ELSEVIER

Psychological well-being, risk factors, and coping strategies with social isolation and new challenges in times of adversity caused by the COVID-19 pandemic

Andras N. Zsido [*],[1], Nikolett Arato [1], Orsolya Inhof, Timea Matuz-Budai, Diana T. Stecina [1], Beatrix Labadi

Institute of Psychology, University of Pécs, Hungary

A B S T R A C T

Objective: COVID-19 triggers anxiety and fear due to several reasons, and thus, dealing with it requires prolonged coping mechanisms. When the number of infections soared, to slow the spread, many governments decided to close universities and dormitories and move teaching to online platforms. The majority of the university students decided to move back home to their parents changing their social lives. Here, we aimed to point to risk, as well as protective factors, and understand the influence of these factors on both physical and psychological indicators of well-being. Further, to discover how university students cope with maintaining their social lives during the COVID-19 pandemic.
Method: We collected online survey data from multiple university sources. Participants (N = 605) completed measures of emotion regulation strategies, knowledge on the disease, contamination fear, perceived social support, worrying and intolerance of uncertainty, quality of sleep, well-being, emotional stability, anxiety, and depression.
Results: Our results showed that the most prominent risk and protective factors that were most strongly associated with the indicators of well-being were rumination, catastrophizing, positive refocusing, and social support from family; respectively.
Conclusion: These results have implications for professionals working with and helping (e.g., as counselors) people during the challenges of an emergency.

1. Introduction

1.1. Relevance and background of the study

The new coronavirus disease (COVID-19) has emerged as the biggest pandemic of the 21st century. Most governments took serious steps to slow down the spread of the disease by enforcing social distancing, closing workplaces, universities, schools, and other facilities. These enactments have resulted in social isolation for most citizens (Casale & Flett, 2020; Lin, 2020). For university students, the pandemic and the following governmental regulations have resulted in online studying, leaving the dormitories, losing jobs, moving back home, increasing the distance from their friends and loved ones. The sudden change in life circumstances can cause great distress for the students (Evans et al.,

2021; Martínez-Lorca et al., 2020; Paton & Flin, 1999). Nevertheless, there could be significant individual differences in the impact of COVID-19 lockdown on people's lives (Bäuerle et al., 2020; Garfin et al., 2020) similarly to other emergencies and disasters (Zsido et al., 2020). For instance, for many students, shutting down universities might have severe negative effects on their lifestyles, especially for those from more vulnerable populations (e.g., from lower SES, unstable families, having mental health illness, or learning challenges). They might lose all the campus facilities (i.e., part-time job, dormitory, mental health consultation, IT infrastructure) and they might also lose many aspects of their social life (i.e., loss of many social relationships, forced to move back to parents). In contrast, some students have successfully dealt with the COVID-19 lockdown, and the changes have not interfered with their lives (e.g., staying in their homes or rented flats with friends, parents

keep supporting them financially). Many people have experienced similar due to the toll on health care systems, loss of loved ones, jobs, and the devastating economic impact (Callaway et al., 2020). The way students experienced the COVID-19 caused crisis affecting their psychological well-being (e.g., sleeping patterns and overall mental health) poses an opportunity to study what strategies and risk factors are associated with resilience in face of adversity in people in general.

In the present study, our aim was to understand how risk and protective factors predicted well-being in face of adversity, in a sample of Hungarian university students during the first wave of the COVID-19 pandemic. We sought to explore what are the potential risk and protective factors that can prevent or help students to overcome the difficulties (i.e., governmental restrictions, social distancing, isolation, online academic life) associated with a prolonged emergency.

1.2. Risk factors of the current situation

The social distancing severely limits humans' fundamental need to maintain social relationships and swings social life to online platforms. It has been proposed (Moody, 2001; Valkenburg & Peter, 2009) that online communication is impersonal and shallow compared to face-to-face communication because it offers fewer channels of communication, e.g. by lack of speech and facial expression. Although the availability of video chatting is growing by the year, it is still not as readily available to everyone and cannot replace maintaining relationships through face-to-face communication on a daily basis for a prolonged time. During the COVID-19 lockdown, the only form of maintaining social relationships was online communication that created a discrepancy between the desired quality and actual social relationships; which is, by definition, loneliness (Ong et al., 2016). Therefore, social distancing despite all the technological advancements can result in loneliness (cf. paradox of social distancing (Rozenkrantz et al., 2020; Tyrrell & Williams, 2020)). It is well-established that loneliness has serious mental and physical health effects in various age groups and threatens the sense of safety and well-being of the individual (Holt-Lunstad, 2018; Lábadi et al., 2021; Leigh-Hunt et al., 2017; Stickley et al., 2016).

Coping with distressing situations is particularly difficult for those who have difficulty tolerating uncertainty (Laposa et al., 2015). Tolerance of uncertainty is an individual's propensity towards a negative or a positive response provoked by the conscious awareness of ignorance about a situation (Hillen et al., 2017). Intolerance of uncertainty was significantly associated with obsessive-compulsive disorder as well as obsessions and checking symptoms (Laposa et al., 2015; Timpano et al., 2014; Wheaton & Ward, 2020). An elevated vulnerability of showing the symptoms of contamination fear might have further implications in the present circumstances as the danger of contamination might keep such individuals on alert constantly, the required safety behaviors might worsen their symptoms (Olatunji et al., 2011), or all these can cause further mental problems such as anxiety (Hongbo & Waqas, 2020; Wheaton et al., 2012). In fact, intolerance of uncertainty was suggested to be a transdiagnostic factor across anxiety disorders and depression (Jensen et al., 2016; Strout et al., 2018). Symptoms of mood and anxiety disorders were linked to intolerance of uncertainty through the mediating effects of maladaptive emotion regulation strategies (Jaso et al., 2020). A recent study (Satici et al., 2020) showed the crucial mediating role of rumination between intolerance of uncertainty and fear of COVID-19, arguing that the prominent focus on negative emotions has a grave impact on mental well-being. These factors can also result in excessive worrying (McDermott et al., 2019).

