines from abroad. The indirect effect of trust in state on vaccine acceptancy on vaccine acceptancy through the perceived effectiveness of vaccines from abroad was not significant, but the indirect effect of the indirect effect not trust in state on vaccine acceptancy on vaccine acceptancy through the perceived effectiveness of local vaccines was significant. Moreover, no correlation was found between trust in the state and the perceived effectiveness of Pfizer, Moderna and J&J. The correlations between trust in the state and the perceived effectiveness of Sputnik and Sinovac were weak, albeit significant. However, the correlation between trust in the government and the perceived effectiveness of local vaccines developed in Turkey was stronger ($r = .5$). Since Turkey was using Pfizer and Sinovac vaccines for vaccination at the time of data collection, it is reasonable that trust in the government did not positively predict willingness to vaccinate. Another explanation for this finding is that participants with a high level of trust in the state thought that the state would take care of their health even if they contracted the virus.

Consistent with the previous studies (Geoghegan et al., 2020; Palamenghi et al., 2020), participants who perceived that vaccines are effective were more willing to be vaccinated. Perceived vaccine effectiveness is also closely linked to trust in institutions. Some concerns about COVID-19 vaccines have been that the rapid development of vaccines can have negative side effects and that vaccines are not intentionally tested before approval (Geoghegan et al., 2020; Palamenghi et al., 2020; Vulpe & Rughiniş, 2021).

Another finding that supports previous findings is that belief in COVID-19 conspiracy theories negatively predicts willingness to vaccinate (Alper et al., 2020;

Bertin et al., 2020; Nazlı et al., 2022; Salali & Uysal, 2020; Sallam et al., 2021). Again, trust is an important factor to consider when thinking about belief in conspiracy theories. Conspiracy beliefs have been associated with various characteristics such as extreme skepticism, including paranoia, acceptance of other conspiracy theories, distrust of institutions and experts, and conspiracy mindset (Freeman et al., 2020). Although previous studies have pointed to the vital role of social media on vaccine hesitancy (Bendau, Petzold, et al., 2021; E. Dubé & MacDonald, 2016; Kennedy, 2020) and belief in conspiracy theories (Stecula & Pickup, 2021), no such effect was found in this study. In contrast, in this study, participants who said they obtained information from television and the news were more likely to believe in conspiracy theories. Some evidence suggests that, contrary to popular belief, conspiracy theories do not spread like wildfire through social media, but instead tend to cluster in areas where people already agree (Douglas et al., 2019).

Respondents who were satisfied with the government's response to the pandemic were more willing to get vaccinated, similar to previous results (Salali & Uysal, 2020). Participants who reported higher levels of perceived susceptibility to the virus were more willing to be vaccinated. This finding is consistent with previous studies; risk perception is a well-known variable in vaccination decisions (Dubé & MacDonald, 2016). The study also showed that participants who had previously had COVID-19 had a higher level of perceived susceptibility to the virus compared to those who had not.

Finally, COVID-19-related anxiety is a significant predictor of willingness to vaccinate, which is also consistent with previous studies (Akarsu et al., 2021; Detoc et al., 2020; Salali & Uysal, 2020). Fear and anxiety are known to be factors that increase public health compliance (Harper et al., 2020).

4.2. Findings of the Perceived Effectiveness of vaccines from Abroad and Local Vaccines Developed in Turkey

In this study, 87.18% of respondents thought Pfizer was effective and this finding is noteworthy because only 67.6% of respondents indicated that they were willing to be vaccinated. This result suggests that while some people think the vaccine is effective, they probably have other concerns about getting vaccinated. It is also important to note that Pfizer was perceived as more effective than all other vaccines asked about in this study (Moderna, Sinovac, Sputnik, J&J and local vaccines). Moderna was perceived as more effective than Sputnik and J&J. Similarly, Sinovac was perceived as more effective than Sputnik and J&J. It is important to note that this study used a 4-point Likert scale for the perceived effectiveness vaccines. Therefore, some people who were undecided about the effectiveness of the vaccine could have said that the vaccine was effective, even though in reality they were undecided. However, they could have gone to the less effective side, but they didn't. This may indicate that they were actually closer to the more effective side.

Respondents with higher levels of satisfaction with the government's response to the pandemic, trust in state, trust in healthcare professionals and trust in vaccine companies think that local vaccines developed in Turkey will be effective. This finding is consistent with the literature; lower trust in government response has been associated with significantly lower trust in vaccine safety and efficacy (Arvanitis et al., 2021). Previous studies have also shown that it is not the vaccines themselves that are distrusted, but the institutions (that communicate vaccination information) (Jamison et al., 2019; Yaqub et al., 2014). Therefore, it is important to build public trust to increase the perceived effectiveness of local vaccines. Another important finding is that respondents who reported getting information from government sources were more likely to think that local vaccines developed in Turkey would be effective. All these findings suggest that trust in state is crucial for the perceived effectiveness of local vaccines developed in Turkey.

Trust in healthcare professionals and vaccine companies are significant predictors of the perceived effectiveness of vaccines from abroad. This finding again supports the literature, but the findings of this study also showed that different institutions play different roles in the perceived effectiveness of different vaccines. In particular, trust in state was a significant predictor of the perceived effectiveness of local vaccines developed in Turkey, but not of vaccines from abroad.

Belief in conspiracy theories negatively predicted the perceived effectiveness of foreign vaccines. This is in line with previous research that found that belief in COVID-19 conspiracy theories was associated with lower levels of belief in vaccine efficacy (Baeza-Rivera et al., 2021).

In terms of demographical variables, men reported that they think vaccines are effective. People have a higher income were more likely to believe that vaccines are effective. Finally, people who have been vaccinated or know at least one person who has been vaccinated are more likely to think vaccines are effective.

4.3. Contributions and Implications of the Study

Dealing with vaccine hesitancy and resistance is challenging, as there is no consensus on the origins of vaccine hesitancy and resistance or the most effective methods to fix it (È. Dubé et al., 2021). Yet, to sustain the success of a country's vaccination programs, it is critical to understand and address the specific concerns related to vaccines (E. Dubé & MacDonald, 2016). This study contributes to the literature by examining the factors that predict vaccine hesitancy in Turkey. Furthermore, another contribution is to investigate people's perception of local vaccines developed in Turkey. To date, no study has investigated people's views on local vaccines. The findings of this study can be used to design successful vaccination campaigns.

While it has been suggested that providing credible and reliable information about vaccine safety and eliminating disinformation is essential to reduce vaccine hesitancy (A. Fisher et al., 2020), it may be more important to increase trust in the sources disseminating credible information. Trust in institutions and satisfaction with government's response to the pandemic are crucial for willingness to vaccinate and the perceived effectiveness of vaccines. If people trust the government and believe that the government has successfully dealt with the pandemic, they believe that the local vaccines developed in Turkey will be effective. This suggests that simply providing people with information may not be effective unless trust in institutions is established. Policymakers should therefore focus on building public trust to increase the perceived credibility of the information they disseminate.

Since the determinants of perceived effectiveness of vaccines from abroad and local vaccines developed in Turkey are different, policymakers should use different strategies for different vaccines. For vaccines developed in other countries, belief in COVID-19 conspiracy theories and trust vaccine companies appear to be very important. However, for vaccines developed in Turkey, satisfaction with the government's response to the pandemic and trust in the state are vital.

Another outstanding finding of this study is that people who believe in COVID-19 conspiracy theories were less willing to vaccinate and less likely to think that vaccines are effective. However, belief in COVID-19 conspiracy theories did not predict the perceived effectiveness of vaccines that are developing in Turkey. This suggests that if the government want to increase the perceived effectiveness of vaccines developing in Turkey, they should focus on internal factors (increasing trust in institution etc.) rather than external factors.

