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Factors Related to COVID-19 Preventive Behaviour in Population of Latvia

Summary of the Doctoral Thesis for obtaining a doctoral
degree “Doctor of Science (*PhD*)”

Sector – Psychology
Sub-Sector – Health Psychology

Rīga, 2022



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Abbreviations used in the Thesis

PMT	Protection Motivation Theory
COVID-19	2019 coronavirus (Coronavirus disease 2019) pandemic, or COVID-19 – an infectious disease caused by a virus from the coronavirus group discovered in 2019
TCC	Trust, Confidence and Cooperation Model
SC	Social capital
SRP	State Research Program

Introduction

Since the first recorded cases of COVID-19 in China at the end of 2019, the virus has spread rapidly throughout the world. Experience from previous 21st century pandemics and virus outbreaks (Leppin & Aro, 2009; Myers & Goodwin, 2011; Rubin, Amlôt, Page, & Wessely, 2009) suggests the effectiveness of preventive behaviours in limiting the spread of the virus. Also, in this pandemic, many studies have been devoted to preventive behaviour, including those from a psychological perspective (Korn et al., 2021; Rad et al., 2021; Sekizawa, Hashimoto, Denda, Ochi, & So, 2022). Preventive behaviours for COVID-19 include following hygiene norms, wearing mouth and nose protective masks, social distancing and vaccination against COVID-19 (WHO, 2022).

This Doctoral Thesis was developed in the dynamic and changing conditions of the COVID-19 pandemic, when it was not only necessary, but also possible to react quickly to the current situation. As a result, the work was developed in two stages to study the most relevant strategies of COVID-19 preventive behaviour and the factors related to them. In the first half of 2020, it was essential to observe the social distancing and hygiene measures recommended by the World Health Organization, while in the fall of 2021, when vaccines against COVID-19 were available in Latvia, it was urgent to study the factors related to vaccination against COVID-19.

In order to prepare for the empirical study, initially a literature analysis was carried out and factors related to COVID-19 preventive behaviour and specific factors related to the COVID-19 vaccination behaviour were identified, which were included in the Doctoral Thesis in the theoretically based and empirically tested with COVID-19 preventive behaviour and with COVID-19 in integrative models of factors related to vaccination behaviour. As a result of literature analysis, the following factors were identified: threat assessment and

perceived vulnerability (Adunlin et al., 2020; Hayden, 2022; Kapoor & Singhal, 2021), the fear of COVID-19 (Sekizawa et al., 2022; Yildirim, Geçer, & Akgül, 2021), trust in COVID-19 information sources in events (Al-Amer et al., 2022; Fisk, 2021; Marco-Franco, Pita-Barros, Vivas-Orts, González-de-Julián, & Vivas-Consuelo, 2021 ; Paredes, Apaolaza, Marcos, & Hartmann, 2021) and the institutional trust (Ferwana & Varshney, 2021; Giavrimis & Nikolaou, 2020), belief in COVID-19 conspiracy theories (Georgiou, Delfabbro, & Balzan, 2020; Gogarty & Hagle, 2020 ; Pummerer et al., 2020; Swami & Barron, 2020), vaccination motives (Ferwana & Varshney, 2021; Tu, Kotarba, Bier, Clark, & Lin, 2022), and sociodemographic factors (Al-Amer et al., 2022; Dohle et al., 2020; Lazarus et al., 2021; Rad et al., 2021). A detailed description of the factors included in the models and their interrelationships is provided in the following chapters.

In the first stage of the Doctoral Thesis, the preventive behaviour of COVID-19 was operationalized as the observance of hygiene and social distancing measures, and the term “Preventive behaviour of COVID-19” was used to denote this behaviour. At this stage, the integrative model of factors related to the preventive behaviour of COVID-19 was theoretically developed and empirically tested. It should be especially emphasized that, taking into account the results of studies conducted during the pandemic, their authors (Ahorsu, Lin, & Pakpour, 2020; Duong, Nguyen, McFarlane, & Nguyen, 2021; Tu et al., 2022) indicate the need for an explanation of the complex problem, therefore, the framework of the Protection Motivation Theory (PMT) and the Trust, Confidence and Cooperation (TCC) model was used for the theoretical framework of the integrative model. The PMT framework made it possible to explain the relationship between emotional and cognitive factors and preventive behaviour, while TCC focuses on trust in institutions in crisis situations, public involvement in collective action as a tool for crisis management and explains the relationship of the factors included in the integrative model specifically

in crisis situations (Earle, Siegrist, & Gutscher, 2010; Paredes et al., 2021). In addition, the model included at that moment another important factor related to the preventive behaviour of COVID-19 – belief in the conspiracy theories of COVID-19, as well as socio-demographic factors (Šuriņa et al., 2021).

In the second stage of the Doctoral Thesis, which was carried out at the end of 2021, the vaccination behaviour was studied. At this stage, the COVID-19 preventive behaviour was operationalized as vaccination against COVID-19 and the term “the COVID-19 vaccination behaviour” was used accordingly. An integrative model was created to explain the factors related to the COVID-19 vaccination behaviour (Šuriņa, Mārtinsone, Upesleja, & Perepjolkina, 2022). It was developed within the framework of PMT and Social Capital (SC) theory. In addition to the explanation of the connection of emotional and cognitive factors of the PMT framework with the preventive and in this case specifically with the vaccination behaviour of COVID-19, the SC theory (Šuriņa & Mārtinsone, 2020) was chosen because it allows to explain the connection of the factors characterizing the institutional trust and social relations with the COVID-19 vaccination behaviour (Ferwana & Varshney, 2021; Makridis & Wu, 2021). In addition, relevant factors related to vaccination behaviour such as individual vaccination motives and sociodemographic factors were also added to the model (Šuriņa et al., 2022).

In general, it can be concluded that a series of studies have been conducted during the COVID-19 pandemic, which explained the relationship of emotional, cognitive, social and sociodemographic factors with the preventive behaviour of COVID-19. However, the researchers point to the need to develop an integrative view of the problem, assessing the mutual interaction and relationship between emotional, cognitive, social and sociodemographic factors and the preventive behaviour of COVID-19 (Ahorsu et al., 2020; Duong et al., 2021; Tu et al., 2022). In addition, the existing models of health behaviour, including preventive behaviour, do not include such important factors related

to the practice of preventive behaviour during the COVID-19 pandemic, such as belief in COVID-19 conspiracy theories and do not pay attention to individual motives for vaccination.

Aim of the Thesis

The aim of the work is to investigate the factors related to the preventive behaviour of COVID-19 in the Latvian population.

Tasks of the Thesis

The following tasks were set for the first stage of the Doctoral Thesis:

1. Conduct a literature analysis, create and theoretically justify the integrative model of factors related to the preventive behaviour of COVID-19 within the framework of the PMT and TCC model;
2. Using the survey data of the State Research Program (SRP) project “Impact of COVID-19 on health care system and public health in Latvia; ways in preparing health sector for future epidemics”, create a survey of COVID-19 preventive behaviour, trust in information sources, the fear of COVID-19, appropriate measurements for assessing the threat of COVID-19 and belief in conspiracy theories of COVID-19;
3. Empirically test the integrative model of factors related to the preventive behaviour of COVID-19;
4. Describe and analyse the obtained results;

The following tasks were set for the second stage of the Doctoral Thesis:

5. Create a theoretically based and empirically verified SC corresponding to the cultural environment of Latvia and create a SC assessment tool;

6. Conduct literature analysis, create and theoretically justify the integrative model of factors related to the behaviour of the COVID-19 vaccination within the framework of PMT and SC theory;
7. Using the survey data of the SRP project “Life with COVID-19: Evaluation of overcoming the coronavirus crisis in Latvia and recommendations for societal resilience in the future” create an assessment of the COVID-19 vaccination behaviour, Vaccination motive, Perceived vulnerabilities and the fear of COVID-19, institutional trust, Perceived social measurements appropriate for the assessment of support from the immediate family and The perceived social support from acquaintances;
8. Empirically test the integrative model of factors related to the vaccination behaviour of COVID-19;
9. Describe and analyse the obtained results;
10. Evaluate the obtained results and draw conclusions;
11. Prepare recommendations for the formation of health policy and future directions of research.

Research questions

In order to achieve the goal of the research, 6 research questions were raised, of which the first four refer to the first stage of the Doctoral Thesis, while the fifth and sixth questions with additional questions refer to the second stage.

1. What are the interrelationships of the factors included in the integrative model of factors related to the preventive behaviour of COVID-19?

2. What factors are associated with COVID-19 preventive behaviour as a result of structural equation modelling (SEM)?
3. Does threat perception partially mediate between the fear of COVID-19 and COVID-19 preventive behaviour?
4. Does threat perception partially mediate between trust in COVID-19 information sources and COVID-19 preventive behaviour?
5. What are the interrelationships of the factors included in the integrative model of factors related to the COVID-19 vaccination behaviour?
 - 5.1. Is there a relationship between sociodemographic factors and the COVID-19 vaccination behaviour?
 - 5.2. Is there a relationship between age and psychological factors?
 - 5.3. Are there differences between genders and psychological factors?
 - 5.4. Is there a relationship between educational level and psychological factors?
 - 5.5. Are there differences between psychological factor scores and the COVID-19 vaccination behaviour?
 - 5.6. Are there relationships between the psychological factors included in the model?
6. What factors are related to the behaviour of vaccination against COVID-19 as a result of regression analysis?

Hypotheses of the Thesis

Based on the literature analysis and the theoretical justification of the integrative models described in the theoretical part, a total of 25 hypotheses were put forward.

The following hypotheses were put forward for the first stage of the Doctoral Thesis:

- H1: There is a positive relationship between the trust in COVID-19 information sources and the COVID-19 preventive behaviour.
- H2: There is a positive relationship between the trust in COVID-19 information sources and the threat assessment of COVID-19.
- H3: There is a positive relationship between the threat assessment of COVID-19 and the preventive behaviour of COVID-19.
- H4: There is a positive relationship between the trust in COVID-19 information sources and the fear of COVID-19.
- H5: There is a positive relationship between the fear of COVID-19 and the assessment of the threat of COVID-19.
- H6: There is a positive relationship between the fear of COVID-19 and the preventive behaviour of COVID-19
- H7: COVID-19 threat assessment partially mediates between the COVID-19 information sources and the COVID-19 preventive behaviour
- H8: COVID-19 threat assessment partially mediates between the fear of COVID-19 and the COVID-19 preventive behaviour.
- H9: There is a negative relationship between belief in conspiracy theories and COVID-19 preventive behaviour.
- H10: There is a negative relationship between the belief in conspiracy theories and the trust in COVID-19 information sources.
- H11: There is a negative relationship between belief in conspiracy theories and threat assessment of COVID-19.
- H12: Women and elderly people are more likely to implement the COVID-19 preventive behaviour.
- H13: Women and the elderly show higher rates of the fear of COVID-19 and the threat of COVID-19.

