

## **EFFECTS OF SOCIAL ISOLATION ON MENTAL HEALTH DURING COVID-19 IN THE CONTEXT OF AGEING**

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**Abstract.** *The COVID-19 pandemic brought significant changes to the usual rhythm of life. Reduced opportunities to meet with family members and friends in a situation of heightened stress leads to increased feelings of loneliness and social isolation, as well as increases the risk of mental health problems. The aim of this paper is to evaluate the effect of social contacts on the changes in psychoemotional states in the elderly population in Latvia during the crisis caused by the COVID-19 pandemic. The analysis draws upon quantitative data collected by the Survey of Health, Ageing and Retirement in Europe within Wave 8 in Latvia (n=1207). Measurements of the frequency of social contacts were used to construct social isolation indexes. Changes of psychoemotional state, characterized by sleeping problems, nervousness, frustration during the pandemic were included as dependent variables in multinomial logistic regression models that were run to identify the effect of social isolation on psychoemotional health in the context of other factors: age, gender, perceived health status, affluence and feelings of loneliness. The results show that in the group of those aged 50+, close to one-fifth of respondents experienced the effect of the COVID-19 crisis on their mental health. The link between reduced social contacts and changes in psychoemotional states proved to be statistically significant. In the group with the highest level of social isolation, irregularities in psychoemotional health are three times higher compared to other groups.*

**Keywords:** *ageing, COVID-19, psychoemotional disorders, social isolation, Survey of Health, Ageing, and Retirement (SHARE).*

## **Introduction**

In contrast to seniors in other countries in Europe, the elderly in Latvia are one of the risk groups for social exclusion (European Commission. Eurostat, 2017). 50.5% of the population aged 65 and older are vulnerable to the risk of social exclusion, in comparison with the average of 18.9% in Europe (Eurostat, 2021). Social exclusion can be separated into three core dimensions – material exclusion, exclusion from the labour market and social isolation (Gallie, 2004). Ageing is linked to an increase in the risk of exclusion in practically all dimensions (Rungule et al., 2012). However, if material exclusion and exclusion from the labour market in seniors is determined more by circumstances that cannot be influenced at an individual level – the national social insurance and social support system in a country, as well as age – then the existence of social isolation is determined by a lack of interaction with other members of the community and physical separation from others, which can be a person's individual choice but could also be an inevitable consequence of family circumstances (J. Cacioppo & S. Cacioppo, 2014). Studies show that as one ages, the frequency of all types of social contact decreases, as well as the network of social contacts, and the number of people who live alone increases (Baranowska-Rataj & Abramowska-Kmon, 2019).

According to Eurostat, almost 45% of all households in Latvia are one-person households, over 15% of all households comprise of persons living alone, and aged 65 or older (European Commission. Eurostat, 2017).

The requirement to limit face-to-face contact during the COVID-19 pandemic additionally increases the social isolation of the older generation and decreases the already limited opportunities to obtain social support (J. Cacioppo & S. Cacioppo, 2018). Life in circumstances of social isolation increases the feeling of loneliness, anxiety, stress and consequently the risk of developing mental health disorders. The aim of this study is to evaluate the impact of social contacts on the changes in psychoemotional states among the population aged 50 and older during the crisis caused by the COVID-19 pandemic, also taking into consideration other factors.

### **Social Isolation and Loneliness among the Ageing Population**

Social isolation and loneliness, although similar, are not necessarily always connected. Social isolation is usually defined as a lack of social contact and social support, provided by social relationships and engagement in social groups (Rungule et al., 2007). However, loneliness is a subjective feeling of agitation about the fact that a person is alone or separated from others (J. Cacioppo & S. Cacioppo, 2014). Therefore, it is possible to feel lonely while living in a family

and maintaining contact with friends, as well as the contrary – not feeling lonely while living alone.

Studies have shown that social isolation, as well as loneliness, can impact the development of various physical and mental health states and disorders: increased blood pressure, heart disease, obesity, a weakened immune system, anxiety, depression, a decrease in cognitive abilities, development of Alzheimer's disease and mortality (J. Cacioppo & S. Cacioppo, 2014).