Another prominent finding of this study is that people who believe in COVID-19 conspiracy theories are less willing to get vaccinated and think that vaccines are not effective. However, belief in COVID-19 conspiracy theories did not predict the perceived effectiveness of local vaccines developed in Turkey. This suggests that if the government wants to improve the perceived effectiveness of vaccines developed in Turkey, it should focus on domestic factors (e.g. increasing trust in state).

Furthermore, while the perceived effectiveness of the vaccine is critical for vaccination intention, it may not be enough to persuade people to get vaccinated. The results of this study showed that 87.18% of respondents thought Pfizer was very effective, but only 67.6% of respondents were willing to be vaccinated. This suggests that increasing the perceived effectiveness of the vaccine may not lead to an increase in willingness to be vaccinated in all individuals.

Finally, there is no single best solution for vaccine hesitancy. A better strategy is to consider socio-cultural, political and historical factors and develop an effective strategy for the specific context (E. Dubé & MacDonald, 2016).

4.4. Limitations and Suggestions for Future Research

This study has several limitations that should be taken into consideration when interpreting the data. Firstly, our sample is not fully representative of the Turkish population; therefore, the generalisability of the results is limited. The majority of the participants were female, young adults and highly educated.

This study found that people who obtained information from government sources and had a higher level of trust in the government thought that local vaccines developed in Turkey would be effective. Previous studies have shown that it is not that vaccines themselves are not trusted, but that the institutions are viewed with scepticism (Jamison et al., 2019; Yaqub et al., 2014), and the perceived credibility of the institutions is more crucial than the content of the information (Yaqub et al., 2014). It is vital to investigate whether people have a higher level of trust in state because they prefer to get information from governmental sources or they get information from governmental sources; therefore, they have a higher level trust in state. Evidence suggests that people may prefer to obtain information from sources that support their own views. (Collange et al., 2019). In conclusion, merely exposing people to information from institutions that spread credible information may be ineffective if people do not trust and prefer those institutions. Future studies can investigate more on exploring this and how to increase trust in institutions.

In the current study, a 4-point Likert scale was used to measure certain scales, such as the perceived effectiveness of vaccines. The purpose of this is to see which side the participants are closer to. However, future studies could examine participants who are hesitant about vaccine efficacy. In addition, in this study, participants were asked how much they thought that vaccines would have side effects. However, the result of this finding is only given in descriptive statistics format. This is because it is difficult to predict how participants perceived this question. Vaccines may have short-term side effects such as fever or arm pain. Some participants may have thought about these short-term side effects and not perceived them as negative. However, some participants may have thought about long-term and permanent negative effects. Because the question is not clearly differentiated between the two of them, the perceived side effect of vaccines did not used in the analysis. Further studies can investigate in this area.

Finally, one of the limitations of this study is that it did not take into account how different groups differ in their willingness to be vaccinated, as previous studies have shown that ethnic minorities generally have lower levels of trust in institutions (Bagasra et al., 2021; Murphy et al., 2021).

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APPENDICES

A. DEMOGRAPHIC INFORMATION FORM

Cinsiyetiniz: (Kadın, Erkek, Trans Kadın, Trans Erkek, Kendim belirtmek istiyorum:, Belirtmek istemiyorum)
Yaşınız:
Eğitim durmunuz: (İlkokul, Ortaokul, Lise, Önlisans, Lisans, Lisansütü)
Medeni Durumu: Evli, Bekar
Aylık Net Gelir Düzeyiniz: (1000 TL'de az, 1000-2999 TL, 3000 – 4999 TL, 5000 – 6999, 7000 TL ve üzeri)
Hanenizde sizle birlikte kaç kişi yaşıyor:

B. COVID-19 HISTORY

Kovid19 geçirdiniz mi?

- Kovid geçirdiyseniz eğer hastalığı ne kadar ağır geçirdiniz? (1=çok hafif 5= çok ağır)

Kovid19 geçiren bir yakınınız oldu mu?

- Kovid19 geçiren bir yakınınız olduysa onun geçirme durumundan bahseder misiniz? (1=çok hafif 5= çok ağır)

Kovid19’dan ölen bir tanıdığınız oldu mu?

- Kimi kaybettiniz? (arkadaş-dost, tanıdık, aile, akraba)
- Ne zaman kaybettiniz? (1 ay önce, 1-6 ay önce, 6 ay ve daha öncesinde)

C. CHRONIC DISEASES HISTORY

Kovid-19 olursanız zor atlatmanıza sebep olacağını düşündüğünüz kronik bir hastalığınız var mı?

- Varsa hangi hastalık olduğunu belirtir misiniz?

Ailenizde kovid-19 olursa zor atlatmasına sebep olacağını düşündüğünüz kronik bir hastalığı olan birisi var mı?

- Varsa hangi hastalık olduğunu belirtir misiniz?

D. PERCEIVED SUSCEPTIBILITY

KOVİD-19 için pozitif tanısı almadıysanız veya KOVİD-19 semptomları göstermediyseniz, koronavirüsü yakalama olasılığınızın ne olduğunu düşünüyorsunuz? "0" koronavirüse yakalanma şansınızın hiç olmadığını düşündüğünüzü gösterirken "100" kesinlikle ona yakalanacağınızı düşündüğünüz anlamına gelir.

Koronavirüse yakalandıysanız eğer tekrardan koronavirüse yakalanma olasılığınızın ne olduğunu düşünüyorsunuz? "0" koronavirüse yakalanma şansınızın hiç olmadığını düşündüğünüzü gösterirken "100" kesinlikle ona yakalanacağınızı düşündüğünüz anlamına gelir.

E. COVID-19-RELATED ANXIETY

Aşağıdaki ifadelerin size ne derecede uyduğunu belirtiniz (1= hiç uymuyor 2= çok az uyuyor 3= biraz uyuyor 4= çok fazla uyuyor)

1: Aile üyelerimin ve/veya arkadaşlarımın sağlığından endişe duyuyorum.
2: Kendi sağlığımdan endişe duyuyorum.
3: İşimi kaybetmek veya ekonomk anlamda zor zamanlar yaşamaktan endişe duyuyorum.
4: Koronavirüsü başkalarına bulaştırmaktan endişe duyuyorum.
5: Endişeli ve korku dolu hissediyorum.
6: Dışarı çıkma konusunda stresliyim.

F. SATISFACTION WITH GOVERNMENT’S RESPONSE

Hükümetin pandemi konusunda yaptıklarından memnunum. (1= bana hiç uymuyor 2= bana çok az uyuyor 3 = bana biraz uyuyor 4= bana çok uyuyor)

G. BELIEF IN COVID-19 CONSPIRACY THEORIES

Asağıdaki ifadelere ne oranda katılıyorsunuz:

- Koronavirüsü birileri tarafından, kendi amaçları doğrultusunda kullanılmak üzere geliştirilip dünyaya yayılmıştır. (1 = kesinlikle katılmıyorum, 7 = kesinlikle katılıyorum)
- Koronavirüsünün dünyaya yayılmasının arkasında herhangi bir insanın veya grubun bilinçli bir planı yoktur. (1 = kesinlikle katılmıyorum, 7 = kesinlikle katılıyorum)"

H. TRUST IN INSTITUTIONS

Aşağıdaki kurumlara ne derece güven duyduğunuzu belirtiniz. (1:hiç güvenmiyorum; 5 :tamamen güveniyorum)

- Siyasi patilere
- Meclise
- Hükûmete
- Doktorlara
- Polise
- Hukuka
- Bilim insanlarına
- Sağlık çalışanlarına
- Asi şirketlerine

