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**Perceived COVID-19 threat and social capital:
the role of Information and communications technology**

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GENERAL DESCRIPTION

From March 2020 to May 2023, the epidemiological situation remained unstable throughout the world due to the new coronavirus infection, COVID-19 (Corona Virus Disease 2019). Numerous deaths, damage to human health caused by the coronavirus, and its rapid spread caused the World Health Organization to declare a pandemic on March 11, 2020 (WHO, 2020).

COVID-19 pandemic differs from other global risks in a number of psychological ways. It was perceived as an invisible threat coming from abroad, and its onset was determined by the actions of the authorities to curb the spread of coronavirus infection. The COVID-19 pandemic was long-lasting and had an impact on all spheres of social life, causing social fears and xenophobia, accompanied by stigmatization of victims of coronavirus infection and their environment, as well as changes in the quality of social ties (Nestik & Zhuravlev, 2021; Tatarko et al., 2022).

Coronavirus has radically changed the way people live, forcing them to adapt to strict preventive measures. At the beginning of the epidemic, quarantine measures led to a sharp reduction in physical social contacts or their complete absence. Mandatory safety measures such as self-isolation, physical distancing and restrictions on freedom of movement have had a significant impact on the social capital, psychological and social well-being of communities (Brooks et al., 2020; Claridge, 2020; Delhey et al., 2023).

As a result, for most developed countries, computer-mediated communication has become an integral part of people's daily lives, since all activities that were conducted as usual before the pandemic have moved to an online format: work, education, meetings with family and friends, shopping for food and items essential needs, visiting a doctor, etc. (Cristea et al., 2024; Jean-Baptiste et al., 2020; Jurcik et al., 2021).

Maintaining a high level of social capital plays an important role in times of crisis, since social capital determines the level of trust, cooperation and support between people. Theoretical analysis has shown that social capital is especially important in "times of emergency" (Kawachi, Subramanian, & Kim, 2008; Ye & Aldrich, 2019).

On the one hand, social capital can be a critical resource in countering the consequences of the COVID -19 pandemic, as it can enhance the ability of individuals or communities to prepare for, respond to, and recover from adverse events (Aldrich, 2012; Helliwell et al. 2014; Vinck et al. al., 2019). Social networks can provide tangible financial assistance, reinforce healthy lifestyle standards (Putnam, 2000), play a critical role in containing the outbreak of various epidemics (Gregson et al., 2004; Holtgrave & Crosby, 2004; Zoorob & Salemi, 2017) and directly overcoming the disease (Bian et al., 2020; Barrios et al., 2021; Bartscher, 2021; Makridis & Wu, 2021; Kuchler et al., 2020; Wu et al., 2020).

On the other hand, previous global pandemics (such as the Spanish Flu) have seen erosion of social capital (Aassve et al., 2021; Killingray & Phillips, 2003). The destruction of social capital can adversely affect future generations and slow economic development for many decades (Aassve et al., 2020).

In addition, studies examining the effects of major natural disasters, such as earthquakes, floods, storms, and epidemics, also show their negative impact on social capital (Albrecht, 2018; Dussaillant & Guzmán, 2014; Toya & Skidmore, 2014; Yamamura, 2016).

Thus, we are faced with some theoretical contradiction that highlights the ambiguous nature of the relationship between the perceived COVID-19 threat and social capital.

The theoretical analysis also showed that most studies devoted to the study of the relationship between the perceived threat of coronavirus and social capital mainly consider social capital at the macro (societal) level. In addition, there is no clear understanding of what type of social capital (connective and bonding) reduces the effect of the perceived threat of COVID-19 infection. To fill this gap, we examine the relationship between the perceived coronavirus threat and social capital at the micro (individual) level. A study of the relationship between social capital and the perceived threat of COVID-19 will reveal what type of individual social capital (bridging or bonding) contributes to more effective adaptation of Russians during the pandemic.

Unlike previous global pandemics, such as the Spanish Flu, the coronavirus pandemic is characterized by a new reality thanks to information and communication technologies (ICT).

A number of researchers have come to controversial conclusions regarding the role of the use of ICT tools in the preservation and development of social capital. Thus, excessive and passive use of ICTs can contribute to a feeling of isolation from society and deindividualization of communication, isolation in a system of strong social ties, or a complete severance of connections in the virtual or real world (Bovina & Dvoryanchikov, 2020; Kryukova & Ekimchik, 2019; Kozyreva & Zverkova, 2017).

However, during the coronavirus pandemic, ICT served as a buffer against loneliness and sometimes the only channel for satisfying social relationships (Gullo et al., 2021; Jean-Baptiste et al., 2020; Sigurvinsdottir et al. 2020).

Thus, there is a need to analyze the role of computer-mediated communication in maintaining social capital during the coronavirus pandemic. In this study, we are interested in whether the use of ICT allows us to prevent the erosion of social capital and help maintain the quality of social ties of Russians during the threat of COVID-19.

In addition, studying the role of involvement in the use of ICTs in the relationship between the perception of the threat of COVID-19 and individual social capital will allow us to understand what aspects of ICTs (“economic activities on the Internet”, “communication on social networks”, “smartphone use”, “diversity of ICT use”) help maintain social capital in times of crisis and thereby more effectively cope with the consequences of the pandemic.