For elderly people, social isolation and loneliness are also risk factors for suicidal behaviour, especially during the outbreak of the COVID-19 pandemic as shown by the suicide rate in 2003 during the severe acute respiratory syndrome (SARS) epidemic in Hong Kong (Cheung, Merry, & Sundram, 2015; Yip, Cheung, Chau, & Law, 2010). As observed in the case of Hong Kong, the effects of the epidemic lasted for years following the outbreak; for instance, the suicide rate never returned to the pre-epidemic level (Cheung, Chau, & Yip, 2008).

The World Health Organization states that due to the COVID-19 epidemiological restrictions that call for social distancing and restriction of face-to-face social contact, elderly people may become agitated, upset, stressed (WHO, 2020). Studies also show that already at the start of the COVID-19 pandemic, elderly individuals experienced increased depression indicators, and showed more frequent feelings of loneliness. Yet it must be noted that an important theoretical restriction to researching loneliness in elderly individuals is that normally research into the impact of loneliness on one's health includes measuring loneliness over a prolonged period of time, e.g., several years (Hawkey & Cacioppo, 2010). Currently, it is not known how long COVID-19 epidemiological restrictions will be in place, and it is not possible to accurately predict the total duration of the period of social exclusion that can lead to loneliness and consequently to impact the physical and mental health of elderly individuals.

## **Data and Methods**

In light of current demographic trends in Latvia indicating that society is ageing and the population is decreasing, improving the situation of active ageing and increasing the length of working life falls within the scope of policy planning in Latvia. The target group for solutions in a report by the Cabinet of Ministers "An active ageing strategy for a longer and better working life in Latvia" are elderly persons aged 50 and older, especially until they reach retirement age (Cabinet of Ministers, 2016). For this reason target group for the problems analysed in this article are Latvian nationals who are aged 50+.

Empirical analysis is based on data from Wave 8 of the international longitudinal study *The Survey of Health, Ageing and Retirement in Europe* (SHARE) (Börsch-Supan, 2020). Since 2004, SHARE is carried out biennially with unified methodology in over 20 European countries. The study acquires comparable data on people aged 50 and older: their daily lives, health and social life circumstances, views, values and habits. Two surveys were administered within the scope of Wave 8: data was obtained before the COVID-19 outbreak and also after the first wave of the outbreak in the summer of 2020. The first survey of SHARE Wave 8 was administered using a computer-assisted personal interview method, but the second survey – using a computer-assisted telephone interview method (CATI), reaching a total of n=1207 respondents in Latvia.

The first step of data analysis was focused on determining the level of social isolation by examining the measures of intensity of social contacts and characteristics of social networks. The second step drew upon the proposed hypothesis that social isolation caused by the restrictions to social contacts affected the feelings of loneliness and caused changes to the psychoemotional state of the elderly population in Latvia during the first wave of the COVID-19 pandemic.

Social isolation is addressed at two levels: the primary, consisting of family links and contacts with family members (adult children, close relatives), and the secondary, consisting of contacts and relations with friends, neighbours, distant relatives. In order to assess the level of social isolation in the group of people aged 50+, social isolation indexes have been calculated at different levels of social relations. The calculation of the index was based on measurements of the frequency of social contacts. In addition, an index was calculated to encompass two types of contacts: direct and indirect (by phone, via internet, etc.). The first stage calculated individual indexes for the primary network of social contacts (frequency of respondents' contacts with adult children and close relatives) and the secondary network of social contacts (frequency of contacts with neighbours, friends, etc.). At the second stage, a summary isolation index was calculated for each individual. The resulting index value was split into quartiles creating a new scale variable where 1 means frequent social contacts, 2 – average frequency of social contacts, 3 – average isolation and 4 – high level of social isolation. The high level mostly includes individuals who didn't contact any of their closest relatives or friends or those who didn't have relatives or friends at all. In order to assess the differences in social isolation across socio-demographic groups, a chi-square test was employed.