I. SOURCES OF INFORMATION

Aşağıdaki kaynaklardan KOVİD-19 hakkında ne kadar bilgi edindiniz. (1:hiç güvenmiyorum; 5 :tamamen güveniyorum)

- Gazete
- Televizyon
- Radyo
- Internet Websiteleri
- Sosyal media
- Doktorunuzdan
- Diğer sağlık çalışanlarından
- Devlet kurumlarından
- Aile veya arkadaşlardan

J. EXPERIENCES WITH VACCINATION

KOVİD-19 aşısı oldunuz mu? (oldum/ olmadım)

- Hangi aşıyı oldunuz? (Sinovac (Çin'de üretilen aşı)/ Pfizer-BioNTech (Almanya'da üretilen aşı))

KOVİD-19 aşısı olan birisini tanıyor musunuz? (taniyorum/ tanimiyorum)

- Tanıdığınız hangi aşıyı oldu? (Birden fazla aşı olan birini tanıyorsanız, ilk aklınıza gelen kişiyi düşünerek cevaplayınız) Sinovac (Çin'de üretilen aşı)/ Pfizer-BioNTech (Almanya'da üretilen aşı)=

K. PERCEIVED EFFECTIVENESS OF VACCINES FROM ABROAD

Aşağıda belirtilen her bir aşının KOVİD-19'a karşı ne kadar etkili olduğuyla ilgili düşüncenizi belirtiniz. (1= hiç etkili değil 5= çok etkili)

- Sinovac (Çin Aşısı)
- Pfizer-BioNTech
- Moderna
- Johnson & Johnson
- Sputnik (Rus Aşısı)

Aşağıda belirtilen her bir aşının ne kadar yan etkisi olduğuyla ilgili düşüncenizi belirtiniz. (1= hiç yan etkisi yok 5= çok yan etkisi var)

- Sinovac (Çin Aşısı)
- Pfizer-BioNTech
- Moderna
- Johnson & Johnson
- Sputnik (Rus Aşısı)

L. PERCEIVED EFFECTIVENESS OF LOCAL VACCINES

Türkiye'de faz çalışmaları devam eden KOVİD-19 aşılarının ne kadar etkili olacağını düşünüyorsunuz? (1= hiç etkili olmayacak 5= çok etkili olacak)

Türkiye'de faz çalışmaları devam eden KOVİD-19 aşılarının ne kadar yan etkisi olacağını düşünüyorsunuz? (1= hiç yan etkisi olmayacak 5= çok yan etkisi olacak)

M. INFORMED CONSENT FORM

ARAŞTIRMAYA GÖNÜLLÜ KATILIM FORMU

Bu çalışma Orta Doğu Teknik Üniversitesi Psikoloji Bölümü Sosyal Psikoloji Anabilim Dalından Prof. Dr. Bengi Öner Özkan'ın danışmanlığında Yüksek Lisans öğrencisi Emine Bilgen tarafından yürütülen bir tez çalışmasıdır. Bu form sizi araştırma koşulları hakkında bilgilendirmek için hazırlanmıştır.

Çalışmanın Amacı Nedir?

Bu çalışmanın amacı KOVİD-19 aşı karşıtlığı ve kararsızlığıyla ilişkili olabilecek faktörleri ve katılımcıların farklı aşılara yönelik değerlendirmelerini incelemektir.

Bize Nasıl Yardımcı Olmanızı İsteyeceğiz?

18-65 yaş aralığındaysanız, Türkiye'de yaşıyorsanız ve Türkiye Cumhuriyeti vatandaşıysanız araştırmaya katılabilirsiniz. Araştırmaya katılmayı kabul ederseniz sizden beklenen, ankette yer alan bir dizi soruyu derecelendirme ölçeği üzerinde yanıtlamanız ve bazı açık uçlu soruları kısaca yanıtlamanızdır. Bu çalışmaya katılım **ortalama olarak 15 dakika** sürmektedir.

Katılımınızla ilgili bilmeniz gerekenler:

Çalışmaya katılmak tamamen gönüllülük esasına bağlıdır. Çalışmaya katılmama ya da sebep göstermeksizin çalışmayı sonlandırma hakkınızın bulunduğunu lütfen unutmayınız.

Bu çalışmaya katılırken vereceğiniz bilgiler tamamen gizli tutulacaktır. Anketlerde isminiz ve diğer kimlik bilgilerinize dair sorular bulunmamaktadır. Dolayısıyla vereceğiniz cevapların anonimliği korunacaktır.

Tüm katılımcılardan alınan cevaplar bir arada analiz edilecek olup yalnızca bilimsel amaçlarla kullanılacaktır. Çalışmanın sonuçları bilimsel etkinliklerde sunulabilir.

Araştırmayla ilgili daha fazla bilgi almak isterseniz:

Soru ve önerileriniz için Emine Bilgen [redacted] ile iletişime geçebilirsiniz.

N. DEBRIEFING FORM

Çalışma sona ermiştir.

Bu çalışmada herhangi bir kandırma kullanılmamıştır.

Katılımınız için çok teşekkür ederiz

Soru ve önerileriniz için: [redacted]

O. TURKISH SUMMARY / TÜRKÇE ÖZET

1. GİRİŞ

1.1. Genel Giriş

Aşı keşfi tıp tarihinin en önemli başarılarından biridir zira aşılar son elli yılda pek çok ölümün önüne geçmiştir (E. Dubé & MacDonald, 2016). Aşılar her yıl milyonlarca ölümü önlemesine (Hajj Hussein et al., 2015) ve aşıların güvenli olduğunu gösteren çok sayıda bilimsel kanıt olmasına ragmen (Institute of Medicine (US) Immunization Safety Review Committee, 2004), son yıllarda birçok ülkede aşı kararsızlığı ve reddi artmaktadır (È. Dubé et al., 2021).

Aşı karşıtı hareketler, aşı kabul oranlarının düşmesine, aşıların ve aşı programlarının güvenliğine ilişkin endişelere, aşıların tamamen reddedilmesine ve aşıyla önlenebilir hastalık salgınlarının artmasına neden olmuştur Dünya Sağlık Örgütü 2019 yılında aşı kararsızlığını küresel sağlığa yönelik on tehditten biri olarak tanımlamıştır.

COVID-19 pandemisi yalnızca sağlık sistemi üzerinde değil, aynı zamanda ekonomi (Nicola et al., 2020), eğitim (Rapanta et al., 2020) ve sosyal yaşam (Prati & Mancini, 2021) üzerinde de yıkıcı sonuçlara sebep olmuşur Pandemi dünya çapında 6,5 milyondan fazla ölümle sonuçlanmıştır (World Health Organization, 2022). COVID-19 aşılarının duyulmamış bir hızda geliştirilmesi, onlarca yıllık araştırma ve teknolojik ilerlemeler, adayların hızlı bir şekilde geliştirilmesini sağlayan yenilikçi platformların kullanımı, birçok denemenin aynı anda yürütülmesi, büyük fonlar ve düzenleyici kurumların ve uzmanlarının daha hızlı çalışması sayesinde başarıldı (Rzymski et al., 2021)ç COVID-19 aşılarının hızlı bir şekilde geliştirilmesi büyük bir başarı olsa da, tüm dünyayı aşılamanın önünde çok sayıda engel bulunmaktadır (È. Dubé et al., 2021; E. Dubé & MacDonald, 2016; Murphy et al., 2021; Sallam, 2021).

Türkiye'de COVID-19 aşı kabul oranları %54,7 - %79 arasında değişmektedir (Hazar, 2021; İkiışık et al., 2021; Karabela et al., 2021; Kucukkarapinar et al., 2021; Nazlı et al., 2022; Salali & Uysal, 2020). Şu anda, nüfusun yalnızca %68,33'ü (%62,71'i tam aşılı) COVID-19 aşısı olmuştur (Ritchie et al., 2020).