H14: There is no relationship between socio-demographic factors and trust in the COVID-19 information sources.

The following hypotheses were put forward for the second stage of the Doctoral Thesis:

H15: There is a statistically significant positive relationship between the motive to get vaccinated to protect oneself from severe illness and the behaviour of getting vaccinated against COVID-19.

H16: There is a statistically significant positive relationship between the motive of getting vaccinated to protect other people from severe illness and the behaviour of getting vaccinated against COVID-19.

H17: There is a statistically significant positive relationship between the motive to get vaccinated, get vaccinated in order to continue working and / or study and the behaviour of getting vaccinated against COVID-19.

H18: There is a statistically significant positive relationship between the perceived vulnerability and the COVID-19 vaccination behaviour.

H19: There is a statistically significant positive relationship between the fear of COVID-19 and the COVID-19 vaccination behaviour.

H20: There is a statistically significant positive relationship between the institutional trust and the COVID-19 vaccination behaviour.

H21: There is a statistically significant negative relationship between the perceived social support from the immediate family and the COVID-19 vaccination behaviour

H22: There is no statistically significant relationship between the perceived social support from the acquaintances and the COVID-19 vaccination behaviour.

- H23: Younger people are more actively vaccinated against COVID-19 compared to older people,
- H24: There is no statistically significant difference between genders regarding vaccination against COVID-19.
- H25: People with higher education are more actively involved in the COVID-19 vaccination behaviour.

Novelty of the Thesis

The novelty of the work is the theoretical creation and empirical testing of the integrative model of factors related to COVID-19 preventive behaviour (Šuriņa et al., 2021) and the integrative model of factors related to the COVID-19 vaccination behaviour (Šuriņa et al., 2022) to explain with Covid -19 factors related to preventive behaviour during the pandemic in the Latvian population.

Within the framework of the Doctoral Thesis, a theoretically developed and empirically tested SC theory appropriate to the cultural environment of Latvia (Šuriņa & Mārtinsone, 2020) and a social capital assessment tool Multidimensional social capital scale (Maķevica, Šuriņa, Perepjolkina, & Mārtinsone, 2022; Ozerska, Šuriņa, Perepjolkina, Akmane & Mārtinsone, 2022; Zariņa, Šuriņa & Perepjolkina, 2022) have been created, which is incorporated into the integrative model of factors related to the behaviour of vaccination against COVID-19.

Also, within the framework of the Doctoral Thesis, the measurements of the COVID-19 preventive behaviour and the COVID-19 vaccination behaviour, the trust in information sources, the fear of COVID-19, assessment of the threat of COVID-19, belief in the COVID-19 conspiracy theories, the motive for vaccination and the perceived vulnerability have been created and empirically tested (Šuriņa et al., 2021; Šuriņa et al., 2022).

1 Factors related to the behaviour of COVID-19

This chapter describes the preventive behaviour of COVID-19 and the factors related to it, which are included in the Doctoral Thesis in the integrative model of factors related to preventive behaviour of COVID-19 and factors related to vaccination behaviour of COVID-19 using the theoretical framework of PMT, TCC and SC.

1.1 COVID-19 preventive behaviour

Preventive behaviour is one of the types of health behaviour that is considered within the framework of several theories of health psychology and can be defined as the implementation of actions recommended by health care or other professionals, with the aim of preventing disease (Hayden, 2022). During the COVID-19 pandemic, preventive behavioural strategies focused specifically on preventing the spread of the virus became relevant (Barati et al., 2020; Breakwell & Jaspal, 2020; Korn et al., 2021). The World Health Organization has described a number of preventive behavioural strategies for COVID-19, including the compliance with hygiene norms, social distancing and vaccination against COVID-19 (WHO, 2022).

Most theories focus on an individual's motivation to preserve and protect own health, but not on the health of other people, and even less on preventive behaviour, as a crisis management tool and prosocial behaviour. If PMT has been chosen for assessing the relationship of emotional and cognitive factors with COVID-19 preventive behaviour in the Thesis, then the TCC model of preventive behaviour as a crisis management tool is appropriate, as it focuses on crisis communication and its role in public involvement in crisis management (Earle et al., 2010; Watkins, Poudyal, Jones, Muller, & Hodges, 2021). The SC theory framework, in turn, helps to understand the preventive behaviour as a prosocial action, and also examines it in the context of

intergroup and institutionalized relations (Ferwana & Varshney, 2021; Giavrimis & Nikolaou, 2020).

1.2 COVID-19 threat assessment and the fear of COVID-19 within the Defense Motivation Theory

One of the theories used in the Thesis is PMT, which was created and developed by the American psychologist Ronald W. Rogers in 1975 (Rogers, 1975), which is still widely used today (Hayden, 2022). The origin of PMT can be found in the health communication and its basic idea is – a person's motivation to change his/her behaviour depends on how he/she evaluates potential threats, the fear associated with potential threats and how he/she evaluates his/her abilities to change behaviour that would prevent the threat (Rogers, 1975). Several factors forming this theory are distinguished: sources of information, threat assessment, the result of coping assessment and defensive motivation (Rogers & Prentice-Dunn, 1997). The integrative models of the Thesis include PMT factors such as fear, threat assessment and perceived vulnerability, while information sources within the integrative models are interpreted as the trust in COVID-19 information sources (Šuriņa et al., 2021) and the institutional trust (Šuriņa et al., 2022).

Fear is defined as an unpleasant emotion that occurs when an individual perceives threatening stimuli (Cori et al., 2021). During the COVID-19 pandemic, there have been many studies confirming the association of fear with the practice of preventive behaviours against COVID-19 (Barati et al., 2020; Pakpour & Griffiths, 2020; P.-W. Wang et al., 2021). Fear, as an emotional response, is closely related to the cognitive evaluation of perceived information, namely the threat evaluation (Cori et al., 2021; Hayden, 2022). Threat assessment includes perceived severity of the threat and perceived vulnerability. Perceived threat severity is the belief about the severity of the disease and its consequences. Perceived vulnerability, on the other hand,

is a subjective assessment of the risk of disease and the belief about susceptibility to the disease (Hayden, 2022). Fear of one's health and the belief that there is a real possibility of severe illness and that severe illness can have severe consequences is a strong motivator to modify behaviour to avoid severe illness (Floyd, Prentice-Dunn, & Rogers, 2000; Hayden, 2022).

1.3 Trust in information sources within the Trust, Confidence and Cooperation (TCC) model

In a crisis situation, such as the COVID-19 pandemic, crisis communication plays an essential role, that is, evidence-based, scientifically based information about the seriousness of the disease, the threat of severe illness, possible consequences and recommendations on how to avoid severe illness. Reliance, or trust in institutions, is considered in the framework of the Trust, Confidence and Cooperation Model (TCC). The TCC model was developed at the end of the last century and its creator is Oregon psychology professor Dr. Paul Slovic (Slovic, 1993) and is still used today (Earle et al., 2010; Siegrist & Zingg, 2014). According to the TCC model, the institutional trust can be defined as an individual's assessment of the extent to which he/she trusts and can rely on the competence, fairness and expected behaviour of public institutions (Sønderskov & Dinesen, 2016). In the framework of the Thesis, trust is operationalized as trust in COVID-19 information sources in the first stage of the Thesis and as the institutional trust in the second stage of the Thesis. Trust in institutions as sources of risk communication that control the situation is an important factor in crisis situations (Earle et al., 2010; Watkins et al., 2021) and the theoretical framework of this model has been used to explain the relationship between trust in institutions, public threat perception and engaging in shared problem solving (Cole, Baker, & Stivas, 2021; Driedger, Maier, Capurro, & Jardine, 2021; Siegrist, 2021; Siegrist & Zingg,

2014; Xu). Similar to the TCC model, trust in institutions is considered within the framework of the SC theory, but unlike the TCC model, which focuses more on trust in institutions and crisis communication, within the framework of the SC theory, several factors characterizing the quality of interpersonal relationships are also considered, such as the perceived social support (Šuriņa & Mārtinsone, 2020).

1.4 Institutional trust, perceived social support from immediate family and the perceived social support from acquaintances within the Social Capital Theory

The origins of the SC theory can be traced back to the beginning of the last century. Nowadays, SC is considered in the context of several scientific fields from different points of view (de Villiers, La Torre, & Botes, 2022). However, despite the extensive use of SC in research, there are significant differences in the understanding of the structure and content of SC (Beilmann, Kööts-Ausmees, & Realo, 2018; de Villiers et al., 2022; Uekusa, Matthewman, & Lorenz, 2022). In order to be able to use the SC theory in the Doctoral Thesis, the SC theory was theoretically developed and empirically substantiated (Šuriņa & Mārtinsone, 2020) and a SC assessment tool was created (Maķevica et al., 2022; Ozerska et al., 2022; Zariņa et al., 2022). SC can be defined as a resource that an individual, family or group acquires in relation to other individuals and social groups and is characterized by social engagement, trust, sense of belonging, support and mutual cooperation (Ehsan, Klaas, Bastianen, & Spini, 2019). Based on the theoretically developed (Šuriņa & Mārtinsone, 2020) and empirically tested SC theory, three types of SC can be distinguished – bonding, bridging and linking – and two dimensions of SC included in each type – cognitive and structural, while each of the dimensions includes several factors forming SC (Maķevica et al., 2022; Zariņa et al., 2022).