Considering the fact that COVID-19 is not the first serious coronavirus epidemic and, most likely, not the last pandemic in human history, understanding the above-mentioned aspects in the relationship between the perception of the threat of COVID-19 and social capital updates our research.

The problem of the research is the unclear role of information and communication technologies when considering the relationship between the perceived threat of coronavirus infection and individual social capital.

The object of this research is the relationship between the perceived threat of COVID-19 and social capital.

The subject of the research is the role of ICT use in the relationship between the perceived threat of COVID - 19 and social capital.

Purpose and objectives of the research

The purpose of this research is to determine the role of the use of ICT in the relationship between the perceived threat of coronavirus, individual social capital and the quality of social contacts.

The objectives of this research include the following:

Theoretical:

- Review and organize the scientific literature on the perceived threat of COVID-19, social capital in the context of the pandemic, and consider the supporting role of ICT in this context.
- Formulate a theoretical research model based on an analytical review of scientific literature.
- Analyze and explore the relationship between the perceived COVID-19 threat and individual social capital (bridging and bonding).
- Analyze and study the relationship between the perceived COVID-19 threat and social ties (strong and weak) that constitute social capital.
- Analyze the main scientific studies examining the supporting role of ICT for maintaining social ties during the coronavirus pandemic.
- Review key research studies examining the supportive role of ICT in reducing the perceived COVID-19 threat.

Empirical:

- Conduct an empirical study of the relationship between the perceived threat of COVID-19 and social capital and analyze the collected data regarding the role of engagement in ICT use.
- To test the moderation model in the relationship between the perceived threat of COVID-19 and bridging and bonding social capital in the refraction of the effects of the use of various aspects of ICT.

— To test the moderation model in the relationship between the perceived threat of COVID-19 and social ties in the refraction of the effects of the use of various aspects of ICT.

Research hypotheses

We put forward the following hypotheses:

Hypothesis 1: Bonding social capital negatively predicts perceived threat of COVID-19.

Hypothesis 2: Bridging social capital positively predicts perceived threat of COVID-19.

Hypothesis 3: Perceived COVID-19 threat negatively predicts the quality of social ties.

Hypothesis 4: High involvement in ICT use neutralizes the negative relationship between the threat of COVID-19 disease and the quality of social ties.

Also, to comprehensively understand the role of ICT, the following research questions were formulated:

Research Question 1: How do different aspects of ICT engagement (“economic activities on the Internet”, “communication on social networks”, “smartphone use”, “diversity of ICT use”) moderate the relationship between social capital and the perceived COVID-19 threat?

Research Question 2: How do different aspects of ICT engagement (“economic activities on the Internet”, “communication on social networks”, “smartphone use”, and “diversity of ICT use”) moderate the relationship between the perceived COVID-19 threat and the quality of social ties of different levels of intimacy?

The theoretical and methodological basis of the study was:

— Theoretical approaches to the research of social capital and socio-psychological research carried out within the framework of the theory of social capital (R. Putnam, M. Granovetter, N. Lin, J. Coleman, F. Fukuyama, P. Bourdieu, A. N. Tatarko, etc.).

— Domestic and foreign studies of..:

1) social capital in the process of recovery after natural disasters and pandemics (A. Aassve, D. Aldrich, L. Austin, F. Dussailan, F. Borgonovi, B. Rönnerstrand, S. Jean-

Baptiste, K. Makridis, etc.); 2) perception of global risks and the threat of coronavirus (T. A. Nestik; A. N. Tatarko, Z. V. Lukovtseva, M. Vacondio, etc.); 3) digital behavior and socialization (G. U. Soldatova, T. A. Nestik, E. I Rasskazova, M. Burke, R. Kraut, B. Wellman, N. Pennington, etc.).

Methods of the research

A socio-psychological survey was used as the main research method.

Study sample. A total of 300 people (108 men, 192 women) from 16 to 71 years old took part in the study. All respondents are citizens of the Russian Federation. The majority of respondents who answered the question, namely 254 people, identified themselves as “Russians.” There were also those who identified themselves as Bashkirs, Tatars, Ukrainians, Belarusians, Uzbeks, Kazakhs, Buryats, Tatars and Germans.

The majority of respondents (69.6%) had higher education, the rest (30.4%) are either students or have secondary education. Also, the majority of respondents (80%) were employed, while (40%) were unemployed. The respondents' employment represented a wide range of professions - employees of organizations (manager, accountant, administrator, and supervisor), education (kindergarten teacher, methodologist, and teacher), law enforcement (security guard, army officer) and many others.

28.7% of respondents suffered coronavirus infection; 81.3% knew someone who had a coronavirus infection.

Research procedure. The empirical study was conducted in June 2021. All respondents filled out an anonymous online questionnaire on the Anketolog.ru platform (<https://anketolog.ru>). Respondents took part in the study voluntarily and received a certain monetary reward for completing the questionnaire.

Research tools. The questionnaire included: a scale measuring the level of the perceived threat of coronavirus (Conway et al., 2020) adapted on a Russian-speaking sample (Tatarko et al., 2022); a scale that determines the level of bridging and bonding social capital (Williams, 2006), adapted on a Russian-speaking sample (Bannikova & Tatarko, 2021); a scale that measures the quality of social ties with various groups of people: family, friends, colleagues, neighbors, residents of a city or town, residents of

Russia, residents of the whole world (Tatarko et al., 2022); scale for assessing the level of involvement in ICT (Tatarko et al., 2020). Additional controlled variables were also used: socio-demographic indicators (gender, age, level of education). The experience of coronavirus infection (your own, that of friends or relatives) was also considered.