Aşı tereddütü, yere, zamana ve farklı aşılara göre değişen, bağlama bağlı ve karmaşık bir konudur (MacDonald & SAGE Working Group on Vaccine Hesitancy, 2015). Aşı reddi ve tereddütü dünya çapında artış gösterdiğinden ve çeşitli nedenlere bağlı olduğundan, bu çalışma Türkiye'de COVID-19 aşı reddinin sıklığını ve redde veya tereddüde katkıda bulunan faktörleri belirlemeyi amaçlamaktadır.

1.2. Aşı İstekliliğinin Yordayıcıları

1.1.1. KOVİD-19 Komplo Teorileri

Komplo teorileri, belirli olayların mutlak nedenlerini açıklamaya çalışan ve bu olayların gizli, kötü veya güçlü gruplar tarafından planlandığını ve yürütüldüğünü öne süren temelsiz inançlardır (van Prooijen & Douglas, 2018). İnsanlar komplo teorileri nedeniyle ana akım tıbba karşı o kadar şüpheci hale gelmiştir ki, bir zamanlar tedavi edilebilir olan hastalıklar artık dünyanın çeşitli bölgelerinde yeniden ortaya çıkmaktadır (Douglas vd., 2019). Komplo teorileri, aşı karşıtlığını ve tereddütünü anlamak için son derece önemlidir, çünkü önceki araştırmalar, insanların zaten bir komplo teorisine inanıyorlarsa, bu teoriler birbiriyle alakasız olsa bile, diğer komplo teorilerine inanma eğiliminde olduklarını göstermiştir (Sutton ve Douglas, 2014; Swami ve ark., 2010; Wood ve ark., 2012). Özellikle bazı araştırmalar, genel komplo inancı ile COVID-19 ile ilgili komplo inancı arasında bir bağlantı olduğunu göstermektedir (Alper vd., 2020; Imhoff ve Lamberty, 2020).

COVID-19 komplo teorileri, virüsün ilk kez rapor edilmesinden kısa bir süre sonra ortaya çıkmış ve dünya çapında insanların ilgisini çekmeye devam etmektedir (van Mulukom vd., 2020). Komplo teorileri, belirsizlik ve korkunun çok fazla olduğu sosyal kriz dönemlerinde ortaya çıkma eğiliminde olduğundan (van Prooijen ve Douglas, 2017), COVID-19 salgını sırasında popülerlik kazanmaları şaşırtıcı değildir (Bertin vd., 2020; Kouzy vd., 2020).

Komplo teorileri, sosyal medya nedeniyle toplumda çok yaygındır. (Kouzy vd., 2020). Sosyal medyada, pandeminin aşı satmak için bir aldatmaca olduğunu iddia eden söylentiler virüsten daha hızlı yayılıyor (Dubé vd., 2021). Doğrulanmamış Twitter hesaplarından paylaşılan tweetlerin, sağlık ve doğrulanmış hesaplardan daha fazla yanlış bilgi içermesi şaşırtıcı değildir (Kouzy vd., 2020). Bu nedenle, başarılı aşı kampanyaları tasarlamak için, politika yapıcılar aşı karşıtı komplo teorileri konusunda çok dikkatli olmalıdır çünkü bu teorilere maruz kalan kişiler daha düşük düzeyde aşılama niyeti göstermektedir (Jolley & Douglas, 2014).

1.1.2. Kurumlara Güven

Kurumlara duyulan güven, aşı kabulünün kritik belirleyicilerinden biridir (Dubé vd., 2021; Yaqub vd., 2014). Güven ve meşruiyet, neden bazı aşı bilgi kaynaklarına diğerlerinden daha fazla başvurulduğunu, aşı bilgilerinin nasıl yeniden yorumlandığını ve tıbbi araştırmalara sıklıkla karşı çıkan tutumların nasıl geliştirildiğini anlamada çok önemli kavramlardır (Yaqub ve ark., 2014). Aşı tereddütü tipik olarak tıp, devlet, beden, aşıların güvenliği ve etkinliği ve bağışıklama ile ilgili altta yatan endişelerin yanı sıra doktorlara, ilaç şirketlerine, hükümete ve aşı araştırma topluluğuna karşı artan güvensizliği yansıtmaktadır (Larson ve ark., 2018; Yaqub ve ark., 2014). Kanıtlar, aşıların kendilerine değil, (aşı bilgilerinin aktarıldığı) kurumlara güvenilmediğini göstermektedir (Jamison ve ark., 2019; Yaqub ve ark., 2014). Kurumların algılanan güvenilirliği bilginin içeriğinden daha önemli olsa da (Yaqub ve ark., 2014), insanlar kendi inançlarıyla eşleşen kaynaklardan bilgi edinmeyi tercih edebilir (Collange ve ark., 2019). Bu nedenle, insanların bu kaynakları güvenilir olarak algıladıkları için mi yoksa kendi inançlarıyla eşleştikleri için mi tercih ettiklerini söylemek zordur.

1.1.3. Hükümetin Pandemiye Olan Tepkisi

Aşı güvenliğine ilişkin tıbbi tartışmalar, aşılamada kamu ve özel sektör aktörlerinin rolüne ilişkin siyasi tartışmalarla bağlantılıdır. (Dubé vd., 2021) Bazıları, Amerika Birleşik Devletleri'nde COVID-19 aşılarına olan güvensizliklerinin bir açıklaması olarak hükümetin pandemiye erken müdahalesinin etkisizliğini ve COVID-19 pandemisine ilişkin bilim camiasından gelen çelişkili mesajları vurgulamıştır. (Kerr vd., 2021)

Çalışmalar, hükümetin pandemiye müdahalesine duyulan güvenin aşının güvenliğine ve etkinliğine duyulan güvenle ilişkili olduğunu ortaya koymuştur (Arvanitis vd., 2021), ancak aşı tereddütlerinin, hükümetin eylemlerine duyulan güvenden ziyade bilim insanlarından alınan bilgilere duyulan güven tarafından tahmin edilmesi daha olasıdır. (Bagasra vd., 2021) Irk ve siyasi ideoloji gibi faktörler de hükümetin pandemiye müdahalesine duyulan güveni etkilemektedir (Arvanitis vd., 2021; Bagasra vd., 2021; Kerr vd., 2021).

1.1.4. KOVİD-19'a İlişkin Kaygı

COVID-19 ile ilişkili korku ve kaygı, halkın refahını iyileştirmek için çok önemli olan halk sağlığı uyumunu artırmada işlevsel bir rol oynamaktadır (Harper ve ark., 2020). Araştırmalar, öznel kaygı, korku ve bireysel risk düzeylerinin aşı kabulünün önemli faktörleri olduğunu göstermektedir; COVID-19 ile ilgili kaygı düzeyleri daha yüksek olan kişiler aşı olmaya daha isteklidir (Akarsu vd., 2021; Detoc vd., 2020; Salali & Uysal, 2020). COVID-19 ile ilgili kaygı ve sağlıkla ilgili korkular daha fazla aşı olma isteği ile ilişkilendirilirken, sosyal ve ekonomik etkilerden duyulan korku tam tersi bir yol izlemiştir (Bendau, Plag ve ark., 2021). COVID-19 ile ilgili kaygı yaşamak aşı kabulü üzerinde olumlu bir etkiye sahip olsa da, stresle başa çıkma yeteneği ve genel sağlık üzerinde olumsuz bir etkiye de sahiptir (Baloran, 2020; Chew vd., 2020; Yıldırım vd., 2021). Aşılanmamış kişilerin, aşılanmış kişilere göre psikolojik kaygı yaşamaya daha yatkın olduğu tespit edilmiştir (J. Yang ve ark., 2021), bu nedenle politika yapıcılar müdahale programları geliştirirken bu faktörleri göz önünde bulundurmalıdır.

