



## Perceived Effects of the COVID-19 Pandemic on Loneliness: The Most Vulnerable Population Groups

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### Abstract

COVID-19 pandemic lockdown measures reasonably limited the social contacts of people in many countries. It is crucial to understand the effect of such policies on people's social ties and the possible need for evidence-based public policy amendments. Therefore, this study examines 1) the prevalence of loneliness in the population aged 15+ in Lithuania in late 2021 and 2) the self-rated effect of the COVID crisis on loneliness in population groups with different levels of loneliness. It also focuses on the socio-demographic characteristics of these population groups. Data from a representative cross-sectional quantitative survey (N = 1067), carried out in November–December 2021, was used. Based on the 6-item De Jong Gierveld Loneliness Scale, descriptive statistics analysis revealed the high prevalence (51% of a medium level of loneliness) in the Lithuanian population. One in three people (36%) declared low-level loneliness, and each seventh or eighth (13%) reported high-level loneliness. The feelings of respondents who reported a high level of loneliness were also less stable; they more often stated that their feelings of loneliness increased during the pandemic. These research findings make contributions to studies of loneliness within the context of sudden crises. They emphasise the importance of policymakers focusing on additional measures when preparing for future emergencies and providing special attention to residents who experience the highest levels of loneliness.

### Keywords:

Loneliness;  
Levels of Loneliness;  
Implications of the COVID-19 Lockdown;  
Quantitative Survey;  
Lithuania.

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## 1- Introduction

The COVID-19 pandemic had far-reaching effects on various aspects of society. One particularly prevalent and concerning consequence was the heightened experience of loneliness among individuals worldwide. Given the growing recognition of loneliness as a significant public health concern, there has been considerable research analysing the effects of COVID-19 on loneliness. Most studies conducted during the pandemic focused on the immediate or short-term impact of COVID-19 on loneliness. The majority of such studies estimated an increased level of loneliness during the early or later stages of the pandemic [1-6], while others found no significant correlation between the two [7]. Furthermore, additional studies directed attention toward vulnerable populations in terms of loneliness during the COVID-19 crisis [2, 6, 8–10]. These studies highlighted that individuals who live alone, those with pre-existing mental health conditions, younger adults, and individuals in low-income households are particularly susceptible to heightened levels of loneliness. Instead of solely examining the effects of loneliness, certain studies aimed to emphasise the significance of technology-mediated connections. These studies underscored the importance of online communication platforms, social media, and video conferencing tools in facilitating social interactions [11, 12]. Some researchers also explored the role of protective factors in mitigating the impact of the pandemic on loneliness. Research has revealed that individuals who possess greater personal and family resources, such as strong social support networks and emotional closeness, tend to

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experience reduced levels of loneliness and psychological distress [2]. Furthermore, individuals who engage in regular physical exercise, employ effective coping strategies, and have robust social support networks are likely to experience lower levels of loneliness and better overall mental well-being, as highlighted by the study by González-Sanguino et al. [13].

The majority of studies in the field of loneliness and the pandemic have been conducted in Western societies. The authors found few that were focused on the region of central and eastern Europe. For example, a study in Poland estimated the levels of loneliness during COVID-19, but only among the older population [14]. Thus, there is still a lack of knowledge about how specific countries experienced lockdown regulations related to the pandemic crisis and how they affected levels of loneliness. This study aims to fill this gap by choosing to analyse the effects of the pandemic on loneliness in one case from Central and Eastern Europe that experienced stringent regulation: Lithuania. Moreover, the study aims to explore vulnerability towards loneliness in terms of loneliness levels. Did the pandemic negatively affect loneliness in a society that already belongs to the group of countries at higher risk of loneliness? Filling such a knowledge gap would allow for a more efficient selection of necessary policies and better planning for their implementation.

Surveys about loneliness indicators placed Lithuania at the top among the European Union countries [15, 16]; it is also at the top for suicide rates [17] and alcohol consumption [18]. Evidence concerning the prevalence of loneliness can be found only in regards to the pre-pandemic period. A study using the data from the European Social Survey 7th Wave [19] suggests that 7.7% of the population feels lonely [20]. The existing evidence allows for an understanding of the vulnerability to loneliness only before the pandemic. There is a lack of recent data about how this might differ in the context of the pandemic. We suggest delineating different levels of loneliness, which allows a more nuanced picture of loneliness and its demographics to be unveiled.

## 2- Theoretical Context of the Study

### 2-1-Definition of Loneliness and its Predictors

Although there are many definitions of loneliness, the one that is most widely agreed upon defines it as an unpleasant experience due to a mismatch between the number and quality of desired and actual social relations [21, 22]. Researchers distinguish between loneliness and social isolation, although the two are related. The latter implies the objective characteristics of a situation and refers to the absence of relationships with other people [23], while loneliness is a subjective experience. Weiss [24] delineated two basic types of loneliness: social and emotional. Social loneliness is the absence of contact with a broader group or an engaging social network. Emotional loneliness is expressed as the absence of an intimate figure or a close emotional attachment. These two types have been widely used in loneliness research [22, 23, 25].

Significant loneliness factors include age, gender, health, financial, partnership, and parenthood statuses [7, 23]; living alone [6, 26, 27]; the structure of social networks and social participation [5, 28, 29]; and neighbourhood [6, 30]. The association between age and loneliness varies between positive, negative, and u-shaped, with peaks in younger and older adulthood [8]. As a consequence of social exclusion, loneliness is usually associated with older people [31]. However, research increasingly shows that loneliness is also experienced by younger age groups, e.g., in post-communist countries, where it is represented in even greater numbers compared to older populations in Western European countries [32]. Groarke et al. [8] summarised mixed findings on gender effects, finding evidence of higher loneliness in females [33] and also no significant gender effect [34–36]. A higher loneliness risk is associated with lower social and economic resources, lower sociability (both opportunities for social participation and capabilities of maintaining existing or recreating lost social ties), and weaker social network support [33].

The results of the study that was conducted in Lithuania in the pre-pandemic period and was based on logistic regression revealed that ethnicity, partnership status, living arrangement, financial status, and subjective health are significant predictors of loneliness [20]. Rapolienė & Tretjakova [20] found that among persons of other nationalities, the percentage of people feeling lonely is higher than among the titular ethnicity (Lithuanians) and the main minorities (i.e., Russian and Polish). The same authors portrayed people feeling lonely as being less likely to live with a spouse or partner but more likely to live with children in the same household. Rapolienė & Tretjakova [20], while comparing the characteristics of those experiencing and not experiencing loneliness, revealed that those who feel lonely experience severe financial difficulties, more often encounter financial instability in their childhood, and tend to have poor subjective health. The researchers concluded that along with the well-known risk factors of not having a partner/spouse and lower economic status, others—i.e., financial difficulties (current and in childhood), living with children in the same household, and poor subjective health—appear to be more pronounced in Lithuania.