1.3. Possible protective factors

Under the current circumstances, to help the coping of individuals the identification of protective factors is even more crucial than pointing to various risk factors. It has long been posited (Cohen & Wills, 1985;

Thoits, 2011, 1986; Uchino et al., 2012; Vine et al., 2019; Zeidner et al., 2016) that social support reduces the disturbing psychological and physiological impacts of exposure to negative life events (e.g. cortisol stress response) and promotes positive feelings (e.g. happiness). Although computer-mediated communication might not replace face-to-face communication regarding quality (Moody, 2001; Valkenburg & Peter, 2009), maintaining the relationships and sharing experiences is still important and can have numerous positive outcomes. For instance, reconstructing events from a broader perspective during an online conversation has been shown to have positive psychological effects such as feeling better and a sense of closure (Lee et al., 2019). Further, face-to-face communication is still possible, e.g., when relatives and peers live at close distances. Nonetheless, since social contacts are limited in number, the quality of the existing ones is further prioritized in coping with stressful events (Williams et al., 2018).

Previous studies (Lopes et al., 2011; Williams et al., 2018) suggested that the quality of social relationships and the capability to maintain these relationships depend on the individuals' emotion regulation ability. Further, the ability to effectively regulate one's emotions is an important factor in determining well-being as well (Garnefski & Kraaij, 2006; Gross & John, 2003). Cognitive coping strategies, both adaptive and maladaptive, have an important role in the relationship between stressors and well-being (Kraaij & Garnefski, 2019; Kraiss et al., 2020), such that coping with stressors by using more adaptive emotion regulation strategies results in a more positive while using more maladaptive strategies results in a more negative subjective well-being. Further, the use of emotion regulation strategies that are viewed as more adaptive (e. g., positive refocusing and positive reappraisal) are connected to better sleep quality (Mauss et al., 2013) and tend to promote psychological well-being by reducing anxiety and depression (Garnefski & Kraaij, 2006; Shiota, 2006). As emotion regulatory processes could be affected by close others, social support is an important resource that determines how emotion regulation is closely related to well-being (Marroquín et al., 2019, 2017).

1.4. Goals of the present study

The COVID-19 pandemic has caused an unexpected sudden disruption of students' life, but until now there is not much knowledge about the long-term and complex effects of the disease outbreaks on the mental health of people. In the present investigation, our overarching goal was to test how their actual psychological state (defined as anxiety, depression, quality of sleep, and well-being) is associated with various risk and protective factors under the psychological burdens caused by a prolonged emergency, i.e., the COVID-19 pandemic. In particular, we hypothesized that loneliness, intolerance of uncertainty, contamination fear, false beliefs about COVID-19, maladaptive emotional regulation strategies and worrying will have a negative effect, while adaptive emotional regulation strategies and perceived social support will have a positive effect on the actual psychological state.

2. Methods

2.1. Participants

A total of 605 university students (474 females) volunteered to participate in our survey. Their mean age was 22.2 (SD = 5.6, age range: 18–30). See Table 1 for a more detailed description of demographic variables. Students were recruited through the Internet by posting invitations on various university forums and mailing lists. The present survey was performed during the first peak of the COVID-19 pandemic (in April–May 2020). The research was approved by the Hungarian United Ethical Review Committee for Research in Psychology (reference nr. 2020-51) and was carried out in accordance with the Code of Ethics of the World Medical Association (Declaration of Helsinki). Informed consent was obtained from all participants.

Table 1

Descriptive statistics for participants who perceived a negative change or perceived no change with regard to age, well-being (WHO-5), depression (BDI-6), anxiety (STAI-6), loneliness (UCLA), quality of sleep (AIS-8), gender, marital status and living circumstances.

	Group	N	Mean	SD
Age	Negative change	463	22.21	2.60
	No change	142	22.20	2.49
WHO-5	Negative change	463	6.22	2.72
	No change	142	8.96	2.94
BDI-6	Negative change	463	4.99	2.78
	No change	142	2.70	2.31
STAI-6	Negative change	463	15.37	3.89
	No change	142	12.43	3.79
UCLA	Negative change	463	18.83	4.01
	No change	142	16.82	4.19
AIS-8	Negative change	463	6.98	4.13
	No change	142	4.08	3.37
Gender	Negative change	463	22.1% male	
	No change	142	18.4% male	
Marital status	Negative change	463	49.9% single	
	No change	142	47.2% single	
Lives with	Negative change	463	72.6% family	
	No change	142	70.4% family	

2.2. Measures

2.2.1. Demographic information

Demographic questions included age, gender, marital status of the respondent, and the people living in the same household (e.g., staying home with the family). We also assessed participants' *perceived change* in their relationships, mood, life quality, and financial status measured on four 7-point semantic differential scales. We asked them to indicate whether they felt any change in the given area due to the restrictions from −3 "Negative change" to 3 "Positive change".

2.2.2. Measures of well-being

The survey was created based on a literature review on mental well-being and with the use of standardized research tools examining subjective well-being and symptoms of depression, anxiety, insomnia, and loneliness. We aimed to target a wide range of factors that contribute to an individual's mental health and psychological well-being. We selected five questionnaires to include both positive and negative contributing factors to well-being (used as outcome variables in the present study). In this section, we present these measures with a short description.