1.1.5. Algılanan KOVİD-19 Riski

Risk algısı, bireylerin bulaşıcı hastalık salgınlarına nasıl tepki vereceğini büyük ölçüde etkiler (Ferrer & Klein, 2015). Sayısal beceriler, hassasiyet ve bilginin sunulma şekli gibi faktörlerin hepsi bireyin risk algısını etkileyebilir (Ropeik, 2013). İnsanlar hem aşıyla önlenebilir hastalıkların hem de aşıların risklerini farklı algıladıkları için bu durum aşı kabul ve reddini de etkileyebilir (Dubé & MacDonald, 2016). İnsanlar yapay tehditler (aşılar gibi) konusunda doğal risklerden daha fazla endişe duyma eğilimindedir (Ropeik, 2013), bu da aşı karşıtı tutumlara yol açabilir. Bilime güvensizlik ve komplo teorilerine inanç da risk algısında rol oynayabilir (Chayinska vd., 2021; Lamberty & Imhoff, 2018). Bu durum özellikle aşı karşıtı birçok komplo teorisinin sosyal medyada dolaştığı internet ortamında yaygındır (Dubé vd., 2021; Kouzy vd., 2020). COVID-19 pandemisi bağlamında, komplo teorilerine olan inanç, enfeksiyon önleme davranışlarına daha düşük düzeyde uyumla bağlantılıdır (Imhoff ve Lamberty, 2020). Ayrıca, potansiyel sağlık risklerini değerlendirirken aşırı iyimser olan bireyler, algılanan tehdidin ciddiyetini hafife alma eğilimindedir ve önlemleri ve koruyucu eylemleri takip etmeye daha az meyillidir (Chayinska ve ark., 2021). Bu durum, aşı olma isteğine (Küçükkarapınar vd., 2021; Salalı ve Uysal, 2020) ve aşı klinik çalışmalarına katılmayı kabul etmeye (Detoc vd., 2020) yansımaktadır.

1.1.6. Bilgi Edinim Kaynakları

İnternetin yaygın kullanımı aşı kararsızlığında önemli bir faktördür (E. Dubé & MacDonald, 2016). Sosyal medya ve dijital teknolojiler, haber medyası üreticileri ve kullanıcıları arasında yüksek hızlı bilgi paylaşımını ve platformlar arası bilgi basamaklarını mümkün kılmış (Shu vd., 2017), bu da ulaşılabilirlik sezgisel önyargısını artırmıştır (E. Dubé & MacDonald, 2016). Aşıları geciktiren veya reddeden bireylerin çevrimiçi bilgi arama olasılığı çok daha yüksektir (Dubé & MacDonald, 2016) ve özellikle sosyal medyanın COVID-19 salgınına ilişkin korkuların yanı sıra aşı tereddütleri ve komplo teorilerinin yayılmasında önemli bir rol oynadığı görülmektedir (Bendau, Petzold, vd., 2021; Kennedy, 2020; Mascherini & Nivakoski, 2022). Bir çalışma, aşıya dirençli kişilerin sosyal medyadan aşıyı kabul eden kişilere göre daha fazla bilgi tükettiğini, ancak geleneksel kaynaklardan gelen bilgilere güvenme olasılıklarının daha düşük olduğunu ortaya koymuştur (Murphy ve ark., 2021). Bununla birlikte, sosyal medya kullanımının her zaman aşı kararsızlığı ile bağlantılı olmayabileceğini belirtmek gerekir; bazı çalışmalar, hem resmi web sitelerini hem de sosyal medyayı kullandığını bildiren bireylerin en yüksek aşı kabul puanlarına sahip olduğunu bulmuştur. Sağlık profesyonellerinin aşılama konusunda en güvenilir bilgi kaynağı olduğu bulunmuştur (Charron ve ark., 2020; Freitas ve ark., 2021; Glanz ve ark., 2013; Salmon ve ark., 2005).

1.1.7. Aşıya İlişkin Deneyim

Wang ve arkadaşları (2021), düşük enfeksiyon riski, bekleme ve başkalarının aşılandığını görme, aşı etkinliği, fiyat ve aşı güvenliği ile ilgili endişelerin aşı tereddütlerinin ana nedenleri olduğunu bulmuştur. Benzer şekilde, COVID-19 aşı güvenliği, genel olarak aşı güvenliğinden önemli ölçüde daha düşük (%10,1) olarak değerlendirilmiştir (Syan vd., 2021). Bununla birlikte, daha fazla insanın aşılanması uzun vadede aşı tereddüt ve direncinin artmasına yol açabilir çünkü insanlar aşı ile önlenebilir hastalıklara daha az maruz kalmakta, bu da onlar hakkında daha az endişeye ve dolayısıyla aşılara karşı daha fazla tereddüt ve dirence yol açmaktadır (Fridman vd., 2021; Kestenbaum & Feemster, 2015). İnsanlar karar verirken genellikle sezgisel yöntemler kullanırlar, ancak bunlar yanlış faktörler devreye girdiğinde bilişsel önyargılara yol açabilir; örneğin, insanların olayların olasılığını ilgili örneklerin akıllarına ne kadar kolay geldiğine göre değerlendirdiği kullanılabilirlik sezgisel yöntemi gibi (Tversky & Kahneman, 1973). Aşılarla ilgili olumsuz deneyimler, kayıplardan kaçınma eğiliminin eşit kazançlara tercih edilmesi anlamına gelen kayıptan kaçınma eğilimi nedeniyle insanların aşı yaptırma kararı üzerinde olumlu deneyimlerden daha fazla etkiye sahip olabilir (Novemsky & Kahneman, 2005)ç

1.1.8. Aşıların Algılanan Etkililiği

Aşı tereddütü yaygın bir sorundur ve nedenleri arasında araştırmalara ve aşılara güvensizlik, yan etkilerle ilgili endişeler ve aşılar yerine doğal bağışıklığın tercih edilmesi yer almaktadır (Geoghegan vd., 2020; Palamenghi vd., 2020; Sonawane vd., 2021). Aşı hakkındaki tutum ve inançlar, aşı yaptırma olasılığını güçlü bir şekilde etkilemektedir (Chen ve ark., 2021). Etkinliği ve güvenliği daha fazla bildirilen bir aşıyı insanların kabul etme olasılığı daha yüksek olabilir (Merkley & Loewen, 2022).

COVID-19 aşılarının hızlı gelişimi güvenlikle ilgili endişelere yol açabileceğinden, aşıların algılanan etkinliği aşı yaptırma isteği için çok önemli olabilir (Syan ve ark., 2021). Eğitim durumu, gelir ve şiddetli COVID-19 riski yüksek kişilerle birlikte yaşama gibi faktörler de aşı tereddütlerinde rol oynamaktadır (Mohamed ve ark., 2021). COVID-19 aşı kararsızlığını azaltmak için, aşı etkinliği ile ilgili endişeleri gidermek önemlidir, ancak aşı geliştirmenin siyasallaşması gibi diğer faktörleri de göz önünde bulundurmak gerekir (Wagner ve ark., 2021). Hastalık Kontrol ve Önleme Merkezleri ve ana akım medya gibi güvenilir bilgi kaynaklarına duyulan güven de COVID-19 aşısına duyulan güveni artırabilir (Latkin ve ark., 2021).