### 2-2-The COVID Pandemic Crisis in Lithuania

The global outbreak of the COVID-19 pandemic, which developed in 2020, brought manifold disruptions to all fields of life (health, work, study, leisure, and consumption) around the globe. Governments responded differently to this

epidemiological crisis. Lithuania implemented stringent restrictions immediately after the beginning of the pandemic. Many measures to control the pandemic involved various sanitary procedures and prohibitions related to direct interaction between people. During the initial phase of the COVID-19 crisis, Lithuania, following many other countries, introduced the misleading concept of social distancing instead of spatial (or physical) distancing [37]. The tricky concept legitimised the abandonment of social relations and was especially harmful to people whose social ties were probably weak even before the pandemic. Undoubtedly, supporting people's social, emotional, and spiritual connectivity in times of crisis is even more vital, as people are forced to invent innovative ways to meet their communication needs under the strict conditions of quarantine.

The government of Lithuania introduced a total quarantine on March 16, 2020 [38], which lasted three months until June 17, 2020. Quarantine measures were complex and included restriction of movement across borders and within the country; maximal transition to remote work (if possible); restricted operation of shopping malls, restaurants, bars, and beauty salons (except for grocery stores and pharmacies); sudden transition to remote education in kindergartens, schools, and universities; and prohibition of activities in daycare facilities and other centres for children, people with disabilities, and older adults [39]. Wearing face masks and disinfecting hands were required when using public spaces. Moreover, the quarantine introduced limitations on social gatherings with non-family members, banned public meetings, and suggested avoiding public transportation.

Lithuanian politicians were proud that they handled the first COVID-19 wave rather well. However, significant consequences were experienced by people in terms of working life [39, 40], income maintenance [41], and mental health [42, 43]. A study commissioned by Luminor Bank showed that 6% of adult Lithuanian citizens lost their jobs during the first quarantine, and 14% had to take compulsory or temporary leave [44]. The total stress level of the Lithuanian population during the initial epidemic stage increased about twofold compared to the pre-pandemic period (from 14% to 26–48%) [45]. It was observed that the suicide rate did not change significantly in 2020 compared to 2019, but in the post-quarantine period (June–August 2020), it increased 24% [45]. Suicides increased significantly among young women (aged 26–45) [41]. There was also an increase in domestic violence that emerged rather quickly after the beginning of the pandemic [46].

The consequences of the 2020 global pandemic and the threats of possible future pandemics are still being felt. Efforts made by authorities to manage the spread of the pandemic have fundamentally changed everyday lives. The drive to overcome the disruptions to daily life under the new constrained pandemic conditions highlighted existing weaknesses and led to a series of rapid innovations: accelerated expansion of remote work and learning, e-health, and e-consumption. The far-reaching negative impact of limited contacts on social integration is not yet sufficiently understood. Opportunities to pave the way for innovations needed to strengthen social relationships were not fully exploited.

### *2-3-Loneliness and the COVID Pandemic*

Loneliness was reported as one of the fundamental concerns during the epidemiological crisis [1]. Restricted direct interactions may have challenged social bonds. The majority of studies examining loneliness during the COVID-19 pandemic reported an increase in loneliness levels. The increased magnitude of loneliness during the pandemic was measured in cross-national studies [6, 47] as well as in many national studies: in the USA [1], Spain [2], Scotland [5], the Netherlands [3], etc. McGinty et al. [4] estimated only a slight increase in loneliness from 2018 to 2020 in the USA. Based on comparative analysis in the EU, several countries witnessed a notable surge in loneliness throughout the pandemic, with Bulgaria, Estonia, France, Germany, Poland, Portugal, and Sweden experiencing an increase of 15 or more percentage points [48]. Belgium, Croatia, the Czech Republic, Greece, Hungary, Romania, and Spain observed a rise of less than 10 percentage points [48]. Countries with lower pre-pandemic levels of loneliness tended to exhibit a more pronounced increase in loneliness during this period [48]. Only a few studies found no significant correlation between the pandemic and loneliness. For example, a study in the UK found no substantial change in loneliness over the two waves that were compared [7].

Certain groups were found to be more susceptible to heightened loneliness during the pandemic. Researchers focused on vulnerable groups such as younger cohorts [2, 8, 9], individuals with chronic conditions, and those living alone [7]. Mental health disorders also increased the risk of loneliness [6, 9, 10]. Some studies found that better emotional regulation abilities allowed older populations to experience less psychological distress during the pandemic [2]. The results of no significant change in loneliness during a pandemic are explained by increased perceived support [49] and the mobilisation of individual social resources [50].

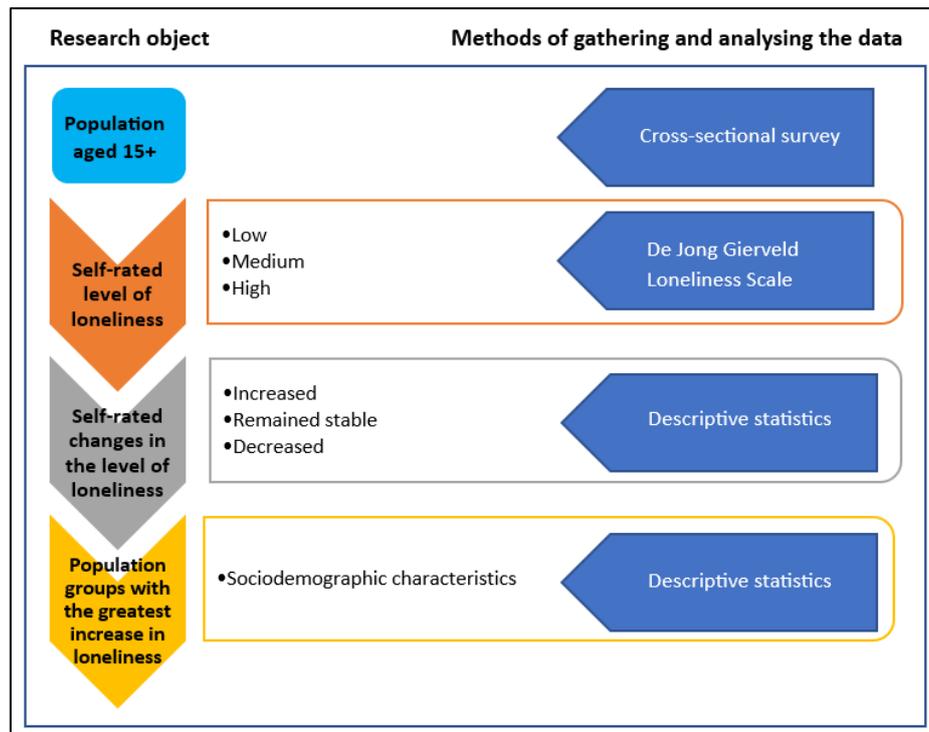
Some studies report higher levels of loneliness among females [2, 9, 10], while others find no significant gender differences [8, 33, 34]. A lower income and education level were associated with a higher risk of loneliness [8]. Having a job and living with a partner were significant factors in protecting against loneliness [10]. Thus, there is a tendency to find a correlation between vulnerability and a higher risk of loneliness during a pandemic. Recent comprehensive multi-country studies [6, 51] complemented the list of vulnerable groups affected by the pandemic, proving that people with underlying health issues and specific support needs experience more severe consequences. Severely ill patients in

intensive care units, hospital patients in general, students, older adults in care homes, and people who self-isolated to mitigate the risk of infecting others or being infected were among the loneliest.