Further data analyses were carried out using the statistical package Stata (version 14.1). To account for complex survey sampling design, Taylor series linearization methods were used to calculate the standard errors. Statistical significance was evaluated at the .05 level of significance. The Rao-Scott Chi

square test was used to test for differences in categorical variables between the “no psychoemotional problems”, “having psychoemotional problems”, and “having psychoemotional problems which increased during the pandemic” respondent groups. Student’s t-test was used for continuous variables. The Rao-Scott Chi square statistic was chosen over classical Pearson Chi square to account for the complex sampling design (Rao & Scott, 1984).

Multinomial logistic regressions were used to calculate relative risk ratios (RRR) for both a crude (Model 1) and adjusted (Model 2) model. Multinomial logistic regression was used because the dependent variable (psychoemotional problems) had more than two categories. Three categories of psychoemotional status (no PE problems, having PE problems, having PE problems and problems which increased during the pandemic) were used for the dependent variable. Model 1 examined the association between PE problem status (as the dependent variable) and each of the factor variables, separately controlling for gender and age. The regression analyses performed for Model 2 examined the multivariate associations between depression and each factor variable, controlling for the presence of other variables in the model according to maximum likelihood ratios.

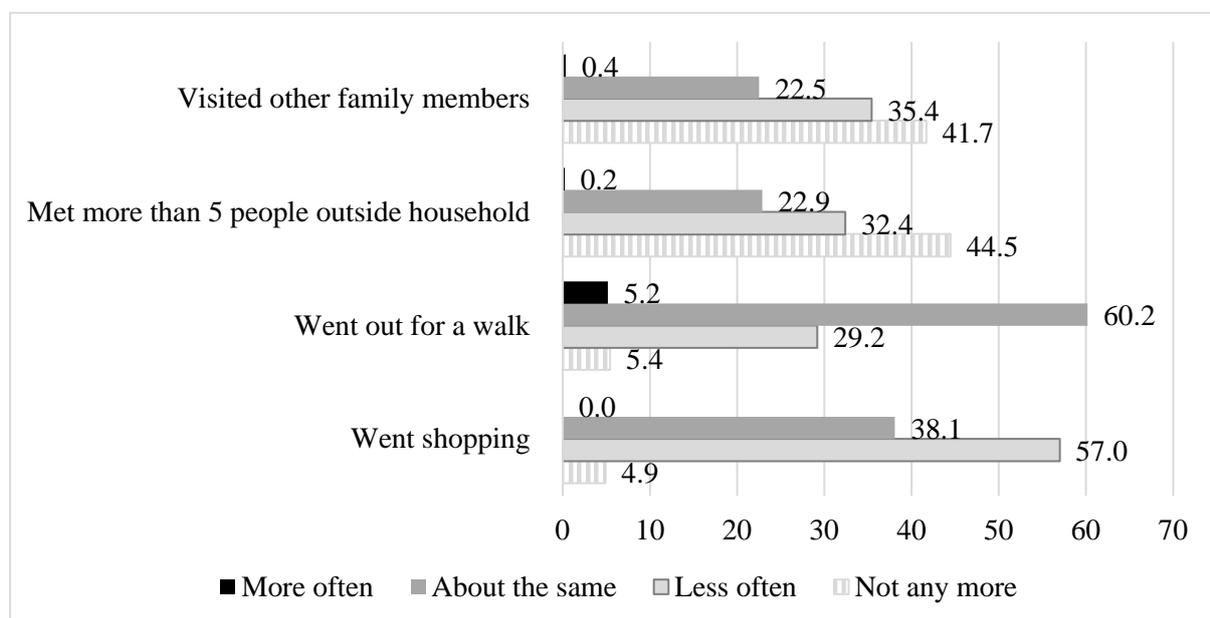
## **Results**

Social contacts and social networks form the social capital of individuals and social groups. Each group of contacts in every person’s life has its special meaning. Weakening of social contacts or the lack thereof at any given level can be successfully compensated with expanding contacts at another level. For instance, upon reaching retirement age, the loss of colleagues or shrinking number of friends due to exit from the labour market can be compensated by close family relations, contacts with children and grandchildren. In daily life, the most frequent are contacts at the primary level of family relations. This is especially characteristic of the 50+ age group, for whom family ties and contacts dominate among other types of social contacts. Restrictions that were introduced in response to the COVID-19 pandemic led to the decrease of social contacts at virtually any level.