1.1.9. Türkiye'de Geliştirilen Yerel Aşılar

Tüm ülkeler için hedef, ölümleri önlemek ve sosyal hayatı normalleştirmek için COVID-19 aşılarına erişim sağlamaktır. (Esen, 2021). Aşı milliyetçiliği, ülkelerin kendi çıkarlarını ilk sıraya koyması ve bu süreçte diğer uluslara zarar vermesidir. (Vanderslott vd., 2021). Düşük gelirli ülkeler genellikle uygun aşı tedarik anlaşmaları düzenleme becerisinden yoksundur. (Vanderslott vd., 2021) Türkiye, aşılara nispeten kolay erişimi olan ülkelerden biridir ve TURKOVAC, Türkiye'de devam eden 14 COVID-19 aşı geliştirme çalışmasından biridir. (DHA, 2021) Bu aşının faz 3 çalışmaları tamamlanmıştır ve aşının kullanımının güvenli olduğunu göstermektedir, (COVID19 Vaccine Tracker, 2022) ve acil kullanım onayı almıştır ve şu anda Türkiye'deki tüm şehirlerde mevcuttur. (Hürriyet, 2022; Reuters, 2021) Bir aşının algılanan etkinliği, aşı yaptırma isteğinin köklü bir belirleyicisidir, (Geoghegan ve diğerleri, 2020; Palamenghi ve diğerleri, 2020; Sonawane ve diğerleri, 2021) Bu nedenle, Türkiye'de insanların yerel aşılara yönelik tutumlarını anlamak çok önemlidir, ancak şu anda Türkiye'de geliştirilen COVID-19 aşılarına yönelik insanların tutumları hakkında herhangi bir çalışma bulunmamaktadır.

1.1.10. KOVİD-19 Geçmişi

Belirtildiği üzere, bireylerin risk algıları bulaşıcı hastalık salgınlarına nasıl tepki vereceklerini büyük ölçüde etkilemektedir (Ferrer & Klein, 2015). Bu nedenle, daha önce COVID-19'a yakalanmış olmanın ve hafif veya şiddetli semptomlara sahip olmanın insanların aşı olma istekliliğini etkileyebileceği söylenebilir. Aslında, bir çalışmada COVID-19 geçiren birini tanıyan kişilerin aşı olma ihtimalinin daha yüksek olduğu bulunmuştur (Al-Qerem & Jarab, 2021). Bu çalışmanın amaçlarından biri, COVID-19 geçirmiş olmanın veya COVID-19 geçiren birini tanımanın ve semptomların ciddiyetinin aşı olma isteği ile ilişkili olup olmadığını bulmaktır.

1.1.11. Kronik Hastalık Geçmişi

Yaşlılar ve altta yatan rahatsızlıkları olan kişiler gibi hassas gruplarda aşı tereddütlerini anlamak çok önemlidir, çünkü bu kişiler ciddi COVID-19 riski altındadır. Altta yatan kronik hastalıkları olan kişiler arasında aşı olma isteği üzerine yapılan çalışmalar tutarsız sonuçlar göstermiştir. Bazı çalışmalar, kronik bir hastalığa sahip olmanın ve önemli kişiler için endişelenmenin aşı olma isteğinin önemli belirleyicileri olduğunu öne sürmektedir (Kucukkarapinar vd., 2021). Diğer çalışmalar, kronik hastalığı olan kişilerin aşı olmaya daha istekli olduğunu göstermektedir (Ma ve ark., 2021). Bununla birlikte, bazı çalışmalar, altta yatan bir sağlık sorunu olan kişiler arasında aşılamaya karşı daha fazla direnç olduğunu bulmuştur (Murphy ve ark., 2021). Bu tutarsızlığı açıklayabilecek olası bir faktör, COVID-19 şiddetinin altta yatan kronik bir rahatsızlığı olan herkes için eşit olmamasıdır. Bu nedenle, insanlara kronik hastalıklarının kendilerini COVID-19'a karşı savunmasız hale getirdiğini düşünüp düşünmediklerini sormak önemlidir.

1.2. Mevcut Çalışma

Bu çalışma, Türkiye'de aşı kabulünün belirleyicilerini tespit etmeyi amaçlamaktadır. Aşı kararsızlığını yordayan birçok değişken bulunmaktadır. Bu çalışma, Türkiye bağlamında önemli ve ilgili olabilecek değişkenlere odaklanmayı amaçlamaktadır. Bu çalışmanın bir diğer amacı da Türkiye'de yerel aşıların algılanan etkinliğinin yordayıcılarını araştırmaktır. Tezin hipotezlerinin özetine buradan ulaşabilirsiniz.

H1: COVID-19 komplo teorilerine olan inanç, aşı kabulünü olumsuz yönde yordayacaktır.
H2: COVID-19 ile ilgili kaygı aşı kabulünü pozitif yönde yordayacaktır.

H3: Kurumlara güven aşı kabulünü olumlu yönde yordayacaktır.

H3a. Devlete güven, aşı kabulünü olumlu yönde yordayacaktır.

H3b. Bilim insanlarına duyulan güven aşı kabulünü olumlu yönde yordayacaktır.

H3c. Doktorlara duyulan güven aşı kabulünü pozitif yönde yordayacaktır.

H3d. Diğer sağlık çalışanlarına duyulan güven aşı kabulünü olumlu yönde yordayacaktır.

H3e. Aşı şirketlerine duyulan güven aşı kabulünü olumlu yönde yordayacaktır.

H4: COVID-19 risk algısı aşı kabulünü olumlu yönde yordayacaktır.

H5: Aşı olan birini tanımak aşı kabulünü olumlu yönde yordayacaktır.

H6: Kadın olmak aşı kabulünü olumlu yönde yordayacaktır.

H7: Şiddetli COVID-19 semptomlarına sahip olmak veya şiddetli COVID-19 semptomlarına sahip birini tanımak aşı kabulünü olumlu yönde yordayacaktır.

H8: Devlet memnuniyeti aşı kabulünü olumlu yönde yordayacaktır.

H9: Farklı aşıların algılanan etkinliği aşı kabulünü olumlu yönde yordayacaktır.

2. YÖNTEM

2.1. Katılımcılar

797 katılımcı çalışmayı tamamlamıştır; ancak 70'i 18 yaşın altında, 6'sı yurtdışında yaşamakta ve 27'si ters maddelere tutarsız yanıtlar vermiştir, bu nedenle nihai örneklem 694 katılımcıdan (387 Kadın, 248 Erkek, 59 Yanıt vermeyen) oluşmuştur. Katılımcılar sosyal medya aracılığıyla kolayda örnekleme yöntemi kullanılarak toplanmıştır. Bu çalışmada aşı kabulü %67,6, aşı tereddütü %17,7 ve aşı reddi %14,7'dir. Veriler 27.05.2021-13.07.2021 tarihleri arasında toplanmıştır.

2.2. Veri Toplama Araçları

Bu çalışmada katılımcıların, KOVİD-19 Geçmişi, Kronik Hastalık Geçmişi, Algılanan KOVİD-19 Riski, KOVİD-19'a İlişkin Kaygı, Hükümetin Pandemiye Olan Tepkisine Olan memnuniyetleri, KOVİD-19 Komplo Teorilerine Olan İnançları, Kurumlara Olan Güvenleri, Bilgi Edinim Kaynakları, Aşıya İlişkin Deneyimleri, Yurt Dışındaki Aşıların Algılanan Etkililiği, Yerel Aşıların Algılanan Etkililiği ölçülmüştür.

2.3. İşlem

Orta Doğu Teknik Üniversitesi İnsan Katılımcıları Etik Kurulu'ndan alınan etik onayın ardından katılımcılar sosyal medya platformları aracılığıyla çalışmaya katılmaya davet edilmiştir. Veri toplama 24 Mayıs 2021 tarihinde başlamış ve 12 Temmuz 2021 tarihinde sona ermiştir. Katılımcılar çalışmayı Qualtrics Online Anket Platformunda tamamladılar. Katılımcılar çalışmaya katılmak için onay verdikten sonra anketleri ve ardından demografik soruları doldurdular.