We used the 5-item World Health Organization Well-Being Index (WHO-5) to measure the *subjective well-being* of the respondents (Topp et al., 2015). Items were scored on a 4-point Likert-type scale. The scale has adequate reliability and validity; in our study, McDonald's ω was 0.79.

To measure *depressive mood*, we have used the short, 6-item version of the Beck Depression Inventory (BDI-6) (Blom et al., 2012). Items were presented on 4-point scales, similarly to the original 21-item version. The BDI-6 has adequate psychometric properties, in our study the McDonald's ω was 0.72.

We used the 6-item short version of the state scale of the Spielberger State-Trait Anxiety Inventory (STAI-6) to measure *anxiety symptom severity* (Marteau & Bekker, 1992). Participants rated each item on a 4-point Likert-type scale. The STAI-6 was shown to have adequate reliability and validity; in this study, the McDonald's ω was 0.86.

We used the 8-item version of the UCLA Loneliness Scale (UCLA) (Hays & Dimatteo, 1987) to measure *loneliness*. Participants rated the items on a 4-point Likert-type scale. The ULS-8 has sound psychometric properties; in this study, the McDonald's ω was 0.72.

The 8-item version of the Athens Insomnia Scale (AIS-8) was sued to measure *subjective sleep quality* (Soldatos et al., 2000). Participants rated each item on a 4-point Likert-type scale. The AIS-8 is a widely used questionnaire with sound psychometric properties; in the present

sample, the McDonald's ω was 0.82.

2.2.3. Risk and protective factors

Based on the literature reviewed in the Introduction, we identified six prominent risk and protective factors that could be associated with well-being and are associated with resilience in the face of adversity. We selected standardized measures of reaction to uncertainty, contamination fear, worry, maladaptive emotion regulation (as potential risk factors) and social support, knowledge, adaptive emotion regulation (as potential protective factors) to be used as outcome variables in the present study. In this section, we present these measures with a short description.

We used the 12-item version of the Intolerance of Uncertainty Scale (IUS-12) (Carleton et al., 2007; Zsido et al., 2021). The IUS-12 measures *reactions to ambiguous situations, uncertainty, and the future* on a single factor. Participants rated each item on a 5-point Likert-type scale. The IUS-12 has been widely used with good reliability and validity. In our study, McDonald's ω was 0.89.

We used the Contamination Fear subscale (CF) of the Padua Inventory (Burns et al., 1996), a 10-item one-factor scale assessing *contamination obsessions and washing compulsions*. Participants rated each item on a 5-point Likert-type scale. The measure has been shown to have high internal validity on numerous samples; in the present study, the McDonald's ω was 0.87.

We used the 18-item short version of the Cognitive Emotion Regulation Questionnaire (CERQ-short) (Garnefski & Kraaij, 2006). The questionnaire measures a total of nine *adaptive* (Putting into Perspective, Positive Refocusing, Positive Reappraisal, Acceptance, and Planning.) *and maladaptive strategies* (Self-blame, Other-blame, Rumination, and Catastrophizing). Items are measured on 5-point Likert-type scales. The psychometric properties of the CERQ-short have been proven to be good, in our study, McDonald's ω values for the adaptive scales were 0.74, 0.82, 0.73, 0.83, and 0.52 and for the maladaptive scales were 0.56, 0.76, 0.84, and 0.76; respectively. We decided not to include the Planning and Self-blame subscales in our analyses due to their very low reliability.

The 12-item version of the Multidimensional Scale of Perceived Social Support (MSPSS) was used to measure perceived *social support from friends, family, and significant others* (Zimet et al., 1988). Participants rate the items on a 7-point Likert-type scale. The MSPSS has sound psychometric properties; in this study, the McDonald's ω was 0.92 for friends, 0.94 for family, and 0.91 for significant others.

We used the Worry Domains Questionnaire (WDQ) (Tallis et al., 1992) to measure *nonpathological worrying* about five domains (i.e. relationships, lack of confidence, aimless future, work incompetence, and financial). Items were scored on 4-point Likert-type scales. The WDQ is a psychometrically sound measure. We used the total score of the WDQ, the McDonald's ω for the scales were 0.81, 0.87, 0.81, 0.80, and 0.85; respectively.

Participants' knowledge about the characteristics of COVID-19 and related appropriate health behavior was measured by nine true-false questions. True items were based on the public advice by the World Health Organization (e.g., *The incubation period of the new coronavirus does not exceed 14 days*), false items were based on common misbeliefs spreading on the internet (e.g., *Infection can be detected by holding your breath*). Each correct answer means one point, incorrect answers meant zero points. The total score ranged from 0 to 10, with higher scores indicating more knowledge.

2.3. Data analyses

First, we used independent samples *t*-tests to compare participants who reached a negative-sum score of answers to the perceived change questions with those who reached a total score of zero or a positive value on these questions on indicators of psychological well-being: subjective well-being (WHO-5), depressive mood (BDI-6), anxiety (STAI-6),

loneliness (UCLA), and sleep quality (AIS-8).

Then, we used linear regression modeling (enter method) to examine the risk and protective factors for indicators of psychological well-being on all participants. The five indicators were tested in separate models. In the model, an indicator of psychological well-being (e.g. WHO-5) served as the dependent variable and CERQ subscales, MSPSS subscales, WDQ subscales, IUS total score, CF total score, COVID knowledge, and COVID fake news belief served as independent predictor variables. The Durbin-Watson test for autocorrelation was nonsignificant in all five models ($DWs < 3$, $ps > .1$) indicating that there was no multicollinearity (VIF values were also less than 4). The analyses were performed using the JAMOVI statistical software version 1.1.9.0 for Windows (Jamovi Project, 2018).