As it was expected, since the beginning of the pandemic, the level of activity has decreased in most spheres of social activity. The only exception was walks in the fresh air that became even more frequent than before – 5% of individuals went outside to take a walk more often than before (Figure 1). We observe that the pandemic-induced restrictions had a significant effect on the sphere of social contacts. The majority of the population aged 50+ (75% on average) visited their family members less often or not at all, as well as didn’t meet with other people outside their household: 42% didn’t meet with family members living outside their household, but 44% skipped on direct contacts with other people outside

their household, and respectively 35% and 32% reduced the frequency of such contacts compared to pre-pandemic times.

Since the beginning of the COVID-19 outbreak, half (51%) of the elderly had rarely met or not seen their children at all, but 86% had not seen their relatives. The vast majority (62%) had not met in person or had rarely seen their neighbours, friends or other acquaintances during that period. Data analysis shows that most of the elderly have replaced contacts in person during the COVID-19 with calls or digital communications with their closest relatives. 90% have been in contact with their children every day or several days a week by phone or by digital means, and part of the group (49%) has maintained regular phone or digital contacts with their relatives, while two-thirds have been in contact with their neighbours and friends in this format.



*Figure 1 Engagement in Various Activities since the Outbreak of COVID-19 Compared to the Situation prior to the Outbreak (%)*

Source: authors' estimates. Data: SHARE Wave 8 COVID-19 Survey data, Latvia, n=837.

### **Impact of Social Isolation on Mental State**

The data shows that both at the general and at the primary level of contacts (frequency of relationships and contacts with adult children and close relatives) there are differences according to the individuals' age and sex. Affiliation to a group with high levels of isolation is more common in men at a statistically significant level. But it is interesting to note that this applies directly to primary relations and social contacts in general. On the other hand, when secondary contacts are considered (including contacts with friends and other non-relatives),

men fall into the opposite group to those who are more socially active/involved. This may be partially explained to have originated from the fact that women traditionally are more likely to maintain contacts with children and relatives.

*Table 1 Level of Social Engagement and Isolation according to Gender (column %)*

	Primary contact network		Secondary contact network		Summary contacts	
	Men	Women	Men	Women	Men	Women
High level of engagement	22	29	21	17	20	21
Average level of engagement	14	18	28	27	30	34
Average level of isolation	23	23	19	22	16	19
High level of isolation	41	29	32	34	34	26

Source: authors' estimates. Data: Wave 8 COVID-19 Survey data, Latvia, n=965.

As age increases, so do the risks of social exclusion. However, here too there are differences depending on the level of contacts. In the primary group of contacts, while the aforementioned trend holds, a higher level of isolation is typical for individuals aged 58–64, possibly due to the fact that most individuals in this age group are employed and, therefore, spend less time on contacts with adult children and grandchildren. Meanwhile, these individuals usually do not yet need help or care from children or other relatives and that may also have its effect on the frequency of contacts. The effect of age on the frequency/extent of contacts is very significant in the secondary group of contacts. As age increases, the risks of social isolation also increase to a very significant extent, and in the age group 75+ the level of social isolation is almost 3 times higher than in the age group 50–57 years. According to the aggregate index, the risks of social isolation increase steadily and at a statistically significant level as an individual's age increases. Thus, we can unequivocally conclude that the highest degree of social isolation is characteristic of pensioner households and single pensioners who have a relatively narrow or lack a group of primary contacts (family members, children, close relatives) as well as a group of secondary contacts which are particularly affected by pandemic restrictions.