### 3- Methods

#### 3-1- Research Methodology and the Study Sample

A quantitative research design—a cross-sectional face-to-face survey—was chosen to disclose the effects of the COVID-19 lockdown on perceived loneliness in the population and to describe the socio-demographic characteristics of population groups that experienced the highest increase in loneliness (Figure 1). The timing of the survey allowed us to collect unique data because it was conducted during the later stage of the pandemic, on 16 November – 2 December 2021, by Baltic Surveys Ltd. A total of 1,067 Lithuanian citizens participated in the survey (N = 1,067, age 15–89, M – 48.3 years, SD – 18.0; female – 54.2%). Respondents were selected via the probability multilevel stratified sampling method. The sampling error was less than 3%, and the confidence level was 0.95 (when the sample proportion was 50%). The survey was conducted by observing the fundamental ethical principles of anonymity, privacy, and confidentiality.



**Figure 1. Flowchart of research methodology**

As the first step of the research workflow (Figure 1), the population distribution by loneliness levels was identified based on the 6-item De Jong Gierveld Loneliness Scale [23]. Then, with the use of a retrospective question, the change in loneliness during the pandemic period was measured. Finally, the socio-demographic characteristics of the population groups with the most significant increase in loneliness were indicated (Figure 1).

#### 3-2- Measures

The study measured loneliness using the 6-item De Jong Gierveld Loneliness Scale [23], which comprises both emotional and social aspects of loneliness and shows good psychometric properties [52]. The statements were formulated negatively ('I experience a general sense of emptiness'; 'I miss having people around'; 'I often feel rejected') and positively ('There are plenty of people I can rely on when I have trouble'; 'There are many people I trust completely'; 'There are enough people I feel close to'). The word loneliness was not referred to in the set of items. The items had three response categories: 'no', 'more or less', and 'yes'. The possible range of scores was 0 to 6, where a higher score meant a higher level of loneliness. Responses were dichotomised, and three groups of loneliness were constructed, i.e., those who did not feel lonely or acknowledged feeling some loneliness (0–2 of 6; low-level loneliness), experienced a medium level of loneliness (3–4), and felt high-level loneliness (5–6). An additional dependent variable measured the change in loneliness during the pandemic retrospectively, i.e., 'How has your feeling of loneliness changed during the pandemic?' A four-point scale measured the change: loneliness increased; did not change; decreased; or the respondent did not know/did not feel lonely.

Demographic variables included gender, age, education level, number of persons in the household, ethnicity, economic activity status, marital status, monthly household income per person, and settlement type. Descriptive statistics are presented, indicating the p-values of Chi-square tests in brackets (Tables 1 and 2).

**Table 1. Demographics of loneliness in Lithuania, 2021, N = 1067**

	Low-level loneliness* (n = 383; 35.9%)	Medium-level loneliness** (n=542; 50.7%)	High-level loneliness# (n=143; 13.4%)	N (%)
<b>Gender (p&lt;0.05)</b>				
Male	36.6	52.8	10.6	489 (45.8)
Female	35.2	49.1	15.7	579 (54.2)
<b>Age (p&lt;0.001)</b>				
15–29	43.1	50.2	6.6	211 (19.8)
30–44	40.5	52.5	7.0	242 (22.7)
45–59	39.9	50.9	9.2	273 (25.6)
60–74	23.7	52.5	9.2	278 (26.1)
75+	29.5	37.7	32.9	61 (5.7)
<b>Education (p&lt;0.001)</b>				
Secondary and lower	31.1	48.2	20.7	280 (32.7)
Vocational	35.2	51.3	13.4	261 (30.5)
Higher	42.0	52.5	5.4	314 (36.7)
<b>Ethnicity (p&lt;0.05)</b>				
Lithuanian	37.2	49.8	13.0	946 (88.8)
Other	25.2	58.0	16.8	119 (11.2)
<b>Economic activity (p&lt;0.001)</b>				
Currently employed	39.4	52.2	8.0	649 (61.2)
Pensioners	21.0	49.0	30.3	257 (24.2)
Pupils or students	51.6	43.0	5.4	93 (8.8)
Other###	33.9	51.6	14.5	62 (5.8)
<b>Number of persons in the household (p&lt;0.001)</b>				
1 person	27.4	43.1	29.4	197 (18.5)
2 persons	33.7	52.5	13.8	406 (38.1)
3 persons	37.5	54.7	7.8	232 (21.8)
4 persons and more	45.5	50.2	4.3	231 (21.7)
<b>Household monthly income per person (in euro) (p&lt;0.001)</b>				
Less than 500	29.6	48.1	22.2	216 (28.8)
500–1000	32.9	53.1	14.0	414 (55.20)
1001 and more	45.8	50.0	4.2	120 (16)
<b>Marital status (p&lt;0.001)</b>				
Single	44.7	44.7	10.6	170 (16.0)
Cohabiting	37.2	53.1	9.7	145 (13.7)
Married	37.1	53.3	9.6	552 (52.1)
Divorced	25.3	53.2	21.5	79 (7.5)
Widowed	23.7	42.1	34.2	114 (10.8)
<b>Type of settlement (p&lt;0.01)</b>				
Rural areas	39.9	45.3	14.8	351 (32.9)
Towns	39.5	45.5	15.0	266 (24.9)
Cities	30.7	58.2	11.1	450 (42.2)

\* According to De Jong Gierveld Loneliness scaleScale range of scores; 0–2 out of 6.

\*\* According to De Jong Gierveld Loneliness scaleScale range of scores; 3–4 out of 6.

# According to De Jong Gierveld Loneliness scaleScale range of scores; 5–6 out of 6.

### CategoryThe category “Other” includes such statuses as “stay-at-home parent, unemployed”, etc.

**Table 2. Population demographics according to retrospectively self-reported loneliness changes during the COVID-19 pandemic, 2021, Lithuania, N = 1067**

	The feeling of loneliness during the pandemic...			N (%)
	increased (n = 204, 22.9%)	remained unchanged (n = 623; 69.5%)	decreased (n = 69; 7.7%)	
<b>Gender (p&lt;0.05)</b>				
Male	18.7%	73.7	7.6	396 (44.1)
Female	26.1	66.1	7.8	501 (55.9)
<b>Age (p&lt;0.01)</b>				
15–29	16.8	77.8	5.4	167 (18.6)
30–44	15.9	76.7	7.4	189 (21.1)
45–59	23.3	67.7	9.1	232 (25.9)
60–74	30.1	61.8	8.0	249 (27.8)
75+	30.0	61.7	8.3	60 (6.7)
<b>Education (p = 0.018)</b>				
Secondary and lower	25.8	68.7	5.6	233 (32.8)
Vocational	26.3	65.9	7.8	217 (30.5)
Higher	15.3	77.0	7.7	261(36.7)
<b>Ethnicity (p=0.034)</b>				
Lithuanian	22.6	69.7	7.7	808 (90.4)
Other	25.6	67.4	7.0	86 (9.6)
<b>Economic activity (p=0.000)</b>				
Currently employed	17.5	74.7	7.8	537 (60.2)
Pensioners	34.9	55.5	9.7	238 (26.7)
Pupils or students	16.4	79.1	4.5	67 (7.5)
Other*	34.0	66.0	0.0	5.6 (50)
<b>Number of persons in the household (p=0.000)</b>				
1 person	32.2	60.7	7.1	183 (20.4)
2 persons	23.7	67.3	9.0	346 (38.7)
3 persons	18.8	72.0	9.1	186 (20.8)
4 persons and more	15.6	80.0	4.4	180 (20.1)
<b>Household monthly income per person (in euro) (p=0.001)</b>				
Less than 500	28.2	66.4	5.4	277 (42.9)
500–1000	18.4	72.4	9.2	315 (48.8)
1000+	5.7	84.9	9.4	8.2 (53)
<b>Marital status (p= 0.00)</b>				
Single	14.9	80.6	4.5	134 (15.0)
Cohabiting	26.1	66.4	7.6	119 (13.3)
Married	19.3	71.7	9.0	456 (51.1)
Divorced	36.8	57.9	5.3	769 (8.5)
Widowed	35.5	56.1	8.4	107 (12.0)
<b>Type of settlement (p=0.002)</b>				
Rural areas	19.0	71.6	9.3	289 (32.2)
Towns	31.1	61.3	7.6	238 (26.5)
Cities	20.8	72.8	6.5	371 (41.3)