3. Results

Overall, our respondents reported a rather negative change in their mood (M = -1.07, SD = 1.35), relationships (M = -1.34, SD = 1.28), and life quality (M = -0.41, SD = 1.44). Further, regarding our questions on COVID knowledge the overwhelming majority of our respondents (95.37% and 96.36%; respectively) identified 3 or more true items out of 4, and 4 or more false items out of 5. We did not find an effect of these variables on our model, possibly due to the lack of variability among our respondents. Detailed descriptive statistics of the sample on all measures used are shown in Table 1.

In total, 463 respondents (76.5%) reported an overall negative change in their perceived mood, relationships, life quality and financial status. People who reported negative change scored lower on the WHO-5 ($t(603) = 10.30$, $p < .001$, Cohen's d = 0.99) scale and scored higher on BDI-6 ($t(603) = 8.90$, $p < .001$, Cohen's d = 0.85), STAI-6 ($t(603) = 7.92$, $p < .001$, Cohen's d = 0.76), UCLA ($t(603) = 5.16$, $p < .001$, Cohen's d = 0.50) and AIS-8 ($t(603) = 7.64$, $p < .001$, Cohen's d = 0.73) scales compared to those who indicated no or positive change. There was no difference in age ($t(603) = 0.03$, $p = .974$), gender ($X^2(1) = 1.88$, $p = .349$), marital status ($X^2(1) = 1.48$, $p = .224$) and whom they lived with ($X^2(3) = 3.51$, $p = .319$) across the two groups.

Regarding WHO-5, the linear regression model ($F(19,585) = 15.3$, $p < .001$, $R_a^2 = 0.310$) showed that the *risk factors* that negatively predicted WHO-5 scores were CERQ rumination ($\beta = -0.13$, 95% CI: -0.21 to -0.04, $p = .003$), WDQ future ($\beta = -0.16$, 95% CI: -0.28 to -0.04, $p = .008$), WDQ work ($\beta = -0.15$, 95% CI: -0.26 to -0.05, $p = .004$), and COVID knowledge ($\beta = -0.08$, 95% CI: -0.15 to -0.02, $p = .015$). While the *protective factors* that positively predicted WHO-5 score were CERQ positive refocus ($\beta = 0.20$, 95% CI: 0.13 to 0.28, $p < .001$), CERQ positive reappraisal ($\beta = 0.21$, 95% CI: 0.13 to 0.29, $p < .001$) and MSPSS family ($\beta = 0.10$, 95% CI: 0.02 to 0.19, $p = .017$).

Regarding BDI-6, the linear regression model ($F(19,585) = 25.3$, $p < .001$, $R_a^2 = 0.451$) showed that the *risk factors* that positively predicted BDI-6 scores were CERQ rumination ($\beta = 0.19$, 95% CI: 0.12 to 0.27, $p < .001$), CERQ catastrophizing ($\beta = 0.10$, 95% CI: 0.03 to 0.18, $p = .007$), MSPSS friends ($\beta = 0.08$, 95% CI: 0.00 to 0.16, $p = .043$), WDQ lack of confidence ($\beta = 0.16$, 95% CI: 0.04 to 0.28, $p = .009$), WDQ future ($\beta = 0.11$, 95% CI: 0.00 to 0.22, $p = .044$) and WDQ work ($\beta = 0.28$, 95% CI: 0.19 to 0.37, $p < .001$). While the *protective factors* that negatively predicted BDI-6 score were CERQ positive refocus ($\beta = -0.09$, 95% CI: -0.16 to -0.02, $p = .009$), CERQ positive reappraisal ($\beta = -0.11$, 95% CI: -0.19 to -0.04, $p = .004$), and MSPSS family ($\beta = -0.18$, 95% CI: -0.26 to -0.10, $p < .001$).

Regarding STAI-6, the linear regression model ($F(19,585) = 13.2$, $p < .001$, $R_a^2 = 0.301$) showed that the *risk factors* that positively predicted STAI-6 scores were CERQ rumination ($\beta = 0.21$, 95% CI: 0.12 to 0.29, $p < .001$), CERQ catastrophizing ($\beta = 0.09$, 95% CI: 0.00 to 0.18, $p = .041$), and WDQ future ($\beta = 0.13$, 95% CI: 0.01 to 0.25, $p = .036$). While the *protective factors* that negatively predicted STAI-6 score was CERQ positive refocus ($\beta = -0.09$, 95% CI: -0.17 to -0.01, $p = .021$).

Regarding UCLA, the linear regression model ($F(19,585) = 26.8$, $p < $

.001, $R_a^2 = 0.465$) showed that the *risk factors* that positively predicted UCLA scores were CERQ rumination ($\beta = 0.12$, 95% CI: 0.05 to 0.20, $p = .002$), WDQ relationships ($\beta = 0.18$, 95% CI: 0.08 to 0.29, $p < .001$), WDQ lack of confidence ($\beta = 0.34$, 95% CI: 0.22 to 0.46, $p < .001$) and IUS total ($\beta = 0.08$, 95% CI: 0.01 to 0.15, $p = .035$). While the *protective factors* that negatively predicted UCLA score were CERQ positive reappraisal ($\beta = -0.09$, 95% CI: -0.16 to -0.01, $p = .020$) and MSPSS friends ($\beta = -0.18$, 95% CI: -0.26 to -0.10, $p < .001$).