The integrative model of factors related to the behaviour of vaccination against COVID-19 includes SC factors such as the institutional trust and the perceived social support from close people and acquaintances. The perceived social support can be defined as an individual's cognitive perception that he/she has established reliable ties with others and that support is available in case of need (Dour et al., 2014). Research results confirm a positive relationship between SC factors, mutual aid, prosocial behaviour and solidarity in crisis (Ehsan et al., 2019; Gilbert, Quinn, Goodman, Butler, & Wallace, 2013; Van Bavel et al., 2020), and also practicing COVID-19 preventive behaviour (Giavrimis & Nikolaou, 2020; Makridis & Wu, 2021). However, the results reveal a different association of SC dimensions with practicing COVID-19 preventive behaviours (Gray et al., 2020; X. Liu et al., 2020). For example, the perceived social support, or the belief that there will be an opportunity to receive help in case of need, can also be a factor hindering the practice of recommended preventive behaviour strategies (Thompson et al., 2021). The institutional trust, in turn, is considered the most important factor promoting COVID-19 preventive behaviour (Ferwana & Varshney, 2021; Giavrimis & Nikolaou, 2020).

1.5 Belief in COVID-19 conspiracy theories

According to the results of research, one of the factors hindering the practice of COVID-19 preventive behaviour is the belief in conspiracy theories against COVID-19 (Bruder & Kunert, 2022; Gogarty & Hagle, 2020; Ripp & Röer, 2022; Swami & Barron, 2020; van Mulukom). Belief in conspiracy theories is a concept used to describe the suspicion of a group of people about hidden and malicious actions by governments, institutions or organizations (Ripp & Röer, 2022). Conspiracy theorists try to explain the causes of various accidents or mysterious events with the action of some secret group, power or

mystical forces, and especially favourable grounds for the spread of such theories are conditions when information about current events is incomplete, or there is too much information and this information is negative (Marchlewska, Cichocka, & Kossowska, 2018). Along with the spread of COVID-19, various conspiracy theories of COVID-19 also developed and spread rapidly, offering different explanations for the reasons for the origin of the virus and the goals of its spread (Banai, Banai, & Mikloušić, 2020; Gogarty & Hagle, 2020; van Mulukom et al., 2022), providing a broad but objectively unverifiable explanation and creating a false sense of internal security in conditions of external insecurity (van Mulukom et al., 2022). Research conducted during the COVID-19 pandemic reveals that belief in conspiracy theories reduces individuals' engagement in recommended precautions and trust in official information sources that disseminate evidence-based, scientifically based information (Banai, Banai, & Mikloušić, 2020; Pummerer et al., 2020; van Mulukom et al., 2022).

1.6 Motives of vaccination

During COVID-19, in many countries, vaccination became not only one of the strategies of preventive behaviour to limit the spread of the virus, but also a political and economic weapon in the understanding of certain groups of people. Therefore, another factor, which is paid attention to in this Doctoral Thesis, is the motives for vaccination. According to the basic postulates of psychology, any behaviour is based on a motive that initiates human activity, or behaviour, and gives it a direction, or behavioural goal. Traditionally, internal or psychological triggers of behaviour and external stimuli or urges are distinguished (Albarracín, Sunderrajan, Lohmann, Chan, & Jiang, 2018; Gopalan, Bakar, Zulkifli, Alwi, & Mat; Kleinginna & Kleinginna, 1981). In the case of intrinsic motivation, behaviour is caused by internal psychological

needs and specific behaviour results in the satisfaction of these needs (Carter & Kulbok, 2002; Tu et al., 2022). On the other hand, in the case of external motivation, the behavioural stimulus or encouragement is located in the external environment of the person (Carter & Kulbok, 2002; Tu et al., 2022).

Within the framework of PMT, the motive for performing a specific behaviour is linked to information about potential threats to health. In other words, if an individual is aware that an existing behaviour may pose a threat to health, he/she is willing to modify the behaviour to avoid the threat (Tu et al., 2022). In turn, within SC theory, the motivation to initiate a specific action is viewed through the prism of prosocial action (C. Cheng, Lau, & Luk, 2020). Namely, people are motivated to engage in a specific activity, even if they will not benefit immediately as a result of the activity, but the behaviour will benefit a specific group of people, where the performer of the behaviour himself/herself will benefit in the long term, which in the context of the COVID-19 pandemic is the creation of collective immunity (C. Cheng et al., 2020). The motivation to engage in practicing preventive behaviours specifically during the COVID-19 pandemic may also be the need to access services (Tu et al., 2022). Studies conducted during the pandemic confirms the importance of intrinsic, extrinsic motivation and also prosocially oriented motivation in making the decision to get vaccinated against COVID-19 (Chen, Lin, Chang, Chou, & Yen, 2021; K. K. Cheng, Lam, & Leung, 2022; Tu et al., 2022).

1.7 The relationship of sociodemographic factors with the preventive behaviour of COVID-19

A number of studies have been conducted during the COVID-19 pandemic that have examined the relationship between sociodemographic factors and COVID-19 preventive behaviour (AlShurman, Khan, Mac, Majeed,

& Butt, 2021; Lazarus et al., 2020; D. Wang et al., 2022). The most frequently assessed socio-demographic factors are age, gender and level of education. It is important to evaluate these groups, as differences in information perception, interpretation, emotional and behavioural responses appear here (Lazarus et al., 2020). Although research results can often seem contradictory, it can shed light on sociocultural differences in the practice of preventive behaviour (Cho, Guo, & Torelli, 2022; X.-J. Liu & Mesch, 2020), however, certain trends are observed, which are detailed in the following chapters. In the integrative models created in the Thesis, such socio-demographic factors as gender, age and level of education were included, in addition, in the first stage of the study, the factors that could be specifically related to the practice of COVID-19 preventive behaviour were included, such as place of residence (region) and employment status.

2 Integrative model of factors related to COVID-19 preventive behaviour

This chapter provides a brief summary of the theoretical basis of the integrative model created in the first stage of the dissertation, characterizing the interrelationships of the factors included in the model, thus justifying the hypotheses put forward in the work. The following factors are included in this model: assessment of the threat of COVID-19 and the fear of COVID-19 in the framework of PMT, trust in information sources in the framework of the TCC model, in the same way, the model also includes such a factor related to preventive behaviour during the COVID-19 pandemic as belief in COVID-19 conspiracy theories and socio-demographic factors (gender, age, education level, employment status and region).

The theoretical framework of the integrative model consists of the PMT and the TCC model. The PMT framework allows explaining the relationship between emotional and cognitive factors with preventive behaviour, while TCC focuses on trust in institutions (trust in COVID-19 information sources) as a crisis communication tool, which is most directly applicable to the COVID-19 pandemic in the mid-2020s, when this model was theoretically developed and empirically tested.

According to the PMT framework integrated in this model, information about potential threats to one's own or others' health is an important prerequisite to change behaviour (Floyd et al., 2000; Tong, He, Wu, Dang, & Chen, 2021). The UPS theory included in the integrative model also emphasizes the relationship between trust or trust in institutions, the information provided by them or risk communication and public involvement in problem solving (Siegrist, Earle, & Gutscher, 2003), which in the context of the COVID-19 pandemic is the practice of preventive behaviour. (Cole et al., 2021; Driedger et al., 2021). Studies have confirmed the relationship between trust

in evidence-based information (risk communication) provided by the government, health care professionals and the news media and practicing COVID-19 preventive behaviours (Al-Rasheed, 2020; Borgonovi & Pokropek, 2020; Khosravi, 2020). Trust in information sources that disseminate evidence-based information significantly affects objective awareness of the seriousness of the situation and threat perception, while the perceived seriousness of the threat, belief in the severity of the disease and its consequences contribute to the practice of COVID-19 preventive behaviour, (Miraja, Persada, Prasetyo, Belgiawan, & Redi, 2019; Rad et al., 2021).

According to the theoretical principles of PMT included in the integrative model of factors related to preventive behaviour of COVID-19, the cognitive component, which is threat assessment, is closely related to the emotional response, namely fear (Adunlin et al., 2020; Al-Rasheed, 2020; Miraja et al., 2019), and within PMT, particular importance is given to information that appeals to fear (Floyd et al., 2000; Rather, 2021). A strong emotional response can also contribute to a higher risk assessment of the disease (Shirahmadi et al., 2020). Research has confirmed that threat assessment and fear for one's own and the immediate family' health, arising from receiving this information, can be a factor promoting preventive behaviour in order to protect not only oneself, but to limit the spread of the virus with one's own behaviour, thus protecting one's immediate family and other people (Sunhee Kim & Kim, 2020; Mertens, Gerritsen, Duijndam, Salemink, & Engelhard, 2020).

Belief in COVID-19 conspiracy theories may be an important factor inhibiting the practice of COVID-19 preventive behaviours (Allington, Duffy, Wessely, Dhavan, & Rubin, 2020; Seoyong Kim & Kim, 2021). In addition, belief in these theories can reduce trust in official sources of information (Pummerer et al., 2022; Van Prooijen, Spadaro, & Wang, 2022), objective threat perception, and fear, resulting in inhibition of engagement in

recommended precautionary measures (Banai et al., 2020; Heiss, Gell, Röthlingshöfer, & Zoller, 2021; Pummerer et al., 2020).

The researchers also point to the important role of socio-demographic factors in the implementation of virus containment measures. The results of research conducted during the pandemic reveal that older people, women and people with higher education are more actively involved in the implementation of preventive behaviour (Cvetković et al., 2020; Dohle et al., 2020; Floyd et al., 2000). On the other hand, women and the elderly experience higher threats to their health and fear of contracting COVID-19 (Adunlin et al., 2020; Miraja et al., 2019; Rad et al., 2021; Van Bavel et al., 2020). When analyzing gender differences and trust in information provided by scientists, it was found that women show higher trust scores in evidence-based information (Algara, Fuller, & Hare, 2020; Latkin, Dayton, Yi, Konstantopoulos, & Boodram, 2021), but another study found that younger people with a higher level of education trust evidence-based information more, but there is no gender difference in these indicators (Borgonovi & Pokropek, 2020).

3 An integrative model of factors associated with the COVID-19 vaccination behaviour

This chapter provides a brief summary of the theoretical foundation of the integrative model created in the second stage of the Doctoral Thesis, describing the interrelationships of the factors included in the model and justifying the proposed hypotheses. The integrative model includes the following factors: perceived vulnerability and the fear of COVID-19 in the framework of PMT, institutional trust, perceived social support from the immediate family and the perceived social support from acquaintances in the framework of SC theory. The model also includes three vaccination motives: the motive to be vaccinated to protect oneself from severe illness, to protect other people from severe illness and to promote collective immunity, as well as the motive to be vaccinated in order to be able to continue working and/or study and socio-demographic factors (gender, age and level of education). The PMT framework explains the relationship of emotional and cognitive factors with preventive behaviour, while the framework of the SC theory allows to explain the relationship of factors characterizing institutionalized and interpersonal relationships with the COVID-19 vaccination behaviour.