Methods of statistical data processing. Data processing was carried out using the IBM SPSS Statistics 27 statistical software package and the PROCESS plugin version 3.3. The data collected in this study was processed using a wide range of mathematical and statistical methods. To test key research questions, a number of hierarchical regression models, as well as models with moderation, were built. The stability of the significant moderation effects described in the work was revealed using additional testing using the bootstrapping procedure.

Scientific novelty

The theoretical novelty of the dissertation lies in the study of the relationship perceived threat of COVID-19 and social capital through the prism of involvement in the use of ICTs and various aspects of their use, such as “economic activities on the Internet”, “communication on social networks”, “smartphone use”, “diversity of ICT use”. This will expand our understanding of the relationships between different types of individual social capital in the context of the COVID-19 pandemic and the digital transformation of society.

Empirical novelty. For the first time in the Russian context, the relationship between the perceived threat of COVID-19 and social capital at the individual level with the moderating role of involvement in the use of ICTs and various aspects of their use has been studied.

Theoretical and practical significance

Theoretical significance. This study will enrich the existing range of studies devoted to the study of the relationship between the threat of coronavirus and social capital. Using a Russian sample, for the first time, various aspects of ICT use (“economic activities on the Internet”, “communication on social networks”, “smartphone use”, and “diversity of ICT use”) were examined in detail to understand

their supporting role in the context of social capital at the individual level. amid the coronavirus pandemic.

Practical significance. First, the results of the study can contribute to further research on the impact of natural disasters and epidemics on social capital, which will help to better understand the key factors for effectively managing crises and predicting their socio-economic consequences.

Secondly, identifying ways to optimize communication between different structures in a crisis in the context of the relationship between the perception of the threat of COVID-19 and social capital at the individual level will allow us to develop recommendations for improving interaction between government agencies, medical institutions and the public.

Thirdly, the data obtained can serve as the basis for developing measures to strengthen social ties, increase interaction between different groups of the population and create reserves to overcome the serious consequences of the pandemic.

And finally, the results of the study can be useful for developing strategies for the development of digital technologies, taking into account social and psychological factors, in order to improve the convenience and quality of life of Russian citizens within the framework of the national Digital Transformation program.

Basic ideas of the dissertation to be defended:

1. Bonding and bridging social capital exhibit differential relationships with the perceived COVID-19 threat due to their unique social-psychological nature. Bonding social capital, characterized by strong internal social ties and special reciprocal relationships, negatively predicts the perceived threat of COVID-19 (especially when engagement with ICT use is high). Bridging social capital, characterized by broad and heterogeneous connections that broaden a person's horizons, is not associated with the perception of the COVID-19 threat.
2. As the perceived threat of coronavirus infection increases, the quality of social ties weakens. However, high involvement in the use of ICTs neutralizes the negative effect of the perceived threat on the quality of social ties.

3. A high level of involvement in the use of ICT allows strengthening the quality of strong ties (family, immediate relatives) while the perceived threat of COVID-19 infection increases.

A low level of involvement in the use of ICTs with an increase in the perceived threat of COVID-19 infection weakens the quality of both strong ties (close friends) and weak ties (Russians in general), thereby contributing to the erosion of the individual social capital.

Approbation and introduction of the results

The results of the study were discussed at the International Youth Scientific Forums "Lomonosov-2020" and "Lomonosov-2021", as well as at panel discussions of the visiting Summer Schools (XI, XIII) of the Center for Sociocultural Research of the National Research University Higher School of Economics on the topic "Development of the design of cross-cultural research" in 2021 and 2023

The results of the study are also reflected in four published scientific articles:

Bagdasaryan, M. A. (2021) Information and communication technologies as a way to support social capital in a pandemic. *National Psychological Journal*, 4(44), 27–38.

Bagdasaryan, M. A., & Rodionov, G.Y. (2022). The role of information and communication technologies in supporting the subjective well-being of Russians during the Covid-19 pandemic. *World of Psychology. Scientific and methodological journal*, 110(3), 83–95.

Rodionov, G.Y., & Bagdasaryan, M.A. (2022). Relationship of self-efficacy, social capital and life satisfaction with attitudes towards online education during the COVID-19 pandemic: a longitudinal study. *World of Psychology. Scientific and methodological journal*, 108(1), 81–92.

Tatarko, A. N., Dubrov, D. I., Maklasova, E. V., & Bagdasaryan, M. A. (2022). The relationship between basic human values and use of information and communication technology among younger and older generations. *Psychological Science and Education*, 27(2), 5–18.

Dissertation structure

The dissertation includes an introduction, main part, conclusion, list of references and an appendix. The main part consists of two chapters. The first chapter is theoretical, which describes the concepts being studied and the connections between them, on the basis of which hypotheses and research questions are formulated. The second chapter is an empirical one, which describes the design and results and conclusions of the study. The appendix presents the methods used. The work includes 12 figures and 16 tables. The total volume of text is 133 pages.