Finally, regarding AIS-8, the linear regression model ($F(19,585) = 14.8$, $p < .001$, $R_a^2 = 0.303$) showed that the *risk factors* that positively predicted AIS scores were CERQ rumination ($\beta = 0.20$, 95% CI: 0.12 to 0.29, $p < .001$), CERQ catastrophizing ($\beta = 0.11$, 95% CI: 0.02 to 0.19, $p = .014$), MSPSS friends ($\beta = 0.11$, 95% CI: 0.02 to 0.20, $p = .019$), WDQ work ($\beta = 0.21$, 95% CI: 0.11 to 0.32, $p < .001$), COVID knowledge ($\beta = 0.09$, 95% CI: 0.02 to 0.15, $p = .012$) and COVID fake ($\beta = 0.09$, 95% CI: 0.02 to 0.16, $p = .011$). While the *protective factors* that negatively predicted AIS score were CERQ positive refocus ($\beta = -0.08$, 95% CI: -0.15 to -0.00, $p = .045$), CERQ positive reappraisal ($\beta = -0.11$, 95% CI: -0.19 to -0.02, $p = .014$) and MSPSS family ($\beta = -0.17$, 95% CI: -0.25 to -0.08, $p < .001$).

4. Discussion

In the present study, we explored the protective and risk factors that could be linked to the psychological well-being of university students during the COVID-19 pandemic. The majority of the students reported overall negative changes in their lives and those who experienced negative effects of the current epidemics showed more negative mental health symptoms (depression, anxiety, and sleeping quality). Compared to studies and cut-off values published before the COVID-19 pandemic on similar samples to ours, university students in our study had overall poor well-being (Topp et al., 2015), reported higher-than-average anxiety (Cramer & Hartleib, 2001) and loneliness (Satici et al., 2016). In contrast, the current sample did not reach the cut-off score on the depression scale (Blom et al., 2012), and sleep quality scores were similar to a pre-pandemic sample (Pusztai et al., 2019). Our results support previous findings indicating epidemics might increase the negative psychological effects (Cao et al., 2020; Coelho et al., 2020; Evans et al., 2021; Lábadi et al., 2021; Martínez-Lorca et al., 2020; Tzur Bitan et al., 2020) such as anxiety, poor well-being, and loneliness.

Previous studies suggested that individuals who have difficulty tolerating uncertainty have limited access to emotion regulation strategies and are more prone to worry (Evans et al., 2021; Ouellet et al., 2019), and thus, coping with distressing situations is particularly difficult for them (McDermott et al., 2019). The combined effect of these variables could then result in symptoms of mood and anxiety disorders (Jaso et al., 2020). Further, it has also been shown that loneliness has a negative effect on the well-being of an individual (Holt-Lunstad, 2018; Lábadi et al., 2021; Leigh-Hunt et al., 2017; Stickley et al., 2016; Tyrrell & Williams, 2020). In contrast, factors such as perceived support from family, friends, or a significant other and the use of adaptive emotion regulation strategies tend to promote psychological well-being by reducing anxiety and depressive mood (Ellis et al., 2020; Garnefski & Kraaij, 2006; Shiota, 2006). Our results mostly support these previous findings and integrate them to show how different aspects of psychological well-being (e.g., depressive mood) are associated with different risk and protective factors.

The most prominent risk factor was rumination having a connection with all well-being indicators. Individuals using this type of maladaptive emotion regulation strategy are concentrating on their negative feelings and thoughts related to the current situation (Kraaij & Garnefski, 2019). Rumination has been shown to be responsible for the high comorbidity of several mental disorder diagnoses, e.g., anxiety, mood, and psychotic disorders (Balzarotti et al., 2016; Silveira et al., 2020). This is in line with a recent study (Satici et al., 2020) showing that rumination mediated the connection between intolerance of uncertainty and fear of

COVID-19 because the focus on negative emotions impacts mental well-being. Additionally, catastrophizing (i.e., accentuation of only the negative effects of the current situation) similarly was linked to three of the five factors of psychological well-being, resulting in a depressive mood, anxiety, and problems with sleep quality. This is in line with previous results showing a relationship between catastrophizing and increased health anxiety (Marcus et al., 2008) and poorer well-being (Balzarotti et al., 2016). Therefore, the use of these maladaptive emotion regulation strategies prevents adaptive coping that would improve individuals' well-being (Garnefski & Kraaij, 2006; Kraiss et al., 2020; McDermott et al., 2019; Shiota, 2006).

Other risk factors were various worry domains (relationships, lack of confidence, future, and work). In line with previous results (Muris et al., 2005; Yook et al., 2010), worrying about the future could decrease subjective well-being and increase depressive mood and anxiety. Thus, having the biggest impact among the worry domains. Amidst the situation caused by the pandemic outbreak, life circumstances are uncertain and threaten the normal course of life involving future prospects, e.g., people do not know when things will return to normal or a possible second, even more dangerous outbreak. Thus, the uncertainty of the situation may result in greater worrying (Dugas et al., 2001; Yook et al., 2010). Further, intolerance of uncertainty was associated with subjective well-being and loneliness. The current situation is accompanied by several features that contribute to its uncertainty (e.g., fake news regarding the nature of the virus, job loss, uncertainty about how academic life will continue, etc.). Therefore, individuals who find it hard to accept and adapt to the difficulties caused by COVID-19 might further experience psychic hardship as supported by our results and by previous ones as well (Coelho et al., 2020; Jensen et al., 2016; Miranda et al., 2008; Zsido et al., 2020). Somewhat surprisingly COVID knowledge (true and false belief) had little effect, while contamination fear did not correlate with the indicators of well-being. The lack of effect could mean that by staying home, participants could overcome these fears, although knowing more true and false information about the virus is associated with lower levels of subjective well-being and more sleeping problems.