According to studies, one of the most important predictors of vaccination behaviour is the motive to be vaccinated to protect oneself from serious illness (Reinders et al., 2020), as well as the desire to protect the immediate family and other people by one's actions (Giubilini, Savulescu, & Wilkinson, 2020; Rieger, 2020). Vaccination to protect oneself and other people is an internally driven motive, that is, human action is based on cognitive and emotional factors. Moreover, considering the danger of COVID-19 for certain groups of people, the motive to protect other people from illness is very important (Giubilini et al., 2020). In the framework

of SC theory, such behaviour is characterized as prosocial behaviour (Allen et al., 2021; Brandstetter et al., 2021; C. Cheng et al., 2020; Neumann-Böhme et al., 2020) and studies confirm the importance of such a prosocially oriented motive in deciding to get vaccinated (Allen et al., 2021; Brandstetter et al., 2021; Neumann-Böhme et al., 2020). However, as is known, the attitude of a large part of society towards vaccines is ambiguous (Ruiz & Bell, 2021; Simone, Vagni, Gnagnarella, Bersani, & Pajardi, 2021), and to increase vaccination coverage, several countries (Euronews, 2022), including Latvia (MK, 2021) for representatives of certain professions, vaccination against COVID-19 was determined as a requirement set by employers. Research results confirm that the need to keep the job or continue studying is an important motive for receiving the vaccine against COVID-19 (Marco-Franco et al., 2021; Palm, Bolsen, & Kingsland, 2021; Riva, Paladino, Paleari, & Belingheri, 2021).

Intrinsic motivation for engaging in action to protect own health is closely linked to the cognitive and emotional assessment of the potential threat, which is consistent with PMT (Tong et al., 2021). Study results show that the higher the belief about the probability of infection, the more likely the individual will be vaccinated to avoid the disease (Lin, Yen, Chang, & Wang, 2021; Tong et al., 2021; P.-W. Wang et al., 2021). Perceived vulnerability is associated with fear, and fear is a powerful behaviour-modifying factor, which has also been confirmed in many studies conducted during the COVID-19 pandemic (AlShurman et al., 2021; Al-Amer et al., 2022; Faezi et al., 2021).

As it has been mentioned several times, trusting the evidence-based information provided by the government, the health care system and the news media on the hazards of COVID-19, the safety and efficacy of vaccines are key factors in the decision to be vaccinated (Al-Amer et al., 2022; Fisk, 2021; Marco-Franco et al., 2021; Paredes et al., 2021). According to the SC theory, institutional trust characterizes institutionalized relationships, which are

especially important in long-term crisis conditions (Elgar, Stefaniak, & Wohl, 2020), while, according to the SC theory, the perceived social support (Ehsan et al., 2019) is one of the factors characterizing interpersonal relationships. A study conducted in the United Kingdom (Jaspal & Breakwell, 2021) found a relationship between the perceived social support and vaccination against COVID-19. At the same time, the results of studies reveal that more pronounced SC at interpersonal level, characterized by closer interpersonal relations, may be a significant obstacle to implementing preventive behaviours, including vaccination against COVID-19 (Bartscher, Seitz, Siegloch, Slotwinski, & Wehrhöfer, 2021; C. Wu, 2021). Likewise, reliance on the support of close people can contribute to the biased inversion of possible risk (perceived vulnerability) and reduce the fear of potential danger (Morsut et al., 2021).

Regarding vaccination behaviour in different socio-demographic groups, the majority of researchers indicate a positive relationship between older age and willingness to get vaccinated (Chan, Lee, & Wong, 2021; Sherman et al., 2021), which is contrary to the situation in Latvia (National Health Service, 2022). However, the results of a systematic review conducted during the COVID-19 pandemic (Al-Amer et al., 2022) also reveal the opposite results, that is, younger people show a higher willingness to get vaccinated. Although studies have shown that women more actively practice preventive behaviour (Cvetković et al., 2020; Dohle et al., 2020; Floyd et al., 2000), women are less willing to be vaccinated against COVID-19 compared to men, but these differences are not significant (Ciarambino et al., 2021; Zintel et al., 2022). Looking at the relationship between education level and vaccination behaviour, a higher level of education is positively associated with vaccination behaviour (AlShurman et al., 2021; Al-Amer et al., 2022; Lazarus et al., 2020).

4 Research method

Sample

In the first stage of the Thesis, data from a sample of Latvian population (N=2608), aged 18 to 74 years (M = 46.42, SD = 13.86) were used.

In the second stage of the Doctoral Thesis, data from a representative sample of Latvian population (N = 1017) according to administrative territorial division, aged from 18 to 75 years (M = 46.53, SD = 16.22) were used.

Instrumentation

In the first stage of the Doctoral Thesis the following measurements were used: COVID-19 preventive behaviour ($\alpha = 0.87$), trust in COVID-19 information sources ($\alpha = 0.83$); fear of COVID-19 ($\alpha = 0.74$), threat assessment of COVID-19 ($\alpha = 0.88$), and belief in COVID-19 conspiracy theories ($\alpha = 0.79$). The used instrumentation was created as part of the Doctoral Thesis and its more detailed description can be seen in Annex 1.

Sociodemographic factors were assessed: age, gender and level of education, employment status and region.

In the second stage of the Doctoral Thesis, the following measurements were used: the COVID-19 vaccination behaviour, vaccination motives, perceived vulnerability, which are measurements created within the Doctoral Thesis (Šuriņa et al., 2021); fear of COVID-19 (statement borrowed from Rzymiski and colleagues' study (Rzymiski et al., 2021)); institutional trust ($\omega = 0.81$), perceived social support from the immediate family ($\omega = 0.93$), perceived social support from acquaintances ($\omega = 0.87$). Scales are taken from the Multidimensional Social Capital Scale, which is an instrument created as part of the Doctoral Thesis (Šuriņa, Ozerska, Maķevica, Zariņa, Grate, Perepjolkina, & Mārtinsons, 2022). More detailed instrumentation used in the Doctoral Thesis is provided in Annex 2.

Procedure

In the first stage of the Doctoral Thesis, data from the survey “Evaluation of impact of COVID-19 outbreak on mental health” of the Public Health Institute’s SRP project “Impact of COVID-19 on health care system and public health in Latvia; ways in preparing health sector for future epidemics” was used. The survey consisted of 331 statements divided into 24 thematic blocks to assess various aspects of general mental health, behaviour and functioning during an emergency. The statements used in the Thesis were made for the needs of the given research in accordance with the theoretical principles. The data was collected by the research centre KANTAR, organizing an internet survey in July, 2020.

In the second stage of the Thesis, data from the survey by State Research Program (SRP) “Life with COVID-19: Evaluation of overcoming the coronavirus crisis in Latvia and recommendations for societal resilience in the future”, which consisted of 159 statements, were used to assess various psychological, behavioural, economic and social factors during an emergency situation. The statements used in the Thesis were made for the needs of the given research, in accordance with the theoretical guidelines. The data was collected by the research centre SKDS, organizing direct interviews in the places of residence of the respondents in September, 2021.

Methods of data analysis

Data analysis was performed with IBM SPSS Statistics 27.00 and 26.00 data processing program and open access R 4.0.2 program. Descriptive statistics, regression analysis, structural equation modelling (SEM), Chi-square test, Mann-Whitney test, Kruskal-Wallis test and Spearman’s correlation coefficient were used as the main data analysis methods.

5 Results

5.1 Results of the first stage of the Doctoral Thesis

In order to answer the question *“What are the interrelationships of the factors included in the integrative model of factors related to COVID-19 preventive behaviour?”* and test the proposed hypotheses (H1, H2, H3, H4, H5, H6, H9, H10, H11), descriptive statistics indicators and correlation analysis were calculated using Spearman’s correlation coefficient.

The results of the study reveal that there is a statistically significant positive relationship between COVID-19 preventive behaviour and all psychological factors, and a negative significant relationship between all psychological factors included in the model and belief in conspiracy theories. COVID-19 preventive behaviour shows the closest relationship with threat assessment of COVID-19 – $r_s(2606) = 0.40$, $p < 0.001$ – and the fear of COVID-19 – $r_s(2606) = 0.42$, $p < 0.001$. There is a moderately strong relationship between COVID-19 preventive behaviour and trust in COVID-19 information sources – $r_s(2606) = 0.29$, $p < 0.001$. The obtained results confirm the proposed hypotheses.

To answer the research question *“What factors are associated with COVID-19 preventive behaviour as a result of Structural Equation Modelling (SEM)?”* structural equation modelling (SEM) was used. Two models were tested empirically. Psychological factors related to the preventive behaviour of COVID-19 were evaluated in Model No. 1; Model No. 2 included also sociodemographic factors. As shown in Figure 1, belief in COVID-19 conspiracy theories is negatively related to trust in COVID-19 information sources ($R^2 = 0.190$). Trust in COVID-19 information sources significantly positively predicts the fear of COVID-19 ($R^2 = 0.019$). Belief in COVID-19 conspiracy theories significantly negatively, but trust in COVID-19 information sources and the fear of COVID-19 positively predict the assessment of the

threat of COVID-19 (all together they explain 37.8% of the variance of this variable. Assessment of the threat of COVID-19, trust in the COVID-19 information sources and the fear of COVID-19 are significant predictors of COVID-19 preventive behaviour. Together they explain 26.5% of the variance of this variable. Whereas the relationship between the belief in COVID-19 conspiracy theories and the COVID-19 preventive behaviour is not statistically significant ($\beta = 0.03$, $p = 0.22$).