MAIN CONTENT

The **Introduction** justifies the relevance of the study. The purpose and objectives of the work are determined, the object and subject of the research are designated.

The purpose of this study is to determine the role of the use of ICTs in the relationship between the perceived threat of coronavirus, individual social capital and the quality of social contacts.

In addition, research hypotheses are put forward. The theoretical and methodological foundations of the study, the methods and techniques used, the sample and the empirical basis of the study are described. The scientific novelty, theoretical and practical significance of the research is revealed. The provisions submitted for defense are presented. Data on testing the research results are provided.

The first chapter “Theoretical approaches to studying the perceived threat of COVID-19, social capital and the role of ICT use” presents the theoretical rationale for the study and consists of five paragraphs.

The first paragraph **“Social capital and its structure”** examines the chronology of the development of the concept of *social capital* in the scientific field since the first half of the 20th century and the main approaches to its study, as well as the classification of social capital based on the nature of the social ties that it forms.

At the beginning of the paragraph, we consider the definitions of the concept *social capital* presented in the works J. Coleman, R. Putnam, F. Fukuyama, R. Inglehart. The concept is also studied from the perspective of a socio-psychological approach in the works of P. N. Shikhirev and A. L. Svetsitsky, A. N. Tatarko. Analysis of the literature leads us to the conclusion that in the social sciences there is not yet a generally accepted definition of social capital, however, the fundamental elements of its theories are social ties that are supported by trust, investment in them with material and non-material benefits.

Research emphasizes two main approaches to studying social capital (community-based and individualistic). The first approach views social capital as a shared resource that promotes the development of trust and norms within a group. The

second approach, individualistic, emphasizes how an individual handles the resources belonging to the social structures to which he has access and how he invests in his network connections to effectively achieve his goals (Lin, 2000). In this paper, we consider social capital at the individual level, distinguishing between two forms of social capital: bonding and bridging (Putnam, 2000).

Bonding social capital describes connections within a group or community characterized by a high level of similarity in demographic characteristics, attitudes, and available information. Because of its close connections, this type of social capital is well suited to provide social support and personal assistance, especially during natural disasters (Hurlbert et al., 2000).

Bridging social capital describes the connections that connect people across some cleavage that divides society (for example, race, class, or religion, etc.); involves open relationships that broaden a person's horizons and are not limited by their age group, ethnicity, profession or other key aspects of their identity. These ties provide new information and resources that can help an individual advance in society (Granovetter, 1983). This type of social capital does not typically provide emotional support but can be valuable in uncertain times (Steinfield et al., 2008).

The nature of relationships in a social network can predict different forms of social capital. The formation of bonding social capital occurs in the case of strong social ties, bridging social capital - with the weak. Weak ties usually refer to people other than the original person, leading to more contacts in different areas of life and therefore greater access to information and opportunities. However, those in weak ties do not receive the benefits of bonding social capital: emotional or content support.

The second paragraph, “**Perceived COVID-19 threat and the quality of social ties**” discusses research examining the effect of the threat of coronavirus infection on the quality of social ties.

An analysis of the literature shows that the perception of the threat of a new virus is as significant as the danger of the disease itself, because the majority of the population lacks personal experience of direct contact with the source of the threat and experiencing its consequences (Freeston et al., 2020).

Perceived COVID-19 threat refers to the perceived likelihood of contracting a disease (i.e., vulnerability to the hazard) and the perceived severity of the disease (i.e., the perceived negative consequences of the hazard). The perception of disease threat can be enhanced by so-called “fear factors”: high rates of infection, significant morbidity and mortality, lack of protective or therapeutic measures (Smith, 2006); as well as how it is reported in the media (Nestik, Zadorin, 2020).

During the pandemic, people tried to avoid human contact and used medical masks and gloves to protect against coronavirus and adhered to physical distancing rules (Fofana et al., 2020). Fear of illness caused significant changes in the perception of another person as a communication partner, leading to excessive caution and often a negative attitude towards communication in general (Mazza et al., 2020; Naguy et al., 2020). Some studies indicate anti-immigrant attitudes (Adam-Troian & Bagci, 2021), self-dehumanization (Shi et al., 2023) and dehumanization of others (Markowitz et al., 2021; Sakki & Castrén, 2022).

All of the above aspects of the threat of coronavirus infection have a negative impact on social capital, on the quality of strong and weak social ties. *The quality of social ties* refers to the psychological perception of the closeness of relationships, which is subject to change under the threat of coronavirus. Thus, according to research, in the context of the perceived threat of COVID-19, strong ties either remained unchanged or strengthened, while weak ties, on the contrary, are weakened even more (Tatarko et al., 2022).

Based on the analysis of the literature, it is concluded that restrictions on physical social interaction associated with the perceived threat of coronavirus infection can cause erosion of social capital, weakening the quality of strong and weak social ties.

The third paragraph “**Social capital as a resource for coping with a pandemic**” discusses research that takes the opposite view: high level of social capital can enhance the ability of individuals or communities to prepare for, respond to, and recover from natural disasters and mass epidemics (Aldrich, 2012; Klinenberg, 2003).

There is early research suggesting that social capital is positively associated with health (Kawachi et al., 1997; 1999; Macinko & Starfield, 2001). For example, through

the rapid dissemination of health information, access to material resources, reduced crime rates and emotional support networks (Rönnerstrand, 2013).