*Table 2 Level of Social Engagement and Isolation Depending on Age (%)*

	50–57 years	58–64 years	65–74 years	75+ years
<b>Primary contact network</b>				
High level of engagement	36	22	22	29
Average level of engagement	23	16	15	14
Average level of isolation	14	20	30	26
High level of isolation	28	41	34	31

	50–57 years	58–64 years	65–74 years	75+ years
<b>Secondary contact network</b>				
High level of engagement	34	21	13	10
Average level of engagement	28	32	27	23
Average level of isolation	21	19	26	18
High level of isolation	17	28	33	49
<b>Summary of social contacts network</b>				
High level of engagement	34	19	13	17
Average level of engagement	35	32	34	29
Average level of isolation	15	20	20	17
High level of isolation	16	28	33	37

Source: authors' estimates. Data: Wave 8 COVID-19 Survey data, Latvia, n=965.

Before analyzing the impact of social contacts and other factors on changes in psychoemotional health during the COVID-19 pandemic, we will look at the direct relationship between social isolation indicators and changes in the state of psychoemotional health. The results presented in Table 3 indicate that there is a significant association between declining social contacts, social isolation, and psychoemotional health in general. Individuals with average and high levels of social isolation are more likely to experience some of the changes in psychoemotional health conditions. But those who have experienced changes in all measured psychoemotional health indicators, namely those respondents who have experienced sleep problems, nervousness or anxiety, and sadness and depression during the pandemic are 3 times more represented in the group with the highest level of social isolation.

*Table 3 Influence of Social Engagement and Isolation on Changes in Psychoemotional States (%)*

	High level of engagement	Average level of engagement	Average level of isolation	High level of isolation
No changes in mental state	60	56	51	45
Have experienced negative changes in any of the psychoemotional health indicators	35	34	39	39
Have experienced negative changes in several psychoemotional health indicators	5	10	10	16

Source: authors' estimates. Data: SHARE Wave 8. COVID-19 Survey data, Latvia, n=972.

To assess the effect of social isolation on changes in psychoemotional state in the context of other factors, multinomial logistic regression models were calculated by including the experience of changes in psychoemotional states in one of three dimensions (sleep disorders, nervousness, depression) as a dependent variable and as the independent variables – the characteristics described above, which have a statistically significant correlation with psychoemotional health indicators. Table 4 shows the regression results, including only those independent variables that have a statistically significant effect on psychoemotional health. The results of the analysis show that the lack of social contacts is a significant risk factor for the development of psychoemotional health disorders. As previously concluded, based on the results of descriptive statistics, psychoemotional disorders are also associated with gender and age. Women, as well as the elderly, are more likely to experience any of the psychoemotional disorders during COVID-19. Accordingly, as the age of the respondents decreases, the probability that a person will experience some change in the psychoemotional state decreases. The characteristic of the emotional state, namely the feeling of loneliness, was included in the model as an independent variable. Loneliness is closely correlated with the level of social isolation of the individual and this variable is also very significantly associated with psychoemotional disorders. People who often feel lonely are also more likely to experience psychoemotional disorders. Self-assessment of health status is one more important influencing factor; those who rate their health status as poor or rather bad have more frequently experienced changes in psychoemotional status during COVID-19. The level of material well-being is also the cause of psychoemotional stress, which is undoubtedly exacerbated by the crisis. In this case, the model includes a subjective assessment of material well-being (“how easy is it to make ends meet”). The lower the level of material prosperity, the more likely it is that the crisis will increase the risk of disorders in the psychoemotional sphere as well.

### **Conclusion**

In the age group 50+, almost one fifth of respondents have felt the effects of the COVID-19 crisis on their psychoemotional health, although overall health has deteriorated by only 8%, according to subjective assessments.

Face-to-face social contacts during COVID-19 have not occurred or have been extremely rare for most of the elderly. These are usually replaced by personal phone contacts or electronic communication with relatives or friends. On the whole, high social isolation has been found to occur in 36% of men and 26% of women.