\* CategoryThe category “Other” includes such statuses as “stay-at-home parent, unemployed”, etc.

## 4- Results

### 4-1-Prevalence, Demographics and Loneliness Levels in the Population

According to the results of the De Jong Gierveld Loneliness Scale [23], half of the Lithuanian population (50.7%) could be categorised as feeling medium-level loneliness (Table 1). About one-third (35.9%) either never or sporadically experience loneliness, and their scores are extremely low. Moreover, each seventh to eighth (13.4%) person is characterised by high-level loneliness (Table 1). The article continues by discussing the specific socio-demographic characteristics of each population group according to the level of perceived loneliness.

*The population with no or low-level loneliness:* This group frequently includes people living in larger households, having higher income and education levels, and residing in smaller cities or rural areas (Table 1). It is characterised by three closely interrelated factors. Higher proportions of respondents who do not feel lonely or experience only minor loneliness are younger, pupils and students, and single. Meanwhile, the gender factor for this population group is neutral.

*The population with medium-level loneliness:* This group is the largest and includes people who experience three to four forms of emotional or social loneliness synchronously. All age groups are represented in this group proportionately, except for the oldest (75+), which is under-represented. Those who feel a medium level of loneliness are more likely to live in large cities and be of an ethnicity other than the titular one. In this group, it is less common to live in a single-person household, be divorced, or be a pupil or student. As in the case of the population feeling no loneliness, the gender variable in this group is also neutral.

*The population with high-level loneliness:* This population group reports experiencing different combinations of emotional and social loneliness simultaneously. In this group, respondents feel lonely in most measured indicators of emotional and social loneliness (5–6 of six, Table 1). In contrast to the two population groups discussed previously, there are gender differences in this case. Women tend to experience acute loneliness more often than men. Besides gender sensitivity, this group is also age-sensitive. The proportion of the older generation, aged 75 and over, is distinctively higher in this group. The group also manifests various characteristics of marginalised populations, i.e., they have lower education and income levels and are often old-age pensioners, widowed or divorced, living in single-person households, and non-native speakers. Persons experiencing high-level loneliness slightly more often reside in small towns or rural areas.

Thus, people with no or low-level loneliness tend to have higher socioeconomic status (higher income and education levels) and live in larger households and smaller settlements. In opposition, the group with high-level loneliness tend to have the attributes of a marginalised population: lower socioeconomic status (lower income and education levels), older age, widowed or divorced, living in single-person households, having an ethnicity other than the titular one (Lithuanian), and female. The medium level of loneliness is predominant in Lithuania and is experienced more by those residing in large cities and representing non titular (non-Lithuanians) ethnic groups

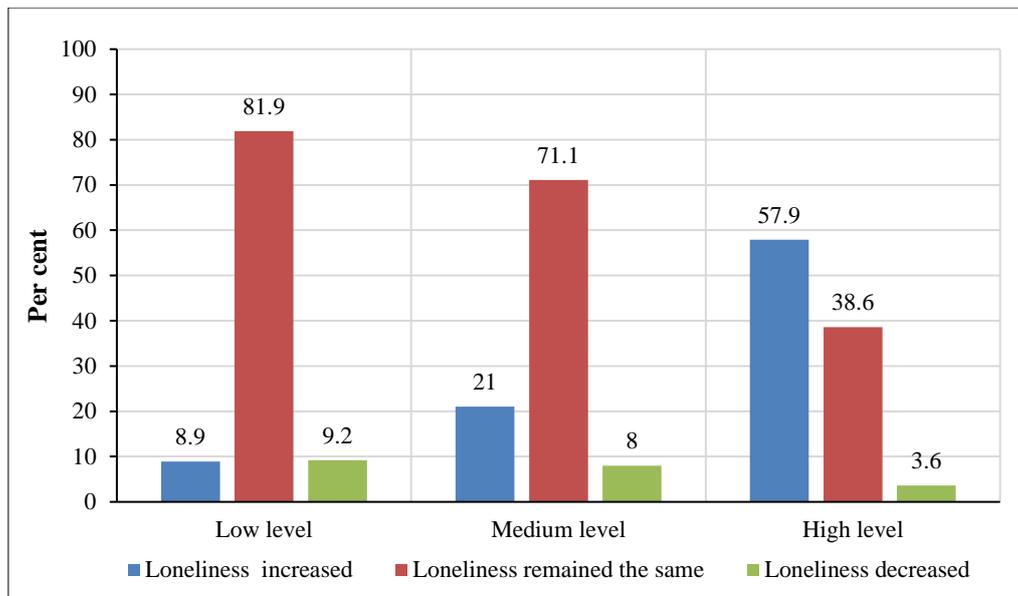
### 4-2-Perceived Changes in Loneliness During the COVID-19 Lockdown in Population Groups with Different Levels of Loneliness

Data on changes in levels of loneliness were collected based on a subjective evaluation made by respondents. For most respondents (69.5%), the level of loneliness did not change during the COVID-19 lockdown. Nearly one-fourth of the population (22.9%) stated that they felt an increased level of loneliness. Contrarily, for some, though very few (7.7%), the global pandemic crisis became a period of diminished loneliness (Table 2).

The study compared changes in loneliness during the COVID-19 pandemic in the three population groups with different levels of perceived loneliness. The results revealed the highest increase in loneliness in the population experiencing severe loneliness (Figure 2). In this group, nearly two out of three respondents (57.9%) felt their level of loneliness increased during the COVID-19 pandemic.

In the other two groups, such a perception was common for far fewer respondents, i.e., less than 10% of the group that had been almost free from loneliness and one-fifth of the group with medium-level loneliness (Figure 2). Drastic differences between groups were also observed in the feeling that the recent epidemiologic crisis had not changed perceived loneliness. Here, the most stable was the group with the lowest loneliness indicators. In this group, the vast majority (81.9%) declared that the pandemic had not impacted their loneliness. The group with medium-level loneliness had a smaller number of such respondents, yet it was still relatively high, i.e., comprising more than two-thirds (71.1%). In the high-level loneliness group, this number of respondents was reasonably smaller, comprising only a little over a third (38.6%).