The most prominent protective factors were positive refocusing and reappraisal correlating with four out of five of the psychological well-being indicators. Our results supported the previously showed positive effects of adaptive emotion regulation strategies (Garnefski & Kraaij, 2006; Gross & John, 2003; Kraiss et al., 2020; Trompetter et al., 2017) because by concentrating on positive feelings and pleasant events, individuals could facilitate their subjective well-being and may manage to decrease their depressive moods, anxiety symptoms, and feelings of loneliness. Especially through positive refocusing, which is the attempt of thinking about pleasant and happy situations instead of thinking about the harmful event (Garnefski & Kraaij, 2006). Further, perceived social support from family appeared to be another key protective factor associated with the indicators of psychological well-being, similarly to a previous study in adolescents showing the positive effects of family time (Ellis et al., 2020). As it has been previously shown (Ellis et al., 2020; Fuller-Iglesias et al., 2015; Turner, 1981), social support from families promoted students' coping with the negative effects caused by the pandemic and resulted in a higher evaluation of subjective well-being and better sleep quality, whereas decreased depressive mood. Other protective factors had more specific effects. In general, the use of adaptive emotion regulation strategies was linked to an overall better psychological well-being. This is in line with previous studies showing that the use of adaptive emotion regulation strategies reduced anxiety and depressive mood (Garnefski & Kraaij, 2006; Kraaij & Garnefski, 2019; Kraiss et al., 2020; Shiota, 2006). Contrary to our expectations this was not true for perceived social support as the effect of perceived support from a significant other was nonsignificant and support from friends correlated only with loneliness negatively but positively with depressive mood and the quality of sleep. This finding is somewhat similar to a recent study (Ellis et al., 2020) showing that during the pandemic more time connecting to friends online was related to greater

depression in adolescents. On the one hand, the lack of effect of perceived support from a significant other is not surprising considering that about half of our participants were single and the majority of those in a relationship lived with friends and not with their spouses. On the other hand, the contradictory result that showed social support from friends decreasing quality of sleep could simply mean that these participants spent more time with friends at the expense of sleep, for example staying up late chatting online or talking with others they live with.

Some limitations of our study shall be noted. The participants of our study are not representative of the Hungarian population, they all enroll in the same university, although different faculties. Further, longitudinal data would have been more informative (e.g., by measuring the psychological state at the beginning of quarantine and at a later time as well), and there might be other indicators that contributed to the psychological well-being of the participating students. Further, this would allow the direct comparison of scores on measures of well-being to see if there is a systematic change.

In sum, our results showed what individual and social factors contribute to the psychological well-being of university students during the COVID-19 pandemic. Rumination and catastrophizing, as maladaptive emotion regulation strategies, intolerance of uncertainty, worrying about the future were risk factors of depressive mood, anxiety, loneliness, sleep problems, and lower overall subjective well-being. In contrast, social support from family and positive refocusing, an adaptive emotion regulation strategy may serve as protective factors against the negative effects of a prolonged emergency and its consequences. Further, these results have implications for professionals working with and helping (e.g., as counselors) individuals during the challenges of COVID-19 and future stressful events or catastrophes. Preventive steps could be taken to teach people self-monitoring to recognize maladaptive patterns in their thoughts, facilitate open and frequent communication by experts, and raise awareness of the importance of social support. The impact of these measures may go beyond resolving the current situation.

Funding

Availability of data and material

Data were newly acquired for the present study. The data is available on Mendeley Data open data repository, DOI: 10.17632/rdtzrj235c.1.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Consent to participate

Informed consent was obtained from all individual participants included in the study.

Declaration of competing interest

The authors declare that the research was conducted in the absence

of any commercial or financial relationships that could be construed as a potential conflict of interest. The authors report no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi. org/10.1016/j.actpsy.2022.103538.

References

Balzarotti, S., Biassoni, F., Villani, D., Prunas, A., & Velotti, P. (2016). Individual differences in cognitive emotion regulation: Implications for subjective and psychological well-being. *Journal of Happiness Studies, 17*, 125–143. https://doi.org/10.1007/s10902-014-9587-3

Bäuerle, A., Teufel, M., Musche, V., Weismüller, B., Kohler, H., Hetkamp, M., Dörrie, N., Schweda, A., & Skoda, E. M. (2020). Increased generalized anxiety, depression and distress during the COVID-19 pandemic: A cross-sectional study in Germany. *Journal of Public Health (Oxford, England), 42*, 672–678. https://doi.org/10.1093/pubmed/fdaa106

Blom, E. H., Bech, P., Högberg, G., Larsson, J. O., & Serlachius, E. (2012). Screening for depressed mood in an adolescent psychiatric context by brief self-assessment scales - testing psychometric validity of WHO-5 and BDI-6 indices by latent trait analyses. *Health and Quality of Life Outcomes, 10*, 1–6. https://doi.org/10.1186/1477-7525-10-149

Burns, G. L., Keortge, S. G., Formea, G. M., & Sternberger, L. G. (1996). Revision of the Padua inventory of obsessive compulsive disorder symptoms: Distinctions between worry, obsessions, and compulsions. *Behaviour Research and Therapy, 34*, 163–173. https://doi.org/10.1016/0005-7967(95)00035-6

Callaway, E., Cyranoski, D., Mallapaty, S., Stoye, E., & Tollefson, J. (2020). The coronavirus pandemic in five powerful charts. *Nature, 579*, 482–483. https://doi.org/10.1038/d41586-020-00758-2

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research, 287*, Article 112934. https://doi.org/10.1016/j.psychres.2020.112934