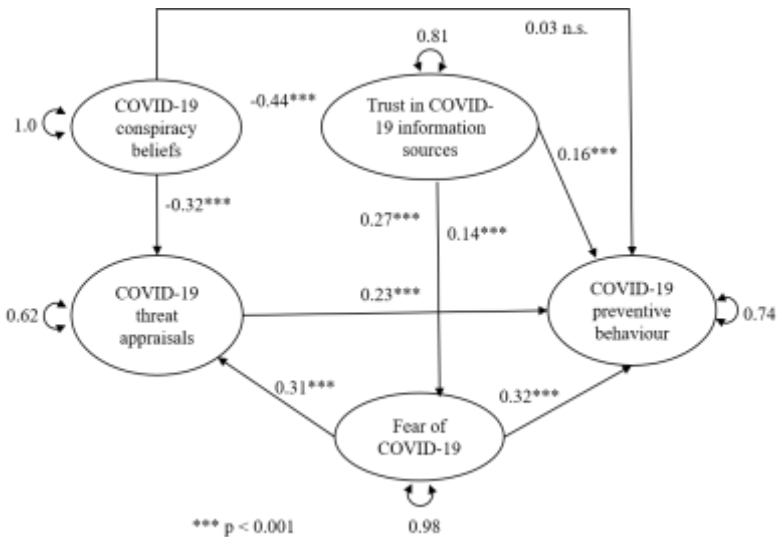


Figure 5.1 Factors associated with Covid-19 preventive behaviour

In the next step, a model was tested that also included socio-demographic factors: age, gender, education level, place of residence and employment status and the proposed hypotheses were tested (H12, H13, H14).

The results of the study revealed that living in rural areas, higher education and employment are significantly related to trust in COVID-19 information sources, thus not confirming the proposed hypothesis (H14), but these variables only increased the explained variance of this dependent variable

by 0.9%. In addition, age (younger age), gender (female) and higher education were found to be significantly associated with the fear of COVID-19, but these variables only increased the explained variance of the dependent variable by 1.3%. Regarding the assessment of the threat of COVID-19, age (older age) and education (high level of education) are significant predictors of this variable, partially confirming the proposed hypothesis (H13). However, overall, socio-demographic factors account for only 1.0% of the variance in the assessment of the threat of COVID-19. Finally, when predicting COVID-19 preventive behaviour, the threat assessment, the trust in information sources and the fear of COVID-19 are important predictors, but among sociodemographic factors only age (older age) and gender (female), but not education, place of residence and employment status, thus confirming the proposed hypothesis (H12). In this case, the demographic variables increase the explained variance of the preventive behaviour score by 3.3%.

To answer the third and fourth research questions, “Does threat perception partially mediate the relationship between the fear of COVID-19 and COVID-19 preventive behaviour?” and “Does threat perception partially mediate between the fear of COVID-19 and COVID-19 preventive behaviour?” and to test the proposed hypotheses (H7, H8) a mediation analysis was performed.

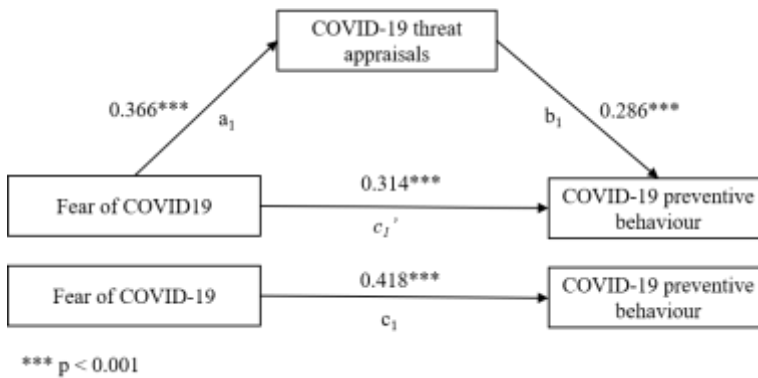


Figure 5.2 Effects of COVID-19 threat assessment as a mediator between fear of COVID- and COVID-19 preventive behaviour (Mediation model)

The results confirm the proposed hypotheses, namely, fear of COVID-19 (Figure 5.2) and trust in COVID-19 information sources have not only a direct but also an indirect effect on the preventive behaviour of COVID-19, through the assessment of the threat of COVID-19 (in the first case they are 25.1% and in the second case 51.7% based on the ratio: indirect effect / total effect). As can be seen in Figure 5.3, it was also found that trust in COVID-19 information sources is related to the indicator of COVID-19 preventive behaviour, also independently of its relationship with the threat assessment of COVID-19, $p < 0.001$, with which a partial relationship was confirmed (prop = indirect effect / total effect = 0.517, $p < 0.001$).

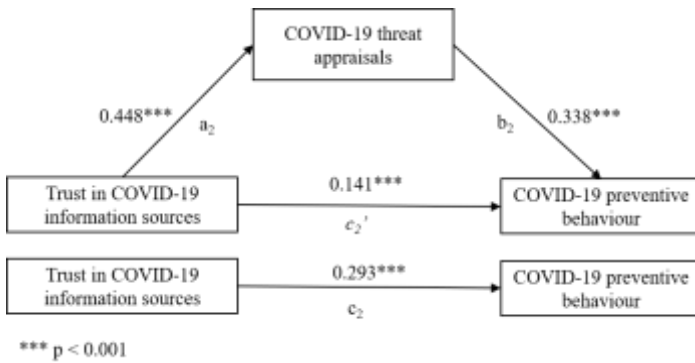


Figure 5.3 Impact of COVID-19 threat assessment as a mediator between COVID-19 information sources and COVID-19 preventive behaviour (mediation model)

The standardized regression coefficient between trust in COVID-19 information sources and the mediator COVID-19 threat assessment (a_2 path) is statistically significant. The results show that the standardized regression coefficient between the mediator and the dependent variable COVID-19 preventive behaviour (b_2) is statistically significant. The standardized indirect effect (a_2b_2) is $(0.448) \times (0.338) = 0.151$, $p < 0.001$) statistically significant.

5.2 Results of the second stage of the Doctoral Thesis

To answer the fifth research question *“What are the interrelationships of the factors included in the integrative model of factors related to COVID-19 preventive behaviour?”* and could meaningfully explain the obtained results, five additional questions were formulated, which are sequentially included in the further presentation of the results.

To answer the first additional question of the fifth question *“Is there a relationship between socio-demographic factors and the behaviour of vaccination against COVID-19?”* and test the proposed hypotheses (H23, H24, H25), descriptive statistics were calculated and the Chi-square test was used.

The results show that the highest vaccination coverage is in the age groups from 64 to 75 (54.3%) and from 45 to 54 (54.1), while the lowest in the age groups from 25 to 34 years (59.1%) and from 18 to 24 years, thus rejecting the proposed hypothesis. Women are more vaccinated (51.6%) (hypothesis H24 rejected) and respondents with higher education (65.7%) (hypothesis H25 confirmed).

To answer the second additional question of the fifth question ***“Is there a relationship between age and psychological factors?”***, Chi-square test was used. The results of the study reveal a statistically significant relationship between 2 of the 8 factor indicators. A statistically significant relationship was found between age and the motive to vaccinate in order to continue working and / or study – $\chi^2(5) = 34.14, p < 0.001$ –, and the motive for vaccination to protect oneself from illness – $\chi^2(5) = 11.69, p = 0.013$. Respondents in the age group between 64 and 75 showed a higher motive to get vaccinated, both to protect themselves from severe illness and to be able to continue working and / or study.

To answer the fifth question the third additional question ***“Are there differences between genders and psychological factors?”***, the Mann-Whitney U-test was calculated. As a result, statistically significant differences were found in 6 out of 8 indicators of psychological factors, which were higher in the female sample. No statistically significant differences were found between the indicators of the motive to get vaccinated in order to be able to continue working and / or study and the indicators of perceived vulnerability.

To answer the fifth question, the fourth additional question ***“Is there a relationship between the level of education and psychological factors?”***, Chi-square was used. The results show a statistically significant relationship between 6 of the 8 factors. Only between the fear of COVID-19 and the perceived social support from the immediate family there was no statistically significant relationship found.

To answer the fifth question, the fifth additional question ***“Are there differences between psychological factor scores and the COVID-19 vaccination behaviour?”***, the Mann-Whitney test was used. As a result, differences were found in 7 out of 8 psychological factors. Higher indicators in the sample of vaccinated respondents were found in all three motives included in the model, indicators of the institutional trust, the perceived social support from the immediate family and acquaintances, and indicators of the fear of COVID-19. On the other hand, no statistically significant differences were found in the indicators of perceived vulnerability between the vaccinated and non-vaccinated.

To answer the sixth additional question of the fifth question ***“Are there relationships between the psychological factors included in the model?”***, Spearman's correlation coefficient was calculated. The results of the study reveal that in most cases the association is statistically significant but not close. A statistically significant close relationship is observed between the motive to vaccinate to protect oneself from illness and the motive to vaccinate to protect other people from illness and end the pandemic – $r_s(1015) = 0.784$, $p < 0.001$ –, and between the perceived social support from the immediate family and the perceived social support from acquaintances $r_s(978) = 0.662$, $p < 0.001$. On the other hand, no statistically significant relationship was found between the perceived social support from the immediate family and the fear of COVID-19 and between the perceived social support from the immediate family and the motive to get vaccinated in order to continue working or study.

To answer the sixth research question ***“What factors are associated with the COVID-19 vaccination behaviour as a result of regression analysis?”*** and test the proposed hypotheses (H15, H16, H17, H18, H19, H20, H21, H22), the binomial regression analysis was performed. Of the 11 independent variables included in the binomial regression model, 6 were statistically significant. The relationship between the psychological factors

included in the regression analysis and the behaviour of the COVID-19 vaccination are presented in Figure 5.4.