A decrease in loneliness was indicated by very few people. Experiences of reduced loneliness were also unevenly distributed among the groups. Reduced loneliness was reported mainly by respondents who experienced low- to medium-level loneliness (respectively, 9.2 and 8%, Figure 2). In the group with high-level loneliness, the percentage of people with reduced loneliness during the pandemic was at least twice as low, i.e., 3.6% (Figure 2).



**Figure 2. Retrospectively self-reported changes in feelings of loneliness during the COVID-19 pandemic, population groups with different levels of loneliness, 2021, Lithuania, per cent,  $p < 0.001$**

Thus, according to this retrospective self-report of the Lithuanian adult population, it appears that people who were feeling the least lonely also coped most successfully with the negative consequences of the COVID-19 pandemic. Namely, the effect for them was neutral. In most cases, their loneliness level remained unchanged. Moreover, the shares of people who felt increased or decreased loneliness were also counterbalanced. At the same time, the level of loneliness of a majority of moderately lonely people remained the same. Comparing groups that indicated either an increase or reduction in loneliness, more people declared intensified loneliness (respectively, 21% and 8%). Based on research results, the 13% of society that had been feeling acute loneliness also appeared the most vulnerable during the crisis. The pandemic worsened the well-being of this particular group significantly, as intensified loneliness was their dominant reality (acknowledged by more than half).

#### ***4-3-Demographics of The Population in Groups of Self-Reported Changes in Loneliness During the COVID-19 Pandemic***

To understand the different effects of the pandemic on people's feelings of loneliness, it is important to consider the demographic characteristics of those who felt more and less lonely and those who believed that the pandemic did not change their feelings of loneliness.

*The population with increased loneliness during the pandemic:* People who retrospectively reported increased loneliness during the COVID-19 pandemic usually lived in single-person households and small towns (Table 2). This group can also be characterised by a combination of three interrelated variables, i.e., (1) older age (60 and over), which correlates with (2) the status of old-age pensioner, and (3) having no immediate family due to divorce or loss. People with reported elevated loneliness were more likely to have a low income and be classified as "others" for the status of their economic activity (i.e., stay-at-home parent or unemployed). Those with secondary (or lower) or vocational education experienced increased loneliness during the pandemic more often. A slightly higher proportion of women than men reported increased loneliness, and the analysis revealed no significant differences in respondents' ethnicity.

*The population with no change in level of loneliness during the pandemic:* As the research data shows, people who reported no change in the level of loneliness were younger, with higher education, currently employed, pupils or students, living in larger households, married or single, and residing in large cities. These social groups could possibly have had more economic and social resources for coping with the challenges of the COVID-19 pandemic.

*The population with decreased loneliness during the pandemic:* The socio-demographic characteristics of the population who reported decreased loneliness during the pandemic are statistically insignificant.

## **5- Discussion**

Based on previous research, prolonged loneliness without intervention can have a profound negative impact on health and well-being [8]. Scholars suggest focusing on directing interventions to prevent the loneliness of socially isolated individuals and targeting the loneliness determinants amenable to change [8]. Our study focused on the prevalence of loneliness in Lithuania and its socio-demographic characteristics. It also aimed to reveal the subjectively perceived effects of the pandemic on loneliness. The analysis indicated groups with high, medium, and low social and emotional loneliness that different policies could target.

Although the prevalence of loneliness has been reported in many populations, to the best of our knowledge, this study was one of the first to examine the prevalence of loneliness in the adolescent and adult populations of Lithuania during the COVID-19 pandemic. Based on the 6-item De Jong Gierveld [23] scale, three respondent groups with different levels of loneliness were created, i.e., (1) no or low-level loneliness, (2) medium-level loneliness, and (3) high-level loneliness. The results indicate a high prevalence of loneliness in Lithuania. Only about one-third (35.9%) of the population experienced almost no or mild loneliness, half (50.7%) encountered medium-level loneliness, and 13.4% experienced intense loneliness. Comparing these findings with those of other countries can be challenging due to variations in methodologies, measurement tools, and survey timing [53]. A comparative analysis of EU countries [47] can, however, serve as a reference point. The study revealed that during the initial month of the pandemic, 25% of EU citizens reported experiencing frequent feelings of loneliness.

The findings on a socio-demographic portrait of loneliness correspond with the results of descriptive statistics on pre-pandemic data [20]. Our study found a higher proportion of women (67.8%) than men among lonely people. This finding aligns with studies conducted in other countries, such as Spain [2] and the UK [9, 10], which reported a higher risk of loneliness among females during the pandemic. In line with previous studies that found a correlation between lower educational attainment and an increased risk of loneliness in the UK [8], our findings also indicate that individuals with lower levels of education are more likely to experience loneliness. Specifically, our results demonstrate that the group reporting feelings of loneliness includes a higher proportion of individuals with lower educational levels. However, our study suggests other insights with regard to the age factor. Loneliness is more often found among middle-aged (27.2% of 45–59) and older (34.1% of 60–74) people, while in other countries younger groups were reported as more vulnerable: UK [8, 9], Spain [2], Canada [54]. This might be related to other factors than the pandemic.

Given that the survey was conducted after COVID-19 restrictions had been loosened, the answers of the younger generation could have represented an ordinary situation. This possibility is also supported by other studies conducted at the beginning of the COVID-19 pandemic in Lithuania. A study by Grigutyte [55] conducted in April–May 2020 on subjectively named difficulties, the ability to cope with these difficulties, and psychological well-being during the first quarantine of COVID-19 in Lithuania revealed that 51% of the participants indicated poor well-being. The well-being of women and young adults (aged 18–29) was significantly worse than that of other groups. A higher proportion of older people experiencing intense loneliness could be explained by fewer opportunities for social interaction and more digital exclusion [56]. Digital exclusion could have strongly reinforced a sense of loneliness when face-to-face connections were restricted during the first stages of the introduction of measures to control the pandemic.

Loneliness is more often found among those living in single households, and this result is not new. The COVID-19 pandemic has underscored the significance of living with someone as a protective factor against loneliness. Several studies, including those utilising cross-sectional data from the USA, the UK, Norway, and Australia [46] and data from the Nordic countries [50], have reached similar conclusions, highlighting the importance of living with someone in mitigating feelings of loneliness.

While research on the relationship between ethnicity and loneliness during the COVID-19 pandemic remains limited, our evidence suggests its significance. In the case of Lithuania, our study shows higher levels of loneliness among ethnic minorities. This noteworthy finding highlights the need for further research and attention to understanding the status of ethnic minorities in shaping experiences of loneliness during the pandemic.

Even though most of the surveyed population indicated that their level of loneliness had not changed during the COVID-19 lockdown, a relatively high proportion (nearly one-fourth) reported an increased level of loneliness. The least affected group was the one that had low loneliness indicators as measured by the De Jong Gierveld scale (81.9% declared that the pandemic did not influence their level of loneliness). This group coped with the negative consequences of the COVID-19 pandemic most successfully. Contrarily, the most vulnerable group was the one that felt deep loneliness (13%) and possessed fewer social and economic resources for coping. These findings are consistent with recent findings from other researchers [57, 58], who argued that the COVID-19 pandemic disproportionately affected disadvantaged groups and, thus, further exposed their vulnerabilities.