Research conducted during the coronavirus pandemic also demonstrates that social capital can have a significant impact on the spread of COVID-19. Thus, trust and social cohesion are integral parts of epidemic management (Makridis & Wu, 2021). Increased social capital is correlated with slower spread of coronavirus infection and greater adherence to social distancing protocols (Varshney & Socher, 2020).

In terms of social ties, strong ties centered on family are clearly the best source of social capital to help combat the coronavirus pandemic (Bian et al., 2020).

Based on the analysis of the literature, it is concluded that we can consider social capital as a resource that prevents infection with COVID-19 and has an effect on the perception of the threat of the new virus. The development and preservation of social capital not only helps to counter the pandemic, but also creates a favorable atmosphere of mutual assistance and solidarity. Through their strong and weak social networks, people can exchange information on how to deal with difficult situations related to the COVID-19 pandemic and mobilize the necessary resources.

The fourth paragraph **“Supporting social capital through the use of ICTs during the COVID-19 pandemic”** discusses research examining how ICTs (modern electronic communications media that facilitate communication, processing, and transmission of information via Internet) have served as the basis for supporting social capital during the pandemic. Studies demonstrating the ambiguous nature of the relationship between ICT and social capital were also reviewed.

The coronavirus pandemic differs from the experience of the previous serious pandemics precisely as computer-mediated communication was used to maintain the quality of strong and weak ties. The introduction of lockdowns in most countries clearly demonstrated how ICTs were used to strengthen social capital (DeJohn et al., 2024). Satisfying social relationships through ICT tools serves as a buffer against loneliness during the pandemic (Sigurvinsdottir et al. 2020). With the development of social networks, increasing evidence supports that ICT can be used to accumulate and obtain

resources of bridging and bonding social capital (Ellison et al., 2011; Wellman et al., 2006).

However, the study of the relationship between ICT and social capital shows that this relationship is ambiguous, and we can talk about both positive and negative effects of involvement in the use of ICT on social capital (Mironova, 2022). On the one hand, ICTs help maintain strong ties in a critical situation, on the other hand, in the long term, the quality of communication affects the psycho-emotional state, a sense of well-being and social capital in general (Pennington, 2021a). If ICT is used not for communication and searching for useful information, but for entertainment and living in virtual reality through games, social capital is destroyed (Srivastava, 2005; Ling et al., 2003).

Based on the literature review, it is hypothesized that, provided there is high involvement in ICT use, the perceived threat of COVID-19 will not show a negative relationship with individual social capital.

In the fifth paragraph **“The author's approach to studying the relationship between the perceived threat of COVID-19, social capital and the moderating role of involvement in the use of ICT. Research hypotheses”** The author's view on the research problem is described, the choice of theoretical and methodological foundations of this work is justified, and research hypotheses and research questions are presented.

Our theoretical framework suggests that accumulated social capital at the individual level is associated with COVID-19 threat perceptions. In this study, individual social capital is viewed through the lens of two types: *bridging* and *bonding*. Social ties (strong and weak) and their quality, which are part of social capital, are also considered.

The theoretical analysis carried out and the conclusions obtained on its basis allowed us to form a theoretical research model (Figure 1).

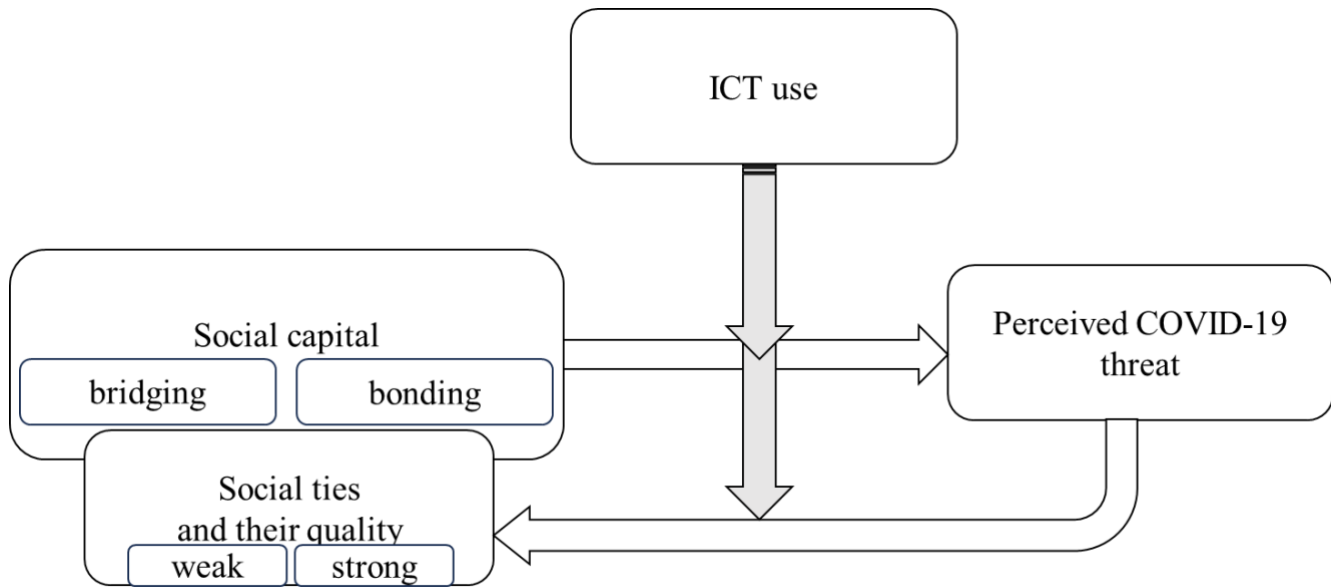


Figure 1. The author's theoretical model of the relationship between the perceived COVID-19 threat and social capital, considering the moderating role of involvement in the use of information and communication technologies

We hypothesize that some components of social capital (*bridging* and *bonding*) may predict and mediate a decrease in the perceived threat of COVID-19. However, the other components (social ties and their quality), on the contrary, act as dependent variables.