3. BULGULAR

3.1. Lojistik Regresyon

Bu çalışma, komplo teorilerine inancın ve COVID-19 ile ilgili kaygının aşı kabulü ile negatif ilişkili olduğunu bulmuştur. Devlete daha düşük güven ve aşı şirketlerine ve doktorlara daha yüksek güven aşı kabulü ile pozitif ilişkili bulunmuştur. Algılanan duyarlılık, hükümet memnuniyeti, yabancı ve yerli aşıların algılanan etkinliği ve TV'den bilgi edinme de aşı kabulünün yordayıcıları olarak bulunmuştur. Aşı firmalarına duyulan güven, aşı kabulünün en güçlü yordayıcısı olmuştur. Model, aşı yaptırma istekliliğindeki varyansın %38'ini açıklamıştır.

3.2. Aşıların Algılanan Etkililiği

Çalışma, katılımcıların %62,10'unun Türkiye'de geliştirilen yerel aşıların etkili olacağına inandığını ve %57,93'ünün yan etkileri olacağını belirttiğini ortaya koymuştur. Tek yönlü ANOVA yapılmış ve farklı aşıların algılanan etkinliği arasında anlamlı bir fark bulunmuştur. Post-hoc analizi, katılımcıların Moderna, Sinovac, Sputnik, J&J ve TR'ye kıyasla Pfizer'in en etkili aşı olduğuna inandığını ortaya koymuştur. Ayrıca, Moderna ve Sinovac, Sputnik ve J&J'den daha etkili olarak algılanmıştır.

Bir çalışmada, yurt dışından gelen aşıların ve Türkiye'de geliştirilen yerel aşıların algılanan etkinliğinin belirleyicilerini test etmek için çoklu doğrusal regresyonlar kullanılmıştır. Sonuçlar komplo inançlarının, sağlık çalışanlarına güvenin, aşı firmalarına güvenin ve aşılanmış olmanın veya aşılanmış birini tanımanın yurt dışından gelen aşıların algılanan etkililiğinin önemli yordayıcıları olduğunu göstermiştir. Hükümet memnuniyeti, devlete güven, sağlık çalışanlarına güven, aşı firmalarına güven, Covid-19 geçmişine sahip olma ve hükümet kaynaklarından bilgi alma, Türkiye'de geliştirilen yerli aşıların algılanan etkinliğinin anlamlı yordayıcıları olarak bulunmuştur. Model, yurt dışından gelen aşıların ve yerel aşıların algılanan etkinliğindeki varyansın sırasıyla %24 ve %33'ünü açıklamıştır.

3.3. Aracı Değişken Analizi

Paralel aracılık analizinin sonuçları, devlete güvenin hem yerel aşıların algılanan etkinliği hem de aşı kabulü üzerinde önemli bir doğrudan etkiye sahip olduğunu göstermektedir. Ayrıca, yerel aşıların algılanan etkinliği de aşı kabulü üzerinde anlamlı bir doğrudan etkiye sahiptir. Ayrıca, yerel aşıların algılanan etkinliğinin devlete güven üzerinden aşı kabulü üzerindeki dolaylı etkisi de anlamlıdır. Ancak, yurt dışından gelen aşıların algılanan etkinliğinin devlete güven yoluyla aşı kabulü üzerindeki dolaylı etkisi anlamlı değildir.

3.4. Keşif Analizleri

Çoklu lineer regresyon, haberlerden ve TV'den bilgi edinmenin komplo inançlarının önemli belirleyicileri olduğunu ve varyansın %4'ünü açıkladığını ortaya koymuştur. Bağımsız bir örneklem t-testi, COVID-19 geçiren kişilerin virüse karşı algılanan duyarlılık konusunda geçirmeyenlere göre daha yüksek puan aldığını ve anlamlı bir fark olduğunu göstermiştir.

4. TARTIŞMA

4.1. Lojistik Regresyon

Mevcut çalışmada, katılımcıların %67,6'sı aşı olmaya istekli, %17,7'si kararsız ve %14,7'si aşı olmayı reddetmiştir. Genel olarak bulgular, aşı olmaya istekli kişilerin COVID-19'a ilişkin kaygı düzeylerinin daha yüksek olduğunu, hükümetin pandemiye verdiği tepkiden daha memnun olduklarını, COVID-19 komplo teorilerine inandıklarını, aşıların etkili olduğunu ve virüse yakalanmaya daha yatkın olduklarını düşündüklerini, TV'den bilgi aldıklarını, aşı şirketlerine ve doktorlara daha yüksek düzeyde güven duyduklarını, ancak devlete daha düşük düzeyde güven duyduklarını göstermiştir.

Kurumlara duyulan güvenin aşı kabulünü öngörmesi beklenmiş ve sonuçlar aşı şirketlerine ve doktorlara daha yüksek düzeyde güven duyan kişilerin aşı olmaya daha istekli olduğunu göstermiştir. Bu sonuç literatürdeki bulgularla tutarlıdır; aşı tereddütleri genellikle tıp, devlet, bağışıklama, aşı güvenliği ve etkinliği ile ilgili altta yatan endişelerin yanı sıra doktorlara, ilaç şirketlerine, devlete ve aşı araştırmacılarına karşı artan güvensizliğin bir sonucudur (Larson vd., 2018; Yaqub vd., 2014). Önceki çalışmalar, insanların ilaç şirketlerine şüpheyle yaklaştığını, çünkü onları yolsuzluk yapan, kârlarını insanların sağlığından üstün tutan şirketler olarak algıladıklarını göstermektedir (Ropeik, 2013).

Ancak bu çalışmada, devlete güven aşı olma isteğinin negatif bir yordayıcısı olarak bulunmuştur. Bu bulgu, mevcut çalışmanın diğer sonuçları göz önünde bulundurulduğunda anlaşılabilir. Devlete güven, Türkiye'de geliştirilen yerel aşıların algılanan etkinliğinin anlamlı bir yordayıcısı iken, yurtdışından gelen aşıların algılanan etkinliğinin anlamlı bir yordayıcısı değildir. Ayrıca, devlete güven ile Pfizer, Moderna ve J&J'nin algılanan etkinliği arasında herhangi bir ilişki bulunmamıştır. Devlete güven ile Sputnik ve Sinovac'ın algılanan etkinliği arasındaki korelasyonlar anlamlı olmakla birlikte zayıftır. Ancak, devlete güven ile Türkiye'de geliştirilen yerel aşıların algılanan etkinliği arasındaki korelasyon daha güçlüdür ($r = .5$). Verilerin toplandığı dönemde Türkiye aşılama için Pfizer ve Sinovac aşılarını kullandığından, hükümete duyulan güvenin aşı yaptırma isteğini olumlu yönde yordamaması makuldür. Bu bulgunun bir diğer açıklaması, devlete güven düzeyi yüksek olan katılımcıların, virüse yakalansalar bile devletin sağlıklarıyla ilgileneceğini düşünmeleridir.

Önceki çalışmalarla tutarlı olarak (Geoghegan vd., 2020; Palamenghi vd., 2020), aşıların etkili olduğunu algılayan katılımcılar aşı olmaya daha istekli olmuştur. Algılanan aşı etkinliği, kurumlara duyulan güvenle de yakından ilişkilidir. COVID-

19 aşılarıyla ilgili bazı endişeler, aşıların hızlı geliştirilmesinin olumsuz yan etkileri olabileceği ve aşıların onaylanmadan önce kasıtlı olarak test edilmediği yönünde olmuştur (Geoghegan vd., 2020; Palamenghi vd., 2020; Vulpe ve Rughiniş, 2021).