The analysis of the vulnerability portrait (of people who experienced increased loneliness) included those living in single-person households and small towns. As this study found, during the COVID-19 pandemic, older people, pensioners, divorced or widowed people, and individuals with lower income and education experienced increased loneliness more often. Namely, our results implied that if people experience high levels of loneliness, they have a much higher risk that this condition may be further enhanced by critical events such as the COVID-19 lockdown. These findings aligned with conclusions made in Canada and Austria [57, 59]. The specific vulnerability of the older generation in the face of the recent public health crisis in Lithuania resonates with the results of research conducted in Scotland, Switzerland, and Poland [5, 49, 58].

## 6- Conclusions

This paper examines the distribution of loneliness in the general population (aged 15+), the self-rated effects of the COVID-19 pandemic on loneliness levels, and the socio-demographic characteristics of population groups most vulnerable to an increase in loneliness. Lithuania is a case where strict quarantine measures were implemented and high levels of pre-pandemic loneliness were observed. As the research results show, the prevalence of loneliness remained high during the later stages of the pandemic. At the end of 2021, half of the Lithuanian population experienced medium levels of loneliness, and around 13% reported high levels of loneliness, according to the De Jong Gierveld Loneliness Scale.

In exploring the vulnerability of individuals to pandemic-induced loneliness, our findings indicated that certain population groups were more prone to higher levels of loneliness. Specifically, women, older individuals, those with lower education and income levels, pensioners, widowed or divorced individuals, those living in single-person households, and individuals of ethnicities other than the titular one were more likely to experience heightened loneliness. The results of this study may apply to future crisis interventions. They suggest that people with no or minor loneliness are more resistant during a crisis, and special attention should be targeted towards addressing the needs of the most vulnerable groups named above. While many of these findings align with previous research conducted in other countries, it is essential to note that Lithuania exhibited distinct characteristics regarding age and ethnicity. Notably, higher levels of loneliness in Lithuania were observed in the older population. The influence of ethnicity on loneliness was not extensively explored in prior studies, highlighting the need for further investigation.

Lastly, the study assessed subjectively perceived changes in loneliness levels. More than two-thirds of the Lithuanian population (69.5%) reported no change in their level of loneliness, while nearly one-fourth (22.9%) experienced an increase in loneliness. A small proportion (7.7%) reported a decrease in loneliness. The most significant increase in loneliness was observed among individuals who experienced severe loneliness. These findings contribute to understanding the dynamic nature of loneliness during the pandemic and serve as a basis for developing advanced, innovative policy measures to increase community solidarity and individual resilience to loneliness.

Some strengths and limitations of this study should be mentioned. We succeed in collecting data on loneliness and documenting a unique moment during the late stage of the pandemic at the end of 2021. The chosen research methodology allowed the authors to capture loneliness experienced 'in the past week' only. It cannot be determined whether loneliness levels detected at the end of 2021 are typical for the Lithuanian population (also characteristic of the pre-pandemic period) or reflect a recent shift related to the pandemic crisis. The effects of pandemics on loneliness are based on retrospective subjective evaluations, i.e., a look back at past events. Future studies are needed with alternative designs to differentiate people experiencing loneliness because of an epoch-making event from those who are chronically lonely.

## 7- Declarations

### 7-1- Author Contributions

Conceptualization, M.G.K. and S.M.; methodology, M.G.K. and S.M.; theoretical background, M.G.K. and S.M.; data analysis M.G.K. and S.M.; writing—original draft preparation, M.G.K. and S.M.; writing—review and editing, M.G.K. and S.M.; visualization, M.G.K.; project leader, M.G.K. All authors have read and agreed to the published version of the manuscript.

### 7-2- Data Availability Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available yet due to continued analysis.

### 7-3- Funding

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### 7-5- Institutional Review Board Statement

The fieldwork of the survey was conducted by Baltic Surveys Ltd. in accordance with standards and regulation of the ESOMAR (European Society for Opinion and Market Research) and the Code of Ethics of Lithuanian Association of Sociologists approved in 2014-11-14 (<https://sociology.lt/lt/etikos-kodeksas/>).

### 7-6- Informed Consent Statement

Informed oral consent was obtained from all subjects involved in the study.

### 7-7- Conflicts of Interest

The authors declare that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors.

## 7- References

- [1] Killgore, W. D. S., Cloonan, S. A., Taylor, E. C., & Dailey, N. S. (2020). Loneliness: A signature mental health concern in the era of COVID-19. *Psychiatry Research*, 290. doi:10.1016/j.psychres.2020.113117.
- [2] Losada-Baltar, A., Jiménez-Gonzalo, L., Gallego-Alberto, L., Pedroso-Chaparro, M. D. S., Fernandes-Pires, J., & Márquez-González, M. (2021). "we Are Staying at Home." Association of Self-perceptions of Aging, Personal and Family Resources, and Loneliness with Psychological Distress during the Lock-Down Period of COVID-19. *Journals of Gerontology - Series B Psychological Sciences and Social Sciences*, 76(2), E10–E16. doi:10.1093/geronb/gbaa048.
- [3] van der Velden, P. G., Hyland, P., Contino, C., von Gaudecker, H. M., Muffels, R., & Das, M. (2021). Anxiety and depression symptoms, the recovery from symptoms, and loneliness before and after the COVID-19 outbreak among the general population: Findings from a Dutch population-based longitudinal study. *PLoS One*, 16(1), e0245057. doi:10.1371/journal.pone.0245057.
- [4] McGinty, E. E., Presskreischer, R., Han, H., & Barry, C. L. (2020). Psychological Distress and Loneliness Reported by US Adults in 2018 and April 2020. *JAMA*, 324(1), 93. doi:10.1001/jama.2020.9740.
- [5] Long, J. (2021). Analyzing the epidemiological outbreak of covid-19: Real-time, visual data analysis, short-term forecasting, and risk factor identification. *HighTech and Innovation Journal*, 2(3), 246-261. doi:10.28991/HIJ-2021-02-03-09.
- [6] O'sullivan, R., Burns, A., Leavey, G., Leroi, I., Burholt, V., Lubben, J., Holt-Lunstad, J., Victor, C., Lawlor, B., Vilar-Compte, M., Perissinotto, C. M., Tully, M. A., Sullivan, M. P., Rosato, M., Power, J. M., Tiilikainen, E., & Prohaska, T. R. (2021). Impact of the covid-19 pandemic on loneliness and social isolation: A multi-country study. *International Journal of Environmental Research and Public Health*, 18(19), 9982. doi:10.3390/ijerph18199982.
- [7] O'Connor, R. C., Wetherall, K., Cleare, S., McClelland, H., Melson, A. J., Niedzwiedz, C. L., O'Carroll, R. E., O'Connor, D. B., Platt, S., Scowcroft, E., Watson, B., Zortea, T., Ferguson, E., & Robb, K. A. (2020). Mental health and well-being during the COVID-19 pandemic: longitudinal analyses of adults in the UK COVID-19 Mental Health & Wellbeing study. *The British Journal of Psychiatry*, 218(6), 326–333. doi:10.1192/bjp.2020.212.
- [8] Groarke, J. M., Berry, E., Graham-Wisener, L., McKenna-Plumley, P. E., McGlinchey, E., & Armour, C. (2020). Loneliness in the UK during the COVID-19 pandemic: Cross-sectional results from the COVID-19 Psychological Wellbeing Study. *PLOS ONE*, 15(9), e0239698. doi:10.1371/journal.pone.0239698.
- [9] Bu, F., Steptoe, A., & Fancourt, D. (2020). Loneliness during lockdown: Trajectories and predictors during the COVID-19 pandemic in 35,712 adults in the UK. *Social Science & Medicine*, 265(113521), 2020.05.29.20116657. doi:10.1101/2020.05.29.20116657.
- [10] Mitra, A., Soman, B., Gaitonde, R., Singh, G., & Roy, A. (2022). Data Science Methods to Develop Decision Support Systems for Real-time Monitoring of COVID-19 Outbreak. *Journal of Human, Earth, and Future*, 3(2), 223-236. doi:10.28991/HEF-2022-03-02-08.
- [11] Gabbiadini, A., Baldissarri, C., Durante, F., Valtorta, R. R., De Rosa, M., & Gallucci, M. (2020). Together Apart: The Mitigating Role of Digital Communication Technologies on Negative Affect During the COVID-19 Outbreak in Italy. *Frontiers in Psychology*, 11. doi:10.3389/fpsyg.2020.554678.
- [12] Gao, J., Zheng, P., Jia, Y., Chen, H., Mao, Y., Chen, S., Wang, Y., Fu, H., & Dai, J. (2020). Mental health problems and social media exposure during COVID-19 outbreak. *PLOS ONE*, 15(4), e0231924. doi:10.1371/journal.pone.0231924.
- [13] González-Sanguino, C., Ausín, B., Castellanos, M. Á., Saiz, J., López-Gómez, A., Ugidos, C., & Muñoz, M. (2020). Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. *Brain, Behavior, and Immunity*, 87, 172–176. doi:10.1016/j.bbi.2020.05.040.
- [14] Dziedzic, B., Idzik, A., Kobos, E., Sienkiewicz, Z., Kryczka, T., Fidecki, W., & Wysokiński, M. (2021). Loneliness and mental health among the elderly in Poland during the COVID-19 pandemic. *BMC Public Health*, 21(1). doi:10.1186/s12889-021-12029-4.
- [15] European Commission. (2018). Science for Policy Briefs. Loneliness – An Unequally Shared Burden in Europe. Available at: [https://joint-research-centre.ec.europa.eu/scientific-activities-z/fairness-0/fairness-policy-briefs-series\\_en](https://joint-research-centre.ec.europa.eu/scientific-activities-z/fairness-0/fairness-policy-briefs-series_en)(accessed on May 2023).