During the COVID-19 pandemic, loneliness was often felt by 9% of the population aged 50+, while in 30% of the elderly the feeling of loneliness was

sometimes present during that period. Most elderly people (61%), despite the restrictions on social contact during the COVID-19 crisis, have never felt alone.

Among those who are single and more socially isolated, there is a significantly higher proportion of people who have experienced a deterioration of their psychoemotional state: three times more people who have experienced nervousness, anxiety, twice as many people who have experienced sadness or depression but 44% of this group have experienced sleep disorders .

The results of the analysis show that women, as well as the elderly, are more likely to experience psychoemotional disorders during COVID-19. Also, those who rate their health status as poor or rather bad and who had experienced loneliness, have experienced changes in their psychoemotional status more often.

## Discussion

Previous analyses based on data from the SHARE study have shown that social isolation at the primary level of social contacts is particularly pronounced among seniors who were once divorced (Žilinčíková & Kreidl, 2018). According to research, divorce also affects the ability of older people to form close relationships and care for their grandchildren (Žilinčíková & Kreidl, 2018). Further research is needed to examine how social isolation during the COVID-19 pandemic has been affected by previous family life experiences, including divorce.

**Table 4 Relative Risk Ratios\* of Increased Psychoemotional Problems during COVID-19 and of Existing but not Increased Psychoemotional Problems According to Gender, Age and Contacts**

Factor	Model 1			Model 2		
	RRR increased problems vs non-problems	RRR non-increased problems vs non-problems	RRR increased problems vs non-increased	RRR increased problems vs non-problems	RRR non-increased problems vs non-problems	RRR increased problems vs non-increased
<b>Gender</b>						
Male	1.0	1.0	1.0	1.0	1.0	1.0
Female	<b>2.3<sup>(c)</sup></b> (1.6–3.2)	<b>1.7<sup>(b)</sup></b> (1.2–2.3)	1.3 (0.9–2.0)	<b>2.1<sup>(c)</sup></b> (1.4–3.1)	1.4 <sup>(d)</sup> (1.0–1.9)	1.4 (0.9–2.2)
<b>Age</b>						
50–57	1.0	1.0	1.0	1.0	1.0	1.0
58–64	1.2 (0.7–2.1)	1.2 (0.7–2.2)	1.0 (0.5–1.9)	0.9 (0.5–1.6)	1.0 (0.5–1.8)	0.9 (0.4–1.8)
65–74	1.6 <sup>(d)</sup> (0.9–2.7)	<b>2.9<sup>(c)</sup></b> (1.7–4.9)	0.6 <sup>(d)</sup> (0.3–1.1)	0.9 (0.5–1.6)	<b>1.8<sup>(a)</sup></b> (1.0–3.2)	<b>0.5<sup>(a)</sup></b> (0.3–1.0)
75+	<b>2.9<sup>(c)</sup></b> (1.6–4.9)	<b>3.7<sup>(c)</sup></b> (2.2–6.4)	0.8 (0.4–1.4)	1.0 (1.0–2.1)	<b>1.9<sup>(a)</sup></b> (1.0–3.3)	0.6 <sup>(d)</sup> (0.3–1.1)