Thus, *bonding social capital*, which is responsible for strong ties, is expected to negatively predict the perceived threat of COVID-19. Based on the assumption that during a period of uncertainty and the threat of a new virus, strong ties will provide some emotional support and act as a certain resource in confronting the threat.

Bridging social capital, responsible for weak ties, is also expected to positively predict the perceived threat of COVID-19. Based on the assumption that due to bridging social capital, it is possible to expand social horizons, open up opportunities to obtain information about a little-studied virus or new resources to overcome it.

We further hypothesize that the perceived danger of the coronavirus infection negatively predicts the quality of social ties (strong and weak).

We also hypothesize that ICT engagement may moderate the relationship between the perceived threat of COVID-19 and social capital. Due to high involvement in the use of electronic means of communication, it is possible to maintain individual social

capital during the period of quarantine restrictions and the possible threat of infection.

For example, using ICT tools, it's possible to maintain contact with elderly relatives, for whom direct physical contact during an epidemic can be dangerous due to the high risk of infection and serious complications after an illness. With the help of video conferencing, one can maintain an emotional connection and a sense of closeness, despite physical distance, and various online platforms will help in delivering necessary products and medicines to elderly relatives and remotely monitoring their physical condition.

As the physical radius of daily life shrinks due to the pandemic, high ICT involvement also helps to maintain weak social ties. Thanks to social networks, instant messengers and other Internet platforms, we can easily maintain contact with neighbors, residents of the same city and country. Digital means of communication create an opportunity to expand our social circle, exchange operational information about the spread of coronavirus and news, as well as opportunities for new acquaintances.

In connection with the existing theoretical and empirical premises, which are reflected in this work, the following hypotheses were put forward:

Hypothesis 1: Bonding social capital negatively predicts perceived threat of COVID-19.

Hypothesis 2: Bridging social capital positively predicts perceived threat of COVID-19.

Hypothesis 3: Perceived threat of COVID-19 negatively predicts the quality of social ties.

Hypothesis 4: High involvement in ICT use neutralizes the negative relationship between the threat of COVID-19 disease and the quality of social ties.

To fully understand the role of ICT engagement in the relationship between the perceived threat of coronavirus and social capital, it's needed to focus on two questions:

As various aspects of involvement in the use of ICT (“economic activities on the Internet”, “communication on social networks”, “smartphone use”, “diversity of ICT use”):

- 1) moderate the relationship between social capital and the perceived threat of COVID-19?
- 2) moderate the relationship between the perceived threat of COVID-19 and the quality of social ties of different levels of intimacy?

In the sixth paragraph “**Conclusions to Chapter 1**” the main conclusions to the first chapter are formulated.

Chapter two “An empirical study of the relationship between the perceived threat of COVID-19 and social capital, taking into account the role of ICT use” is devoted to empirical testing of hypotheses and consists of 5 paragraphs.

The first paragraph “**Russia in the context of the coronavirus pandemic**” is devoted to a brief chronology of the events of the development of the pandemic in Russia from the first cases of infection until the time of our research (in June 2021). During the third spring-summer wave of coronavirus incidence, changes occurred in the biological characteristics of the SARS-CoV-2 virus, which led to the emergence of its new genetic variant (Akimkin et al., 2022). With the advent of the “delta” strain, a decrease in its pathogenicity for humans was observed simultaneously with an increase in its infectiousness, which was confirmed by an increase in the number of cases in the population and a decrease in the proportion of severe forms of the disease during observations. The third wave of morbidity and hospitalization was less intense than the second, but no significant differences were found between the mortality rates in the second and third waves of the COVID-19 pandemic (Karpova et al., 2022).

The second paragraph “**Design and methodology of empirical research**” presents the design of the study of the relationship between the perceived threat of COVID-19 and social capital with the moderating role of the use of information and communication technologies, the tested research models, and a description of the research tools.

The third paragraph “**Results of a study of the moderating role of involvement in the use of ICT in the relationship between social capital and the perceived threat of COVID-19**” describes descriptive statistics, methods of statistical processing and analysis of data, results of a mathematical and statistical analysis of the relationship

between social capital and the perceived threat of COVID-19, taking into account the moderating role of involvement in the use of ICTs and various aspects of their use.

The results show that the research hypotheses are partially confirmed. Increased bonding social capital helps reduce the perceived threat of coronavirus. There is no relationship between bridging social capital and the perceived threat of coronavirus. A more detailed analysis also found that when ICT use is high, increased bonding social capital mitigates the perceived threat of COVID-19.