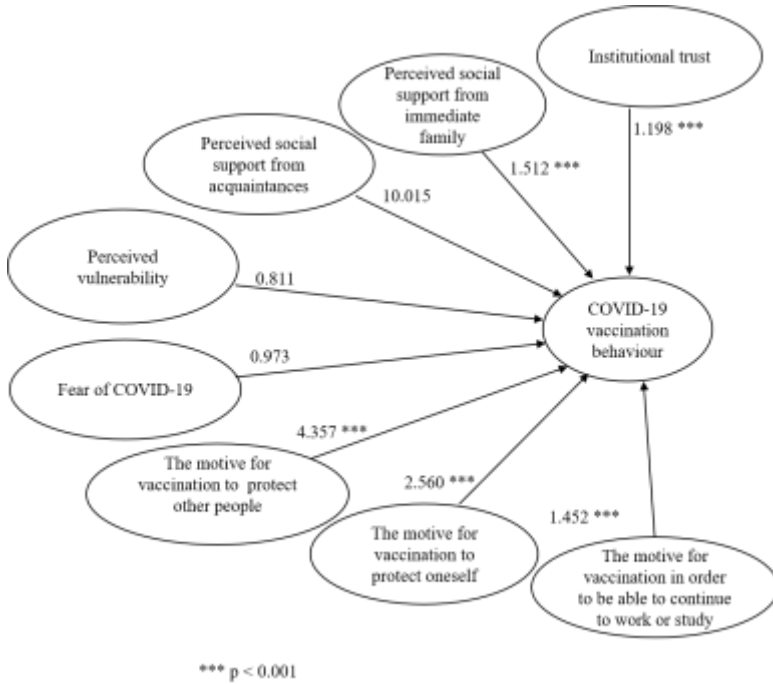


Figure 5.4 Psychological factors related to the COVID-19 vaccination behaviour

The following are statistically significantly related to the behaviour of vaccination against COVID-19: level of education, motive to get vaccinated to protect oneself from illness (OR = 4.357, 95% CI [3.229 to 5.878], p < 0.001), motive to get vaccinated to protect other people and promote collective immunity (OR =2.560, 95% CI [1.993 to 3.311], p < 0.001), motive to get vaccinated to be able to continue working and / or study (OR =1.452, 95% CI [1.203 to 1.754], p < 0.001), the institutional trust (OR = 1.198, 95% CI [1.050 to 1.367], p = 0.007), and the perceived social support from the immediate family (OR = 1.512, 95% CI [1.020 to 2.247], p = 0.039). When

comparing respondents with primary education to respondents with higher education, the respondents with primary education were more likely to be unvaccinated, but this difference was not statistically significant (OR = 2.298, 95% CI [0.970 to 5.436], $p = 0.058$). On the other hand, comparing respondents with secondary education to respondents with higher education, the respondents with secondary education are more likely to be unvaccinated and this difference is statistically significant (OR = 3.546, 95% CI [2.100 to 5.988], $p < 0.001$). On the other hand, age, gender, the perceived social support from acquaintances, perceived vulnerability and fear of COVID-19 are not statistically significantly related to the behaviour of vaccination against COVID-19.

6 Discussion

This chapter presents a brief discussion of the results of the Doctoral Thesis, focusing on the most important aspects. The full discussion of the results can be read in the full version of the Doctoral Thesis and in publications related to the Doctoral Thesis (Šuriņa et al., 2021; Šuriņa et al., 2022).

In the first stage study, trust in sources of information on COVID-19 was found to be a significant factor related to COVID-19 preventive behaviour. According to the TCC model, trust in information sources is interpreted as trust in institutions and the information they provide and is considered an important factor in crisis communication in crisis management situations (Cole, Baker, & Stivas, 2021; Han et al., 2021). The second stage study found a relationship between the institutional trust and the COVID-19 vaccination behaviour. Although the measurements made in both stages (trust in sources of information on COVID-19 in the first stage study and the institutional trust in the second stage study) are not identical, the measurements made in both cases can be interpreted similarly, namely as trust in institutions, the current, evidence-based information provided by institutions the origin of the virus, the potential threats and the given recommendations for limiting the spread of the virus, thus confirming the proposed hypotheses. As other researchers point out, it is trust in institutions that is the most important factor in crisis situations, when the involvement of the whole society is required (Driedger et al., 2021; Han et al., 2020; Paredes et al., 2021). And although in each of the studies conducted as part of the Doctoral Thesis, trust in institutions, namely, trust in COVID-19 information sources and the institutional trust was explained within the framework of two different theories, both the TCC model (Gopichandran, Subramaniam, & Kalsingh, 2020; Han et al., 2021), and SC theory (Makridis & Wu, 2021; Morsut et al., 2021) confirm and highlight the essential importance of this factor for public involvement in overcoming a common crisis.

When explaining the importance of crisis communication for public involvement in crisis management, reliance or trust in institutions is closely related to the threat perception of the information provided. The results of the first stage revealed a relationship between each of the factors (trust in COVID-19 information sources and preventive behaviour, trust in COVID-19 information sources and threat perception, as well as threat perception and preventive behaviour), also in the mediation model with threat assessment as a mediator between trust information sources and the preventive behaviour of COVID-19, thus confirming the proposed hypotheses. Authors of other studies also point to similar relationships (Cole et al., 2021; Earle et al., 2010; Gopichandran et al., 2020). In the second stage, using the PMT and SC theory framework, a relationship between the institutional trust and perceived vulnerability was found, but no relationship was found between the COVID-19 vaccination behaviour and perceived vulnerability, rejecting the proposed hypothesis. To explain these results, it is important to consider both the context in which the research was conducted and other factors. Although the first-stage study assessed threat perception, while the second-stage study assessed perceived vulnerability, which is not an identical measurement, nevertheless, content-wise, both measurements can be attributed to the assessment of potential threats. Comparing knowledge and available information about the virus in late 2019 or the first half of 2020, when the first cases of COVID-19 were detected (and data from the first phase study were collected) and autumn 2021 (when data from the second phase study was collected), knowledge about the virus had significantly increased and it was understood that COVID-19 is highly transmissible, but is particularly dangerous only for certain groups of society (Moline et al., 2021). As a result, probably in the fall of 2021, a large part of the public no longer felt threatened and therefore did not want to be vaccinated against COVID-19 (Hong et al., 2022; Patelarou et al., 2022), dispositional optimism should also be taken into account (Hromatko et al.,

2021; Kapoor & Singhal, 2021). According to social psychology professor Dr. Joop van der Pligt, perceived vulnerability may be a content-insufficient measure to assess the relationship between threat and preventive behaviour (Van der Pligt, 1998).

The fear of illness was included and evaluated in both integrative models of the Thesis. The results of the first stage confirmed the connection of fear with trust in information sources, threat assessment, and preventive behaviour, confirming the proposed hypotheses. Within the model-integrated PMT framework, fear-appealing information is considered an essential stimulus for behaviour modification (Dehdari & Solhi, 2021; Kowalski & Black, 2021). The greater the fear of severe illness, the higher the potential threat assessment, the greater the likelihood of involvement into the recommended preventive behavioural strategies (Brouwers & Sorrentino, 1993; Chang, Strong, Pakpour, Griffiths, & Lin, 2020; Heydari et al., 2021; Kowalski & Black, 2021). On the other hand, in the second stage study, the results revealed a relationship between the fear of severe illness and the institutional trust, perceived vulnerability and the behaviour of getting vaccinated against COVID-19, but the revealed relationships were very weak, and there was no relationship between fear and the behaviour of getting vaccinated, thus rejecting the proposed hypothesis. Here, the aforementioned regarding perceived vulnerability should be taken into account, for example, society's common understanding of the danger of the virus (Breakwell & Jaspal, 2020), also the above-mentioned dispositional optimism (Kapoor & Singhal, 2021) and accumulated experience with COVID-19 (Breakwell & Jaspal, 2020; Hong et al., 2022; Yildirim & Güler, 2022).

As predicted, in the first stage study, a negative relationship was found between belief in COVID-19 conspiracy theories and trust in COVID-19 information sources, implying that belief in COVID-19 conspiracy theories may reduce trust in evidence-based information, thus confirming the proposed

hypothesis and these results are in accordance with the results of other studies (Banai et al., 2020; Pummerer et al., 2020; van Mulukom et al., 2022). Similar to other studies, the results of this study also revealed a negative relationship between belief in conspiracy theories, threat assessment and COVID-19 preventive behaviour, thus confirming the relationships described in the model and the proposed hypotheses, namely, that explaining the origin and danger of COVID-19 through various conspiracy theories has a significant impact on objective assessment of the danger of the virus and the probability of illness, which in turn leads to non-compliance with the recommended virus containment measures, (Allington et al., 2020; Banai et al., 2020; Seoyong Kim & Kim, 2021; Swami, Voracek, Stieger, Tran, & Furnham, 2014).

The proposed hypotheses regarding the relationship between vaccination motives and the COVID-19 vaccination behaviour were confirmed in the second phase of the study. The motive to vaccinate to protect oneself from a serious illness indicates awareness of the risk of illness and vaccination as an effective form of protection (Reinders et al., 2020; Yaqub, Castle-Clarke, Sevdalis, & Chataway, 2014). On the other hand, the motive to vaccinate to protect other people and end the pandemic is very important because of the particular danger of COVID-19 for certain population groups (Giubilini et al., 2020) and within the framework of the SC theory integrated in the model, such behaviour is interpreted as an altruistic or prosocial action (Ferwana & Varshney, 2021). Also, the results of the study are in line with other studies (Paul, Steptoe, & Fancourt, 2021; Riva et al., 2021) that mandatory vaccination in order to continue to work and / or study is associated with the COVID-19 vaccination behaviour confirming the previously proposed hypothesis.

The results of the second stage study also confirmed the hypothesized negative relationship between the perceived social support from the immediate family and practice of preventive behaviour. SC capital researchers explain this relationship by the fact that closer relations within homogeneous groups,

information exchange and trust in this information, to a certain extent, exclude the acceptance of external information and trust in this information, which in this case can be classified as the institutional trust and, accordingly, non-engagement in the recommended behaviour (Elgar et al., 2020; Ferwana & Varshney, 2021; Thompson et al., 2021). Also, the awareness that in case of need, for example, when falling ill with COVID-19, it will be possible to receive emotional, instrumental or financial support from the immediate family, may be an inhibiting factor for preventive behaviour and specifically vaccination against COVID-19 (Thompson et al., 2021). Therefore, the finding of the researchers is of utmost importance that for an effective response in a crisis situation and sustainable recovery, it is essential that all types of SC are equally represented in society, thus promoting cooperation within the framework of homogeneous, heterogeneous and institutionalized relations (Pitas & Ehmer, 2020).