Factor	Model 1			Model 2		
	RRR increased problems vs non-problems	RRR non-increased problems vs non-problems	RRR increased problems vs non-increased	RRR increased problems vs non-problems	RRR non-increased problems vs non-problems	RRR increased problems vs non-increased
<b>Economic difficulties</b>						
No	1.0	1.0	1.0	1.0	1.0	1.0
Yes	<b>2.2<sup>(c)</sup></b> (1.6–3.1)	<b>2.0<sup>(c)</sup></b> (1.4–2.7)	1.1 (0.8–1.6)	1.4 <sup>(d)</sup> (1.0–2.1)	<b>1.4<sup>(a)</sup></b> (1.0–2.0)	1.0 (0.7–1.4)
<b>Perceived health</b>						
Good	1.0	1.0	1.0	1.0	1.0	1.0
Fair	<b>3.7<sup>(c)</sup></b> (2.4–5.9)	<b>2.9<sup>(c)</sup></b> (2.0–4.3)	1.2 (0.8–2.2)	<b>2.9<sup>(c)</sup></b> (1.8–4.6)	<b>2.5<sup>(c)</sup></b> (1.7–3.7)	1.2 (0.7–2.0)
Poor	<b>12.9<sup>(c)</sup></b> (7.1–23.7)	<b>5.2<sup>(c)</sup></b> (2.9–9.4)	<b>2.5<sup>(b)</sup></b> (1.3–4.6)	<b>7.5<sup>(c)</sup></b> (4.0–14.3)	<b>3.6<sup>(c)</sup></b> (2.0–6.5)	<b>2.1<sup>(a)</sup></b> (1.1–4.0)
<b>Contacts</b>						
High	1.0	1.0	1.0	1.0	1.0	1.0
Medium	<b>4.4<sup>(b)</sup></b> (1.9–10.6)	1.6 <sup>(d)</sup> (1.0–2.7)	<b>2.8<sup>(a)</sup></b> (1.1–7.0)	<b>4.3<sup>(b)</sup></b> (0.4–1.1)	1.6 (0.9–2.7)	<b>2.8<sup>(a)</sup></b> (1.1–7.0)
Low/very low	<b>9.6<sup>(c)</sup></b> (3.8–24.3)	1.7 <sup>(d)</sup> (0.9–3.4)	<b>5.4<sup>(b)</sup></b> (2.0–15.0)	<b>8.5<sup>(c)</sup></b> (3.2–22.5)	1.6 (0.8–3.2)	<b>5.2<sup>(b)</sup></b> (1.9–14.3)
<b>Feeling lonely</b>						
No	1.0	1.0	1.0	1.0	1.0	1.0
Yes	<b>4.6<sup>(c)</sup></b> (3.2–6.6)	<b>3.2<sup>(c)</sup></b> (2.2–4.4)	1.5 <sup>(d)</sup> (1.0–2.1)	<b>3.4<sup>(c)</sup></b> (2.3–5.0)	<b>2.5<sup>(c)</sup></b> (1.8–3.6)	1.3 (0.9–2.0)

\* – 95% Confidence interval.

**Model 1** results from multinomial logistic regressions expressed as relative risk ratio (RRR) with respective 95% confidence intervals controlled for gender and age.

**Model 2** results from multinomial logistic regressions expressed as relative risk ratio (RRR) with respective 95% confidence intervals controlled for all factor variables (gender, age, experienced economic difficulties, perceived health status, social contacts, feeling lonely).

Bolded text indicates a significant difference from the reference group:  $a=p < 0.05$ ;  $b=p \leq 0.01$ ;  $c=p \leq 0.001$ ;  $d=p < 0.1$ .

Reducing social contacts and restricting the availability of social support in times of crisis can lead to an increase in social isolation, the development of psychoemotional disorders, as well as mental illnesses. Previous research suggests that deteriorating mental health, in turn, contributes to an unjustified increase in demand for health care services (Rancans, Vrublevska, Snikere, Koroleva & Trapencieris, 2014). For these reasons, it is important to continue to provide social support during the COVID-19 pandemic, to involve volunteers in providing support and assistance to reduce loneliness, isolation and the associated deterioration of mental health, and to implement strategic communication at the

national level that reduces anxiety among seniors. Initiatives that improve the ability of older people to cope with social isolation on their own should also be implemented, such as strengthening social links through online applications, video chats, telephone helplines or support groups, lifestyle changes (regular sleep and wake-up calls, physical activity and nutrition) and cognitive stimulation (use of mobile applications or stimulation via mental exercises). Such activities are particularly important for people with a history of cognitive impairment (Sepúlveda-Loyola et al., 2020).

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*Koroleva et al., 2021. Effects of Social Isolation on Mental Health During Covid-19 in the Context of Ageing*

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