As the perceived threat of COVID-19 increases, the quality of social ties decreases, particularly with low involvement in ICT use.

With high involvement in ICT use, the increase in the perceived threat of COVID-19 contributes to strengthening ties with family members. In addition, the wide variety of ICT use contributes to improving the quality of family connections as the threat of coronavirus increases. A low level of involvement in the use of ICT, on the contrary, weakens the quality of respondents' connections with friends, other Russians and people in general. Also, lack of involvement in economic transactions via the Internet and in the use of social networks for communication makes respondents vulnerable to weakening connections with other Russians as the perceived threat of coronavirus infection increases.

The fourth paragraph **“Discussion of the research findings on the relationship between the perceived threat of COVID-19 and social capital: the role of ICT use”** presents a discussion of the findings. The analysis was aimed at studying the moderating role of the use of information and communication technologies in the relationship between the perceived threat of coronavirus infection, social capital and the quality of social ties.

The findings provide support for the first hypothesis: bonding social capital (responsible for exclusive communication) negatively predicts the perceived threat of COVID-19. Relatives and friends become a source of strength in times of crisis, because strong ties enable mobilization. This finding is consistent with findings from Chinese colleagues (Bian et al., 2020) that strong ties centered on family are the best source of social capital in coping with the threat of COVID-19.

Thus, we can consider social capital as a resource that can be used for the benefit of society to combat the threat of coronavirus infection and manage epidemics, as confirmed by a number of scientific studies (Barrios et al, 2021; Borgonovi & Andrieu, 2020; Bian et al., 2020; Makridis & Wu, 2021).

The second hypothesis, suggesting that bridging social capital (inclusive, referring to broader and heterogeneous connections) would positively predict the perceived threat of COVID-19, was not supported. The absence of meaningful ties to bridging social capital may indicate that strong ties may be the dominant source of information that an individual considers and trusts.

The third hypothesis, suggesting that the perceived threat of COVID-19 negatively predicts the quality of social ties, was confirmed. We found that as the perceived threat of coronavirus infection increases, the quality of social ties deteriorates. The findings are consistent with a number of studies examining how the trend in the weakening of social activity with strong and weak ties changed during the COVID-19 pandemic (Bagdasaryan, 2021; Ammar et al., 2020; Jean-Baptiste et al. 2020; Tatarko et al. al., 2022), as well as the Spanish Flu (Aassve et al., 2020, 2021; Killingray & Phillips, 2003).

The fourth hypothesis, suggesting that high involvement in ICT neutralizes the negative relationship between the perceived threat of COVID-19 disease and the quality of social ties, was confirmed. High involvement in the use of ICT helps to reduce fear of coronavirus infection, because ICTs serve as a channel for communication and updating social connections (Gullo et al., 2021; Jean-Baptiste et al., 2020), the level of development of which is related to our perception of the threat of COVID-19. However, with a low level of involvement in the use of ICT, social capital, no matter how developed it is, cannot serve as a buffer to minimize the threat associated with the spread of infection.

The first research question of this dissertation explored how different aspects of ICT engagement (online economic activities, social media communication, smartphone use, ICT diversity) moderate the relationship between social capital and the perceived COVID-19 threat. The analysis showed that when the diversity of ICT use areas was

low, the relationship between bonding social capital and the perceived threat of coronavirus was statistically insignificant. While with a high diversity of areas of ICT use, a significant negative relationship was found. We see that when there is access to a variety of information sources and online services thanks to ICT, one can receive emotional support online from bonding social capital (family, immediate family, friends), then the perceived threat of coronavirus will be low (Jean-Baptiste et al., 2020).

The second research question of this dissertation explored how different aspects of ICT engagement moderate the relationship between the perceived COVID-19 threat and the quality of social ties of different levels of intimacy. We see that with high involvement in the use of ICTs with an increase in the perceived threat of coronavirus infection, there is a convergence with family. The value of family and relationships with them has increased during self-isolation. This is consistent with previous work that examined ICT use during times of crisis (e.g., bomb threat, snowstorm, etc.) when respondents turned to social media as an easy way to check on family well-being (Austin et al., 2012)

We can observe a different picture regarding the role of ICT use in the relationship between the perceived threat of coronavirus and communication with friends: with high involvement in the use of ICT, as the perceived threat of coronavirus increased, the perceived closeness of friends did not change. It is likely that those who are highly involved in the use of ICTs were able to adapt communication with friends to new realities and began to use ICTs more intensively to maintain friendly connections, as a result of which connections with friends did not suffer any significant damage.

At the same time, with low involvement in the use of ICTs and an increase in the perceived threat of COVID-19, distance from friends is noticeable. This result suggests that technologically mediated communication with friends is an effective tool for maintaining the same level of closeness with friends during the spread of the disease. As the perceived threat of infection increases, the frequency of personal contact with people outside the immediate family circle may pose a risk and is therefore minimized; personal communication is replaced by technologically mediated communication.

Regarding weak ties, we see that with high involvement in the use of ICTs, with an increase in the perceived threat of COVID-19, there is no weakening of the perceived closeness with the residents of Russia. With the help of social media and applications for receiving various types of services, respondents can feel a sense of belonging to the residents of the country, maintain and strengthen their weak ties, despite the lockdown and other restrictive measures due to the coronavirus pandemic (Bagdasaryan, 2021, p. 34). With low involvement in the use of ICTs, as the coronavirus threat grows, the perceived connection with fellow citizens becomes more distant.