When examining the relationship between socio-demographic factors and the preventive behaviour of COVID-19 in both integrative models, relationships between socio-demographic factors, preventive behaviour of COVID-19 and other factors included in the models were found. These obligations are discussed in detail in the file of the full version of the Doctoral Thesis, as well as in publications related to the Doctoral Thesis (Šuriņa et al., 2021; Šuriņa et al., 2022). In the overall SEM model tested in the first phase study of the dissertation, sociodemographic factors explained only a small part of fear, threat assessment and COVID-19 preventive behaviour, while the results of the regression analysis in the second stage study revealed that only the level of education is related to the vaccination behaviour of Covid-19. This can be explained by the fact that together with psychological factors, socio-demographic factors do not play a decisive role in the practice of a specific behaviour.

Evaluation of the scientific strength of the research results. As one of the limitations of the study, the first stage study is attributed to the study sample. Since the survey could only be completed in an electronic version, it is possible that several social groups are not equally represented in the research sample. Consequently, the results of this study can be fully attributed to the group of Latvian residents who use the Internet sufficiently actively. At the same time, it should also be noted that considering the COVID-19 situation in Latvia in the summer of 2020 and the difficult-to-predict course of the pandemic, this was the most optimal way of data collection. Second, as another aspect, there is a self-report survey in the first phase of the study. When completing them in an electronic version, there is a possibility that the respondent's answers could have been influenced by other people. Thirdly, taking into account the rapid development of the situation and the need to react quickly, it was not possible to adapt and use the existing tools in both phases of the study¹. However, at the same time, it should also be noted that it gave an opportunity to develop and create our own tools, which are theoretically based, reliable and usable in future research activities.

¹ Fear of COVID-19 Scale (Ahorsu et al., 2020; Bitan et al., 2020; Iversen et al., 2021; Magano et al., 2021), the index of preventive behavior for COVID-19 scale (The COVID-19 Preventive Behaviors Index scale) (Breakwell et al., 2021), Adolescent Conspiracy Beliefs Questionnaire (ACBQ) (Jolley et al., 2021), Generic Conspiracy Beliefs Scale (The Generic Conspiracist Beliefs Scale (GCBS-J)) (Majima and Nakamura, 2020), a scale of clients' trust in health professionals (Client trust in community health workers scale (CHWs)) (Sripad et al., 2021).

Conclusions

1. Trust in evidence-based information delivered to the public through government, healthcare professionals, and news media in crisis communication roles is associated with COVID-19 preventive behaviour.
2. Assessment of the threat of COVID-19 and the fear of illness are related to the practice of COVID-19 preventive behavioural strategies.
3. COVID-19 threat assessment partially mediates between COVID-19 information sources and COVID-19 preventive behaviour.
4. Trust in evidence-based information delivered to the public through government, healthcare professionals and the news media is linked to the fear of COVID-19.
5. Fear of COVID-19 is related to the assessment of the threat of COVID-19 and the practice of COVID-19 preventive behaviour.
6. Threat assessment of COVID-19 partially mediates between the fear of COVID-19 and COVID-19 preventive behaviour.
7. Belief in COVID-19 conspiracy theories is negatively related to trust in COVID-19 information sources, assessment of the threat of COVID-19, the fear of COVID-19 and COVID-19 preventive behaviour.
8. Women and younger people and people with higher education show higher indicators of the fear of COVID-19.
9. Residents of rural regions and people with a higher level of education show higher indicators of trust in COVID-19 information sources.
10. Women and older people are more actively involved in practicing COVID-19 preventive behaviour.

11. Examining the relationship between the factors of the integrative model and the preventive behaviour of COVID-19 in the SEM model in the first stage of the Doctoral Thesis, the evaluation of the threat of COVID-19, trust in sources of information on COVID-19, and the fear of COVID-19 are related to preventive behaviour, but not the belief in COVID-19 conspiracy theories. On the other hand, age (older age) and gender (female gender) are related to the COVID-19 preventive behaviour among the socio-demographic factors.
12. All three factors included in the integrative model of factors related to the behaviour of the COVID-19 vaccination (the motive to vaccinate to protect oneself from illness, the motive to vaccinate to protect other people from illness and to promote collective immunity and the motive to get vaccinated to be able to continue working and / or study) are associated with vaccination behaviour.
13. Perceived vulnerability is not associated with the COVID-19 vaccination behaviour.
14. Fear of COVID-19 is not related to the behaviour of getting vaccinated against COVID-19, and in the sample of vaccinated respondents, the indicators of the fear of COVID-19 are higher compared to the sample of non-vaccinated respondents.
15. Institutional trust is associated with the COVID-19 vaccination behaviour.
16. Perceived social support from the immediate family is negatively related to the COVID-19 vaccination behaviour.
17. Perceived social support from acquaintances is not related to the COVID-19 vaccination behaviour.

18. Women, older people and people with higher education show higher indicators of the motive to get vaccinated to protect themselves from severe illness.
19. Women and people with higher education show higher indicators of the motive to get vaccinated to protect other people from severe illness and end the pandemic.
20. Older people and people with higher and secondary education show higher indicators of the motive to get vaccinated in order to continue working and / or study.
21. Women and people with higher education show higher indicators of the institutional trust.
22. Women experience greater fear of COVID-19, while people with higher education show higher indicators of perceived vulnerability.
23. Women, people with higher education and older people are more actively vaccinated against COVID-19
24. Examining the relationship of the factors of the integrative model of the second stage of the Doctoral Thesis with the behaviour of the COVID-19 vaccination in the regression analysis model, all three motivations for vaccination, the institutional trust and level of education (higher education) are positively related to the behaviour of vaccination, while perceived vulnerability, fear of COVID-19, perceived social support from acquaintances, age and gender are not the factors associated with vaccination behaviour.
25. Looking at the results of the research conducted in both stages of the Doctoral Thesis, it can be concluded that the assessment of the threat of COVID-19 and the fear of COVID-19 (with regard to both one's own health and that of the immediate family) is related to the preventive behaviour of COVID-19, but the perceived vulnerability and fear from severe illness with COVID-19

(in relation to oneself only) are not related to vaccination against COVID-19. On the other hand, trust in COVID-19 information sources (in the study of the first stage of the Doctoral Thesis) and the institutional trust (in the study of the second stage of the Doctoral Thesis) are factors related to the preventive behaviour of COVID-19.

Recommendations

Based on the results of the research, the findings obtained as a result of the Doctoral Thesis are mainly focused on the importance of the transfer and explanation of evidence-based information, the practice of recommended behavioural strategies for public involvement. Findings and recommendations can be used in health policy making, crisis and health communication during the COVID-19 pandemic, as well as potential virus outbreaks in the future. The findings made within the framework of the Doctoral Thesis can be used in the further research of factors related to the preventive behaviour of COVID-19, the tools developed in the Doctoral Thesis can also be used for research purposes.

Whereas this Doctoral Thesis was carried out in cooperation with the SRP project of the Institute of Public Health “Challenges and solutions of the Latvian state and society in an international context (INTERFRAME-LV)” and the SRP project “Impact of COVID-19 on health care system and public health in Latvia; ways in preparing health sector for future epidemics” and the State research program SRP “Life with COVID-19: Evaluation of overcoming the coronavirus crisis in Latvia and recommendations for societal resilience in the future”, part of the findings and recommendations expressed in this Doctoral Thesis are included in the aforementioned cooperation partners’ in the final reports.^{2,3}

It is important to carry out regular public information and educational work. It is recommended to prepare informational educational materials (booklets) and short video materials about the origin of the virus, its spread, its danger, as well as about the existence of various conspiracy theories and their misleading content and the importance of the introduced measures to limit the

² ietvarpetijums_29_30_31_32_zinojumiem_marts.pdf (rsu.lv)

³ 2_darba_paka_gala_zinojums.pdf (rsu.lv)

virus. In cooperation with the Ministry of Environmental Protection and Regional Development, distribute informative materials through the municipalities of all regions of the Republic of Latvia. Ensure the availability of materials in local government institutions, local government libraries, post offices, medical institutions, social services and other state and local government institutions. Distribute informative materials in the centres and branches of the State Employment Agency in cooperation with the Ministry of Economy. In cooperation with the Confederation of State Employers, distribute informative materials to confederation members. In cooperation with the Ministry of Culture, the Ministry of the Interior and the Directorate of Citizenship and Migration Affairs and non-governmental organizations of minorities to distribute informational materials to representatives of minorities living in Latvia. Spread information across various social media platforms.

In order to increase the citizens' trust in the information provided, it is recommended that the information is given by experts in the field, as well as people known in certain social groups, authorities. It is essential that the information to be conveyed is as specific as possible and preferably emotionally engaging, so that it is clear, visible and easy to understand.

In crisis communication, the promotion of group identity is essential, using phrases such as “we all face this problem together” will facilitate behaviour aimed at solving the common problems of society. Such prompts will also help convey polite rejection of unfavourable behaviour.

Using examples of other people's selfless behaviour can be an effective way to encourage others to engage in such behaviour.

It is important to inform about the risks that an individual's behaviour can pose to other people. Prosocial appeals to avoid spreading the virus are more effective than formal information about the virus or advice on how to avoid infection. It is essential to create an understanding that by one's actions, a person can infect a large number of people, as a result of which many can get

sick and even die. The more aware a person is of the consequences of their actions, the more likely they are to practice preventive behaviour recommendations.