Önceki bulguları destekleyen bir diğer bulgu da COVID-19 komplo teorilerine olan inancın aşı yaptırma isteğini olumsuz yönde yordamasıdır (Alper vd., 2020; Bertin vd., 2020; Nazlı vd., 2022; Salali ve Uysal, 2020; Sallam vd., 2021). Yine güven, komplo teorilerine olan inanç hakkında düşünürken göz önünde bulundurulması gereken önemli bir faktördür. Komplo inançları, paranoya da dahil olmak üzere aşırı şüphecilik, diğer komplo teorilerinin kabulü, kurumlara ve uzmanlara güvensizlik ve komplo zihniyeti gibi çeşitli özelliklerle ilişkilendirilmiştir (Freeman vd., 2020). Önceki çalışmalar sosyal medyanın aşı tereddütü (Bendau, Petzold, vd., 2021; E. Dubé & MacDonald, 2016; Kennedy, 2020) ve komplo teorilerine inanç (Stecula & Pickup, 2021) üzerindeki hayati rolüne işaret etse de, bu çalışmada böyle bir etkiye rastlanmamıştır. Buna karşılık, bu çalışmada televizyondan ve haberlerden bilgi edindiğini söyleyen katılımcıların komplo teorilerine inanma olasılığı daha yüksektir. Bazı kanıtlar, yaygın inanışın aksine, komplo teorilerinin sosyal medya aracılığıyla orman yangını gibi yayılmadığını, bunun yerine insanların zaten hemfikir olduğu alanlarda kümelenme eğiliminde olduğunu göstermektedir (Douglas vd., 2019).

Hükümetin pandemiye verdiği tepkiden memnun olan katılımcılar, önceki sonuçlara benzer şekilde aşı olmaya daha istekli olmuştur (Salali & Uysal, 2020). Virüse karşı daha yüksek düzeyde algılanan duyarlılık bildiren katılımcılar aşı olmaya daha istekli olmuştur. Bu bulgu önceki çalışmalarla tutarlıdır; risk algısı aşılama kararlarında iyi bilinen bir değişkendir (Dubé & MacDonald, 2016). Çalışma ayrıca, daha önce COVID-19 geçirmiş olan katılımcıların, geçirmemiş olanlara kıyasla virüse karşı daha yüksek düzeyde algılanan duyarlılığa sahip olduğunu göstermiştir.

4.2. Aşıların Algılanan Etkililiği

Bu çalışmada, katılımcıların %87,18'i Pfizer'in etkili olduğunu düşünmektedir ve bu bulgu dikkat çekicidir çünkü katılımcıların sadece %67,6'sı aşı olmak istediklerini belirtmiştir. Bu sonuç, bazı kişilerin aşının etkili olduğunu düşünmekle birlikte, aşı olma konusunda muhtemelen başka endişeleri olduğunu göstermektedir. Pfizer'in bu çalışmada sorulan diğer tüm aşılardan (Moderna, Sinovac, Sputnik, J&J ve yerel aşılar) daha etkili olarak algılandığını belirtmek de önemlidir. Moderna, Sputnik ve J&J'den daha etkili olarak algılanmıştır. Benzer şekilde, Sinovac da Sputnik ve J&J'den daha etkili olarak algılanmıştır. Bu çalışmada aşıların algılanan etkinliği için 4'lü Likert ölçeği kullanıldığına dikkat etmek önemlidir. Bu nedenle, aşının etkinliği konusunda kararsız olan bazı kişiler, gerçekte kararsız olmalarına rağmen aşının etkili olduğunu söylemiş olabilirler. Bununla birlikte, daha az etkili olan tarafa da geçebilirlerdi, ama geçmediler. Bu da aslında daha etkili olan tarafa daha yakın olduklarını gösteriyor olabilir.

Hükümetin pandemiye müdahalesinden memnuniyet, devlete güven, sağlık çalışanlarına güven ve aşı şirketlerine güven düzeyleri daha yüksek olan katılımcılar, Türkiye'de geliştirilen yerli aşıların etkili olacağını düşünmektedir. Bu bulgu literatürle tutarlıdır; devletin müdahalesine duyulan güvenin düşük olması, aşı güvenliği ve etkinliğine duyulan güvenin önemli ölçüde düşük olmasıyla ilişkilendirilmiştir (Arvanitis vd., 2021). Önceki çalışmalar da güvensizliğin aşıların kendisinden değil, kurumlardan kaynaklandığını göstermiştir (Jamison vd., 2019; Yaqub vd., 2014). Bu nedenle, yerel aşıların algılanan etkinliğini artırmak için halkın güvenini inşa etmek önemlidir. Bir diğer önemli bulgu da devlet kaynaklarından bilgi aldığını bildiren katılımcıların Türkiye'de geliştirilen yerel aşıların etkili olacağını düşünmeleridir. Tüm bu bulgular, Türkiye'de geliştirilen yerel aşıların algılanan etkinliği için devlete güvenin çok önemli olduğunu göstermektedir.

Sağlık çalışanlarına ve aşı firmalarına duyulan güven, yurt dışından gelen aşıların algılanan etkinliğinin önemli belirleyicileridir. Bu bulgu yine literatürü desteklemektedir, ancak bu çalışmanın bulguları farklı kurumların farklı aşıların algılanan etkililiğinde farklı roller oynadığını da göstermiştir. Özellikle devlete güven, Türkiye'de geliştirilen yerel aşıların algılanan etkinliğinin anlamlı bir yordayıcısı iken, yurt dışından gelen aşıların algılanan etkinliğinin anlamlı bir yordayıcısı değildir.

Komplo teorilerine inanç, yabancı aşıların algılanan etkinliğini olumsuz yönde yordamıştır. Bu durum, COVID-19 komplo teorilerine inancın aşı etkinliğine daha düşük düzeyde inançla ilişkili olduğunu ortaya koyan önceki araştırmalarla uyumludur (Baeza-Rivera vd., 2021).

Demografik değişkenler açısından, erkekler aşıların etkili olduğunu düşündüklerini bildirmiştir. Daha yüksek gelire sahip kişilerin aşıların etkili olduğuna inanma olasılığı daha yüksektir. Son olarak, aşı yaptırmış olan veya aşı yaptırmış en az bir kişiyi tanıyan kişilerin aşıların etkili olduğunu düşünme olasılığı daha yüksektir.

4.3. Çalışmanın Sınırlılıkları ve Gelecek Çalışmalar için Öneriler

Bu çalışma, hükümet kaynaklarından bilgi alan ve hükümete daha yüksek düzeyde güven duyan kişilerin Türkiye'de geliştirilen yerel aşıların etkili olacağını düşündüklerini ortaya koymuştur. Bununla birlikte, örneklem Türk nüfusunu tam olarak temsil etmemektedir ve katılımcıların çoğunluğu kadın, genç yetişkin ve yüksek eğitimlidir. Çalışma ayrıca kurumların algılanan güvenilirliğinin bilginin içeriğinden daha önemli olduğunu ortaya koymuştur. Çalışmanın, farklı grupların aşı olma konusundaki istekliliklerinin nasıl farklılaştığının dikkate alınmaması ve aşıların algılanan yan etkilerine ilişkin sorunun net bir şekilde farklılaştırılmamış olması gibi bazı kısıtlamaları bulunmaktadır. Gelecekte yapılacak çalışmalarda kurumlara güvenin nasıl artırılabileceği ve farklı grupların aşı olma isteklerinin nasıl farklılaştığı daha fazla araştırılmalıdır

P. APPROVAL OF THE METU HUMAN SUBJECTS ETHICS COMMITTEE

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Saygılarımızla bilgilerinize sunarız.

[redacted]

Dr.Öğretim Üyesi Şerife SEVİNÇ
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