- [16] Swader, C. S. (2019). Loneliness in Europe: Personal and Societal Individualism-Collectivism and Their Connection to Social Isolation. *Social Forces*, 97(3), 1307–1335. doi:10.1093/sf/soy088.
- [17] Eurostat. (2020). Almost 8 in 10 Suicides Among Men. Eurostat. Available online: <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/edn-20200910-1> (accessed on April 2023).
- [18] Shield, K. D., Rylett, M. & Rehm, J. (2016). Public health successes and missed opportunities: trends in alcohol consumption and attributable mortality in the WHO European Region, 1990–2014. Regional Office for Europe, World Health Organization, Geneva, Switzerland.
- [19] The European Social Survey. (2014). ESS Round 7 - 2014. Immigration, Social inequalities in health. Available online: <https://www.europeansocialsurvey.org/about/news/new0049.html> (accessed on June 2023).
- [20] Rapolienė, G., & Tretjakova, V. (2021). Loneliness and its predictors in Lithuania and the European context. *Filosofija. Sociologija*, 32(4), 394–406. (In Lithuanian).
- [21] Perlman, D., Peplau, L. A., & Goldston, S. E. (1984). Loneliness research: A survey of empirical findings. Preventing the harmful consequences of severe and persistent loneliness, 13–46, National Institute of Mental Health, Bethesda, United States.
- [22] De Jong Gierveld, J., & Van Tilburg, T. (1999). Living arrangements of older adults in the Netherlands and Italy: Coresidence values and behaviour and their consequences for loneliness. *Journal of Cross-Cultural Gerontology*, 14(1), 1–24. doi:10.1023/A:1006600825693.
- [23] De Jong Gierveld, J., & Van Tilburg, T. (2010). The De Jong Gierveld short scales for emotional and social loneliness: Tested on data from 7 countries in the UN generations and gender surveys. *European Journal of Ageing*, 7(2), 121–130. doi:10.1007/s10433-010-0144-6.
- [24] Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation*. MIT Press, Cambridge, United States.
- [25] Gierveld, J. D. J., & Van Tilburg, T. (2006). A 6-item scale for overall, emotional, and social loneliness: Confirmatory tests on survey data. *Research on Aging*, 28(5), 582–598. doi:10.1177/0164027506289723.
- [26] Sundström, G., Fransson, E., Malmberg, B., & Davey, A. (2009). Loneliness among older Europeans. *European Journal of Ageing*, 6(4), 267–275. doi:10.1007/s10433-009-0134-8.
- [27] Gierveld, J., Dykstra, P. A., & Schenk, N. (2012). Living arrangements, intergenerational support types and older adult loneliness in Eastern and Western Europe. *Demographic Research*, 27, 167–200. doi:10.4054/demres.2012.27.7.
- [28] Fokkema, T., De Jong Gierveld, J., & Dykstra, P. A. (2012). Cross-National Differences in Older Adult Loneliness. *The Journal of Psychology*, 146(1–2), 201–228. doi:10.1080/00223980.2011.631612.
- [29] Niedzwiedz, C. L., Richardson, E. A., Tunstall, H., Shortt, N. K., Mitchell, R. J., & Pearce, J. R. (2016). The relationship between wealth and loneliness among older people across Europe: Is social participation protective? *Preventive Medicine*, 91, 24–31. doi:10.1016/j.ypmed.2016.07.016.
- [30] Shiovitz-Ezra, S. (2015). 15. Loneliness in Europe: do perceived neighbourhood characteristics matter? *Ageing in Europe - Supporting Policies for an Inclusive Society*, De Gruyter, Berlin, Germany. doi:10.1515/9783110444414-017.
- [31] Cohen-Mansfield, J., Hazan, H., Lerman, Y., & Shalom, V. (2016). Correlates and predictors of loneliness in older-adults: A review of quantitative results informed by qualitative insights. *International Psychogeriatrics*, 28(4), 557–576. doi:10.1017/S1041610215001532.
- [32] Victor, C. R., & Yang, K. (2012). The Prevalence of Loneliness Among Adults: A Case Study of the United Kingdom. *The Journal of Psychology*, 146(1–2), 85–104. doi:10.1080/00223980.2011.613875.
- [33] Pinquart, M., & Sörensen, S. (2001). Influences on loneliness in older adults: A meta-analysis. *Basic and Applied Social Psychology*, 23(4), 245–266. doi:10.1207/S15324834BASP2304\_2.
- [34] Mullen, R. A., Tong, S., Sabo, R. T., Liaw, W. R., Marshall, J., Nease, D. E., Krist, A. H., & Frey, J. J. (2019). Loneliness in primary care patients: A prevalence study. *Annals of Family Medicine*, 17(2), 108–115. doi:10.1370/afm.2358.
- [35] Theeke, L. A. (2010). Sociodemographic and health-related risks for loneliness and outcome differences by loneliness status in a sample of U.S. older adults. *Research in Gerontological Nursing*, 3(2), 113–125. doi:10.3928/19404921-20091103-99.
- [36] Steptoe, A., Shankar, A., Demakakos, P., & Wardle, J. (2013). Social isolation, loneliness, and all-cause mortality in older men and women. *Proceedings of the National Academy of Sciences*, 110(15), 5797–5801. doi:10.1073/pnas.1219686110.
- [37] Abel, T., & McQueen, D. (2020). The COVID-19 pandemic calls for spatial distancing and social closeness: not for social distancing! *International Journal of Public Health*, 65(3), 231. doi:10.1007/s00038-020-01366-7.
- [38] Lietuvos Respublikos Vyriausybė (2020). Resolution “On Announcement of Quarantine in the Territory of the Republic of Lithuania. TAR, 2020-03-14, Nr. 5466. Available online: <https://e-seimas.lrs.lt/portal/legalAct/lt/TAD/deaf8694663011eaa02cacf2a861120c/asr> (accessed on April 2023).