We see that with low engagement in ICT use, as the perceived threat of COVID-19 increases, the quality of connections with people around the world weakens. With high involvement in the use of ICTs and an increase in the perceived threat, there is no change in the perception of the quality of communication with people around the world. During the pandemic, perceived closeness with other people was generally maintained largely through new practices associated with the Internet, from everyday activities (for example, buying a product from another country) to intellectual activities (for example, remote participation in a conference).

Taking a more detailed look at the moderating role of ICT through the prism of different areas of ICT application in the relationship between the perceived threat of coronavirus and social ties, we were able to identify key aspects: *diversity of areas of ICT use* for strong ties, *economic actions* and *use of social networks* for weak ties.

According to the findings, with *varied* use of ICT and as the perceived threat of coronavirus increases, perceived closeness with family increases. The various areas of application of ICT include using a computer/smartphone for work, study and entertainment, accessing the Internet, etc. Thus, the varied use of ICT can help create additional opportunities to strengthen the quality of communication with family members and help them feel closer to each other in times of stress and uncertainty.

Through *economic actions* with the help of ICT (for example, selling goods on Avito), communication with Russians is in no way influenced by fear of coronavirus. However, if economic actions are not carried out using technology, there is no

motivation to maintain contact with fellow citizens, and accordingly, as the perceived threat of coronavirus increases, the connection weakens.

Also, with high involvement in the use of *social networks* (such as VKontakte, Odnoklassniki, etc.) communication with Russians is not lost due to the growing perceived threat of coronavirus. Whereas, with poor use of social networks, as the perceived threat of COVID-19 increases, the quality of communication with other residents of the country decreases significantly. With poor use of social media, people may remain under-informed about the country's current situation, precautions, and other important data, which can lead to feelings of isolation and alienation from the rest of society, leading to decreased perceived closeness with fellow citizens.

Based on the results of the study, the following conclusion can be made: The COVID-19 pandemic has stimulated the growth of Internet use in various spheres of life of Russian citizens and contributed to the development of the digital economy and society.

In the fifth paragraph “**Conclusions to Chapter 2**” The main conclusions for the second chapter are formulated.

The Conclusion summarizes the results obtained and describes the limitations and prospects for further research on this topic.

MAIN CONCLUSIONS ON THE RESULTS OF THE STUDY

Based on the results of the study, the following conclusions were drawn:

1. The relationship between social capital dimensions and the perceived threat of coronavirus infection is ambiguous. The study shows that the growth of bonding social capital helps reduce the perceived threat of coronavirus infection. However, there is no link between bridging social capital and the perceived threat of coronavirus. Thus, strong ties centered on family and close friends allow one to mobilize during a pandemic and are the dominant source of information that an individual trusts.
2. Limiting physical contacts due to the fear of contracting a new virus and experiencing its consequences leads to excessive caution and a negative attitude towards

communication in general; there is a tendency to reduce contacts with representatives of the so-called strong and weak ties of an individual. As the perceived threat of COVID-19 increases, the quality of social ties decreases, particularly with low involvement in ICT use.

3. ICT serves as a tool for communication and updating social ties. The level of involvement in the use of modern communication tools influences the perception of the threat of COVID-19. Thus, with high involvement in ICT use, high social capital weakens the perceived threat of COVID-19. Computer-mediated communication provides access to a variety of information sources and online services, thanks to which one can receive emotional support online from bonding social capital (family, immediate family, friends), in which case the perceived threat of coronavirus will be low.

4. With a low level of involvement in the use of ICT, social capital, no matter how high it is, cannot serve as a buffer to minimize the threat associated with the spread of the infection. Thus, a low level of involvement in the use of ICT weakens the quality of respondents' connections with friends, other Russians and people in general. In particular, lack of involvement in economic transactions via the Internet and the use of social networks for communication makes respondents vulnerable to weakening connections with other citizens as the perceived threat of coronavirus infection increases.

The results of the study are reflected in the following publications:

Bagdasaryan, M. A. (2021) Information and communication technologies as a way to support social capital in a pandemic. *National Psychological Journal*, 4(44), 27–38.

Bagdasaryan, M. A., & Rodionov, G.Y. (2022). The role of information and communication technologies in supporting the subjective well-being of Russians during the Covid-19 pandemic. *World of Psychology. Scientific and methodological journal*, 110(3), 83–95.

Rodionov, G.Y., & Bagdasaryan, M.A. (2022). Relationship of self-efficacy, social capital and life satisfaction with attitudes towards online education during the

COVID-19 pandemic: a longitudinal study. *World of Psychology. Scientific and methodological journal*, 108(1), 81–92.

Tatarko, A. N., Dubrov, D. I., Maklasova, E. V., & Bagdasaryan, M. A. (2022). The relationship between basic human values and use of information and communication technology among younger and older generations. *Psychological Science and Education*, 27(2), 5–18.

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3. Adam-Troian, J., & Bagci, S. C. (2021). The pathogen paradox: Evidence that perceived COVID-19 threat is associated with both pro- and anti-immigrant attitudes. *International Review of Social Psychology*, 34(1). <https://doi.org/10.5334/irsp.469>
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