Publications and reports on the topic of the Thesis

Scientific publications related to the Doctoral Thesis

1. Šuriņa, S., Mārtinsons, K., Upesleja, G., & Perepjolkina, V. (2022). Factors associated with the COVID-19 vaccination behaviour in Latvian population: cross-sectional study. *Health Psychology and Behavioural Medicine*, 10(1), 514–536. DOI:10.1080/21642850.2022.2085108
2. Ozerska, I., Šuriņa, S., Mārtinsons, K., Akmane, E., Perepjolkina, V. (2022). Multidimensionālās sociālā kapitāla skalas izveide un sākotnējā novērtēšana. Society. Integration. Education. *Proceedings of the International Scientific Conference. 2*, 55–67. DOI: <https://doi.org/10.17770/sie2022vol2.6813>
3. Maķevica, D., Šuriņa, S., Perepjolkina, V. (2022). Multidimensionālās sociālā kapitāla skalas 2. versijas (MSKS V2): izveide un sākotnējā validēšana. Society. Integration. Education. *Proceedings of the International Scientific Conference. 22*, 25–37. DOI: <https://doi.org/10.17770/sie2022vol2.6823>
4. Zariņa, I., Šuriņa, S., Perepjolkina, V. (2022). Multidimensionālās sociālā kapitāla skalas 2. versijas (MSKS V2) paralēlās pamatotības pārbaude. Society. Integration. Education. *Proceedings of the International Scientific Conference. 22*, 111–121. DOI: <https://doi.org/10.17770/sie2022vol2.6821>
5. Šuriņa, S., Mārtinsons, K., Perepjolkina, V., Koļesņikova, J., Vainik, U., Ruža, A., Vrublevska, J., Smirnova, D., Fountoulakis, K.N., & Rancāns, E. (2021). Factors related to COVID-19 preventive behaviours: A Structural Equation Model. *Frontiers, Health Psychology*. DOI: 10.3389/fpsyg.2021.676521
6. Šuriņa, S., & Mārtinsons, K. (2020). Conceptualization of social capital in cross-sectional design studies: review of literature. Society. Integration. Education. *Proceedings of the International Scientific Conference*. DOI: <https://doi.org/10.17770/sie2020vol17.4973>

Pētījumu rezultātu prezentācijas zinātniskajās konferencēs

1. Šuriņa, S., Mārtinsons, K., Perepjolkina, V. (2022, July 5-8). *The institutional trust and Fear of the Consequences of COVID-19 Vaccination: Predictors of Vaccination Behaviours for Population of Latvia* [Poster presentation]. 17th European Congress of Psychology “Psychology as the Hub Science: Opportunities and Responsibility”, Ljubljana, Slovenia.
2. Šuriņa, S., Mārtinsons, K., Perepjolkina, V. (2022, April 21–23). *COVID-19 vakcinēšanās uzvedību prognozējošie faktori* [Oral presentation]. 8th International Scientific practical conference “Health and personality development: interdisciplinary approach”. Rīga Stradiņš University, Rīga, Latvia.

3. Šuriņa, S., Mārtinsons, K., Perepjolkina, V. (28-29.03.2022.). *Ar vakcinēšanās motīvu pasargāt sevi no saslimšanas saistītie faktori Latvijas iedzīvotāju populācijā* [Poster presentation]. International COVID-19 conference – Impact, Innovations and Planning. Rīga Stradiņš University, Riga, Latvia.
4. Šuriņa, S., Mārtinsons, K., Perepjolkina, V., Koļesņikova, J., Ruža, A. (2021, March 24–26). *Indicators of a preventive behaviour of the Latvian population and related factors, during the COVID-19 crisis* [Oral presentation]. Society. Health. Welfare. Rīga Stradiņš University, Riga, Latvia.
5. Šuriņa, S., Mārtinsons, K. (2021, March 25) *The sense of belonging, of public and private sector employees, during the COVID-19 crisis* [Oral presentation]. PLACES / Psychological help: a crossdisciplinary perspective. Rīga Stradiņš University, Riga, Latvia.
6. Ozerska, I., Šurina, S., Mārtinsons, K. (2021, March 22-23). *Construction and validation of the of cognitive dimension of social capital* [Oral presentation]. Health and Social Sciences. Rīga Stradiņš University, Riga, Latvia.
7. Šuriņa, S., Mārtinsons, K. (2021, June 8). *Trust indicators for different Latvian population generations: framework of the social capital concept* [Oral presentation]. Fifth annual Tartu conference on Russian and East European studies. Tartu University, Tartu, Estonia.
8. Šuriņa, S., Mārtinsons, K. (22.10.2020.) *Uzticēšanās informācijas avotiem attiecībā uz COVID-19 sniegto informāciju rādītāji un to saistība ar preventīvo uzvedību dažādās Latvijas iedzīvotāju sociāldemogrāfiskajās grupās* [Mutiska prezentācija]. Zinātniskā konference Psiholoģiskie resursi un riska faktori iedzīvotāju veselībai COVID-19 apstākļos: SRP pētījumi praksei. Rīgas Stradiņa universitāte, Rīga, Latvija.
9. Šuriņa, S., Mārtinsons, K. (22.10.2020.). *Latvijas iedzīvotāju piederības izjūtas novērtējums COVID-19 krīzes apstākļos* [Mutiska prezentācija]. Zinātniskā konference Psiholoģiskie resursi un riska faktori iedzīvotāju veselībai COVID-19 apstākļos: SRP pētījumi praksei. Rīgas Stradiņa universitāte, Rīga, Latvija.
10. Šuriņa, S., Mārtinsons, K. (27-19.04.2020.). *Trust indicators for different Latvian population age groups: framework of the social capital concept* [Oral presentation]. 6th International Scientific practical conference “Health and personality development: interdisciplinary approach”. Rīga Stradiņš University, Riga, Latvia.

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Annexes

Instrumentation used in research of first stage of Doctoral Thesis

COVID-19 preventive behavior

During the situation of emergency, the government had introduced several restrictions aimed at reducing the spread of the coronavirus Covid-19. We are interested in how your behavior has changed since the emergency was declared?

Compared to the time before the emergency was declared	Disagree	Rather disagree	Hard to say	Rather agree	Agree
	1	2	3	4	5
I wash my hands more often and more thoroughly	1	2	3	4	5
I started using disinfectants regularly on a daily basis	1	2	3	4	5
I try to stay at home, avoiding unnecessary movement	1	2	3	4	5
I try to avoid direct contact with other people	1	2	3	4	5
I try to meet people outside my household as rarely as possible	1	2	3	4	5
I try to keep a distance of 2 meters in public	1	2	3	4	5

Trusting sources of information on COVID-19

Please rate the extent to which you personally trust each of the institutions below regarding the information provided and their actions during an emergency. Using a scale of 1 to 10, where 1 means you don't trust and 10 means you trust completely.

To the	I don't trust at all					Completely				
	1	2	3	4	5	6	7	8	9	10
Government (Cabinet of Ministers)	1	2	3	4	5	6	7	8	9	10
News media	1	2	3	4	5	6	7	8	9	10
health care system	1	2	3	4	5	6	7	8	9	10

Fear of COVID-19

Were you afraid of contracting COVID-19 during the emergency?

1	No
2	A little
3	Moderately
4	Expressly
5	Very pronounced

Did the possibility of a family member contracting and dying from COVID-19 scare you?

1	No
2	A little
3	Moderately
4	Expressly
5	Very pronounced

Belief in COVID-19 conspiracy theories

Do you believe that COVID-19 was created in a laboratory to be used as a biological weapon to destroy the human population?

1	No, I do not
2	I believe it a little
3	It is possible
4	I believe it
5	I believe it very much

COVID-19 threat assessment

Please rate how much you agree with the statements below about COVID-19!

	Disagree	Rather disagree	Hard to say	Rather agree	Agree
Its danger has been exaggerated many times over	1	2	3	4	5
I'm sure the situation is not as serious as the mass media is making it out to be	1	2	3	4	5

Belief in COVID-19 conspiracy theories

Do you believe that COVID-19 was created by the world's powerful leaders to cause a global economic crisis?

1	No, I do not
2	I believe it at little
3	It is possible
4	I believe it
5	I believe it very much

**Instrumentation used in the research
of the second stage of the doctoral thesis**

COVID-19 vaccination behavior

Which of these answers applies to you?

I have been vaccinated against COVID-19 (both or one dose)	1
I have not been vaccinated against COVID-19, but I will definitely be vaccinated	2
I have not been vaccinated against COVID-19 and I think I will rather get vaccinated	3
I would rather not vaccinate	4
I will definitely not vaccinate	5
Hard to say	8

We divided the answers into two groups, vaccinated and unvaccinated. The response option “I have been vaccinated against COVID-19 (one or both doses)” was coded as “vaccinated”, while all other response options were coded as “not vaccinated”.

Perceived vulnerability

Please rate to what extent you agree with the following statements about COVID-19 regarding yourself?

	Disagree	Rather disagree	Hard to say	Rather agree	Agree
I accept the possibility that I could be infected with COVID-19	1	2	3	4	5

Motives of vaccination

To what extent do you agree or disagree with each of these statements?

		Disagree	Rather disagree	Hard to say	Rather agree	Agree
1	I am/will be vaccinated against COVID-19 to promote collective immunity, care for fellow human beings, protect my loved ones and other people from infection	1	2	3	4	5
2	I am/will be vaccinated against COVID-19 to protect myself from becoming seriously ill if infected	1	2	3	4	5
3	Vaccination against COVID-19 was mandatory in order to continue working and/or studying	1	2	3	4	5

Fear of COVID-19

Please rate your level of fear on a scale of 1 to 10, where 1 means no fear and 10 means very strong fear.

	No fear					Very strong fear				
of COVID-19 disease	1	2	3	4	5	6	7	8	9	10

Institutional trust.

Tell me, please, to what extent do you personally trust each of the following institutions?

For the rating, use a scale from 1 to 10, where 1 means that you do not trust this institution at all, and 10 means that you trust it completely.

		No trust at all					Trust completely				
1	Latvian Saeima	1	2	3	4	5	6	7	8	9	10
2	Government (Cabinet of Ministers)	1	2	3	4	5	6	7	8	9	10
3	Judicial System of Latvia	1	2	3	4	5	6	7	8	9	10
4	news media	1	2	3	4	5	6	7	8	9	10
5	local municipality	1	2	3	4	5	6	7	8	9	10
6	Police	1	2	3	4	5	6	7	8	9	10
7	Health care system	1	2	3	4	5	6	7	8	9	10

Perceived social support from immediate family.

To what extent do you agree or disagree with each of these statements about your loved ones?

		Completely disagree	Rather disagree	Neither agree nor disagree	Rather agree	Completely agree
2	I know I have people closest to me to turn to for advice	1	2	3	4	5
3	I know that in a difficult moment my closest people will support me emotionally	1	2	3	4	5
4	I have understanding and supportive relationships with the people closest to me	1	2	3	4	5

Perceived social support from acquaintances.

To what extent do you agree or disagree with each of these statements about your acquaintances?

Among my acquaintances are people who ...		Completely disagree	Rather disagree	Neither agree nor disagree	Rather agree	Completely agree
1	... would help if I had financial difficulties	1	2	3	4	5
2	would be able to help with professional advice if needed	1	2	3	4	5
3	would be able to support me emotionally in a difficult moment	1	2	3	4	5
4	could listen and understand me	1	2	3	4	5