- [39] Burkšienė, V., Burbulytė-Tsiskarishvili, G., & Dvorak, J. (2022). Mayoral influence on participatory budgeting in Lithuania during Covid-19. *Emerging science journal: COVID-19: Emerging Research*, 6(Spec.), 151-164. doi:10.28991/esj-2022-SPER-011.
- [40] Mikulionienė, S. (2022). Age Discrimination. *Human Rights in Lithuania 2020-2021, Overview*. Human Rights Monitoring Institute, Vilnius, Lithuania.
- [41] Černiauskas, N., & Lazutka, R. (2020). Lietuvos socialinės politikos priemonių, skirtų švelninti COVID-19 pasekmes, veiksmingumas. *Socialinės politikos trumpaštis*, 3(10), 1-26. (In Lithuanian).
- [42] Rimkevičienė, J. (2021). Report at the meeting of the Suicide Prevention Commission in the Seimas, Suicide rates 2020. Report at the meeting of the Suicide Prevention Commission in the Seimas. Available online: [https://www.lrs.lt/sip/portal.show?p\\_r=38423](https://www.lrs.lt/sip/portal.show?p_r=38423) (accessed on April 2023).
- [43] Skruibis, P. (2021). Presentation "Public mental health during the COVID-19 pandemic. Lietuvos Respublikos Seimas. (In Lithuanian).
- [44] Luminor. (2020). Baltic study: Lithuanians suffered the most during quarantine, do not plan to save. Luminor. Available online: <https://www.luminor.lt/lt/naujienos/baltijos-saliu-tyrimas-lietuviai-karantino-metu-nukentejo-labiausiai-taupyti-neplanuoja> (accessed on April 2023). (In Lithuanian).
- [45] Supreme Audit Institution. (2021). Reducing the mental health consequences of COVID-19. Assessment Report. Available online: <https://www.oecd.org/gov/external-audit-supreme-audit-institutions.htm> (accessed on April 2023).
- [46] Office of the Equal Opportunities Ombudsman. (2020). A practical guide for municipalities. Domestic violence. Vilnius, Lithuania.
- [47] Bonsaksen, T., Schoultz, M., Thygesen, H., Ruffolo, M., Price, D., Leung, J., & Geirdal, A. Ø. (2021). Loneliness and its associated factors nine months after the covid-19 outbreak: A cross-national study. *International Journal of Environmental Research and Public Health*, 18(6). doi:10.3390/ijerph18062841.
- [48] Baarck, J., d'Hombres, B., & Tintori, G. (2022). Loneliness in Europe before and during the COVID-19 pandemic. *Health Policy*, 126(11), 1124–1129. doi:10.1016/j.healthpol.2022.09.002.
- [49] Luchetti, M., Lee, J. H., Aschwanden, D., Sesker, A., Strickhouser, J. E., Terracciano, A., & Suttner, A. R. (2020). The trajectory of loneliness in response to COVID-19. *American Psychologist*, 75(7), 897–908. doi:10.1037/amp0000690.
- [50] Okruszek, Ł., Aniszewska-Stańczuk, A., Piejka, A., Wiśniewska, M., & Żurek, K. (2020). Safe but Lonely? Loneliness, Anxiety, and Depression Symptoms and COVID-19. *Frontiers in Psychology*, 11, 11. doi:10.3389/fpsyg.2020.579181.
- [51] Aartsen, M., & Rothe, F. (2023). The impact of the COVID-19 pandemic on social isolation and loneliness. *A Nordic Research Review*. Nordic Welfare Centre. doi:10.52746/EGPO9288.
- [52] Coelho, G. L. de H., Fonseca, P. N. da, Gouveia, V. V., Wolf, L. J., & Vilar, R. (2018). De Jong Gierveld Loneliness Scale - Short Version: Validation for the Brazilian Context. *Paidéia (Ribeirão Preto)*, 28. doi:10.1590/1982-4327e2805.
- [53] Surkalim, D. L., Luo, M., Eres, R., Gebel, K., van Buskirk, J., Bauman, A., & Ding, D. (2022). The prevalence of loneliness across 113 countries: systematic review and meta-analysis. *BMJ*, e067068. doi:10.1136/bmj-2021-067068.
- [54] Wickens, C. M., McDonald, A. J., Elton-Marshall, T., Wells, S., Nigatu, Y. T., Jankowicz, D., & Hamilton, H. A. (2021). Loneliness in the COVID-19 pandemic: Associations with age, gender and their interaction. *Journal of Psychiatric Research*, 136, 103–108. doi:10.1016/j.jpsychires.2021.01.047.
- [55] Grigutytė, N., Engesser, K., & Petraškaitė, K. (2021). Associations Between COVID-19 Difficulties, Well-Being, and Personality Traits. *Psichologija*, 64, 69–76. doi:10.15388/psichol.2021.42.
- [56] Šuminas, A., Gudiniavičius, A., & Aleksandravičius, A. (2018). Levels and characteristics of the digital divide: A case study of Lithuania. *Informacijos Mokslai*, 81, 7–17. doi:10.15388/Im.2018.0.11937.
- [57] Pieh, C., Budimir, S., & Probst, T. (2020). The effect of age, gender, income, work, and physical activity on mental health during coronavirus disease (COVID-19) lockdown in Austria. *Journal of Psychosomatic Research*, 136. doi:10.1016/j.jpsychores.2020.110186.
- [58] Seifert, A., & Hassler, B. (2020). Impact of the COVID-19 Pandemic on Loneliness Among Older Adults. *Frontiers in Sociology*, 5(87). doi:10.3389/fsoc.2020.590935.
- [59] McQuaid, R. J., Cox, S. M. L., Ogunlana, A., & Jaworska, N. (2021). The burden of loneliness: Implications of the social determinants of health during COVID-19. *Psychiatry Research*, 296. doi:10.1016/j.psychres.2020.113648.