Carleton, N. R., Norton, M. A. P. J., & Asmundson, G. J. G. (2007). Fearing the unknown: A short version of the intolerance of uncertainty scale. *Journal of Anxiety Disorders, 21*, 105–117. https://doi.org/10.1016/j.janxdis.2006.03.014

Casale, S., & Flett, G. L. (2020). Interpersonally-based fears during the covid-19 pandemic: Reflections on the fear of missing out and the fear of not mattering constructs. *Clinical Neuropsychiatry, 17*, 88–93. https://doi.org/10.36131/CN20200211

Coelho, C. M., Suttiwan, P., Arato, N., & Zsido, A. N. (2020). On the nature of fear and anxiety triggered by COVID-19. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2020.581314

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*. https://doi.org/10.1037/0033-2909.98.2.310

Cramer, K. M., & Hartleib, M. (2001). The attitudes to chocolate questionnaire: A psychometric evaluation. *Personality and Individual Differences, 31*, 931–942. https://doi.org/10.1016/S0191-8869(00)00195-1

Dugas, M. J., Gosselin, P., & Ladouceur, R. (2001). Intolerance of uncertainty and worry: Investigating specificity in a nonclinical sample. *Cognitive Therapy and Research, 25*, 551–558. https://doi.org/10.1023/A:1005553414688

Ellis, W. E., Dumas, T. M., & Forbes, L. M. (2020). Physically isolated but socially connected: Psychological adjustment and stress among adolescents during the initial COVID-19 crisis. *Canadian Journal of Behavioural Science, 52*, 177–187. https://doi.org/10.1037/cbs0000215

Evans, S., Alkan, E., Bhangoo, J. K., Tenenbaum, H., & Ng-Knight, T. (2021). Effects of the COVID-19 lockdown on mental health, wellbeing, sleep, and alcohol use in a UK student sample. *Psychiatry Research, 298*, Article 113819. https://doi.org/10.1016/j.psychres.2021.113819

Fuller-Iglesias, H. R., Webster, N. J., & Antonucci, T. C. (2015). The complex nature of family support across the life span: Implications for psychological well-being. *Developmental Psychology, 51*, 277–288. https://doi.org/10.1037/a0038665

Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology*. https://doi.org/10.1037/hea0000875

Garnefski, N., & Kraaij, V. (2006). Cognitive emotion regulation questionnaire - development of a short 18-item version (CERQ-short). *Personality and Individual Differences, 41*, 1045–1053. https://doi.org/10.1016/j.paid.2006.04.010

Gross, J. J., & John, O. P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology, 85*, 348–362. https://doi.org/10.1037/0022-3514.85.2.348

Hays, R. D., & Dimatteo, M. R. (1987). A short-form measure of loneliness. *Journal of Personality Assessment, 51*, 69–81. https://doi.org/10.1207/s15327752jpa5101_6

Hillen, M. A., Gutheil, C. M., Strout, T. D., Smets, E. M. A., & Han, P. K. J. (2017). Tolerance of uncertainty: Conceptual analysis, integrative model, and implications for healthcare. *Soc. Sci. Med., 180*, 62–75. https://doi.org/10.1016/j.socscimed.2017.03.024

Holt-Lunstad, J. (2018). Why social relationships are important for physical health: A systems approach to understanding and modifying risk and protection. *Annual Review of Psychology, 69*, 437–458. https://doi.org/10.1146/annurev-psych-122216-011902

Hongbo, L., & Waqas, M. (2020). *Psychological Predictors of Anxiety in Response to the Covid-19 Pandemic: Evidence From Pakistan.*

Project, J. (2018). *Jamovi.*

Jaso, B. A., Hudiburgh, S. E., Heller, A. S., & Timpano, K. R. (2020). The relationship between affect intolerance, maladaptive emotion regulation, and psychological symptoms. *International Journal of Cognitive Therapy, 13*, 67–82. https://doi.org/10.1007/s41811-019-00061-7

Jensen, D., Cohen, J. N., Mennin, D. S., Fresco, D. M., & Heimberg, R. G. (2016). Clarifying the unique associations among intolerance of uncertainty, anxiety, and depression. *Cognitive Behaviour Therapy, 45*, 431–444. https://doi.org/10.1080/16506073.2016.1197308

Kraaij, V., & Garnefski, N. (2019). The behavioral emotion regulation questionnaire: Development, psychometric properties and relationships with emotional problems and the cognitive emotion regulation questionnaire. *Personality and Individual Differences, 137*, 56–61. https://doi.org/10.1016/j.paid.2018.07.036

Kraiss, J. T., ten Klooster, P. M., Moskowitz, J. T., & Bohlmeijer, E. T. (2020). The relationship between emotion regulation and well-being in patients with mental disorders: A meta-analysis. *Comprehensive Psychiatry, 102*, Article 152189. https://doi.org/10.1016/j.comppsych.2020.152189

Lábadi, B., Arató, N., Budai, T., Inhóf, O., Stecina, D. T., Sík, A., & Zsidó, A. N. (2021). Psychological well-being and coping strategies of elderly people during the COVID-19 pandemic in Hungary. *Aging & Mental Health*. https://doi.org/10.1080/13607863.2021.1902469

Laposa, J. M., Collimore, K. C., Hawley, L. L., & Rector, N. A. (2015). Distress tolerance in OCD and anxiety disorders, and its relationship with anxiety sensitivity and intolerance of uncertainty. *Journal of Anxiety Disorders, 33*, 8–14. https://doi.org/10.1016/j.janxdis.2015.04.003

Lee, D. S., Orvell, A., Briskin, J., Shrapnell, T., Gelman, S. A., Ayduk, O., Ybarra, O., & Kross, E. (2019). When chatting about negative experiences helps-and when it hurts: Distinguishing adaptive versus maladaptive social support in computer-mediated communication. *Emotion*. https://doi.org/10.1037/emo0000555

Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*. https://doi.org/10.1016/j.puhe.2017.07.035

Lin, C.-Y. (2020). Social reaction toward the 2019 novel coronavirus (COVID-19). *Social Health and Behavior, 3*, 1. https://doi.org/10.4103/shb.shb_11_20

Lopes, P. N., Nezlek, J. B., Extremera, N., Hertel, J., Fernández-Berrocal, P., Schütz, A., & Salovey, P. (2011). Emotion regulation and the quality of social interaction: Does the ability to evaluate emotional situations and identify effective responses matter? *Journal of Personality, 79*, 429–467. https://doi.org/10.1111/j.1467-6494.2010.00689.x

Marcus, D. K., Hughes, K. T., & Arnau, R. C. (2008). Health anxiety, rumination, and negative affect: A mediational analysis. *Journal of Psychosomatic Research, 64*, 495–501. https://doi.org/10.1016/j.jpsychores.2008.02.004

Marroquín, B., Nolen-Hoeksema, S., Clark, M. S., & Stanton, A. L. (2019). Social influences on cognitive processing in enacted social support: Effects on receivers' cognitive appraisals, emotion, and affiliation. *Anxiety, Stress Coping, 32*, 457–475. https://doi.org/10.1080/10615806.2019.1619702

Marroquín, B., Tennen, H., & Stanton, A. L. (2017). Coping, emotion regulation, and well-being: Intrapersonal and interpersonal processes. *The Happy Mind: Cognitive Contributions to Well-Being., 253–274*. https://doi.org/10.1007/978-3-319-58763-9_14

Marteau, T. M., & Bekker, H. (1992). The development of a six-item short-form of the state scale of the Spielberger state-trait anxiety inventory (STAI). *The British Journal of Clinical Psychology, 31*, 301–306. https://doi.org/10.1111/j.2044-8260.1992.tb00997.x

Martínez-Lorca, M., Martínez-Lorca, A., Criado-Álvarez, J. J., Armesilla, M. D. C., & Latorre, J. M. (2020). The fear of COVID-19 scale: Validation in Spanish university students. *Psychiatry Research*. https://doi.org/10.1016/j.psychres.2020.113350

Mauss, I. B., Troy, A. S., & LeBourgeois, M. K. (2013). Poorer sleep quality is associated with lower emotion-regulation ability in a laboratory paradigm. *Cogn. Emot., 27*, 567–576. https://doi.org/10.1080/02699931.2012.727783

McDermott, K. A., Smith, H. L., & Cougle, J. R. (2019). An examination of perseverative thinking and perception of threat from emotion as mechanisms underlying the relationship between distress intolerance and internalizing symptoms. *Cognitive Therapy and Research, 43*, 561–569. https://doi.org/10.1007/s10608-018-9960-3

Miranda, R., Fontes, M., & Marroquín, B. (2008). Cognitive content-specificity in future expectancies: Role of hopelessness and intolerance of uncertainty in depression and GAD symptoms. *Behaviour Research and Therapy, 46*, 1151–1159. https://doi.org/10.1016/j.brat.2008.05.009

Moody, E. J. (2001). Internet use and its relationship to loneliness. *Cyberpsychology & Behavior, 4*, 393–401. https://doi.org/10.1089/109493101300210303

Muris, P., Roelofs, J., Rassin, E., Franken, I., & Mayer, B. (2005). Mediating effects of rumination and worry on the links between neuroticism, anxiety and depression. *Pers. Individ. Dif., 39*, 1105–1111. https://doi.org/10.1016/j.paid.2005.04.005

Olatunji, B. O., Etzel, E. N., Tomarken, A. J., Ciesielski, B. G., & Deacon, B. (2011). The effects of safety behaviors on health anxiety: An experimental investigation. *Behaviour Research and Therapy, 49*, 719–728. https://doi.org/10.1016/j.brat.2011.07.008

Ong, A. D., Uchino, B. N., & Wethington, E. (2016). Loneliness and health in older adults: A mini-review and synthesis. *Gerontology*. https://doi.org/10.1159/000441651

Ouellet, C., Langlois, F., Provencher, M. D., & Gosselin, P. (2019). Intolerance of uncertainty and difficulties in emotion regulation: Proposal for an integrative model of generalized anxiety disorder. *European Review of*<span/

>Applied Psychology, *69*, 9–18. https://doi.org/10.1016/j.erap.2019.01.001

Paton, D., & Flin, R. (1999). Disaster stress: An emergency management perspective. *Disaster Prevention and Management, 8*, 261–267. https://doi.org/10.1108/09653569910283897

Pusztai, D., Rozmann, N., Horváth, É., Szunomár, S., & Fusz, K. (2019). Health behavior, sleep quality and subjective health status of foreign students in Hungary. *Archives of Psychiatric Nursing, 33*, 83–87. https://doi.org/10.1016/j.apnu.2019.06.002

Rozenkrantz, L., Bernstein, M. H., & Hemond, C. C. (2020). A paradox of social distancing for SARS-CoV-2: Loneliness and heightened immunological risk. *Molecular Psychiatry*. https://doi.org/10.1038/s41380-020-00861-w

Satici, B., Saricali, M., Satici, S. A., & Griffiths, M. D. (2020). Intolerance of uncertainty and mental wellbeing: Serial mediation by rumination and fear of COVID-19. *International Journal of Mental Health and Addiction, 1–12*. https://doi.org/10.1007/s11469-020-00305-0

Satici, S. A., Uysal, R., & Deniz, M. E. (2016). Linking social connectedness to loneliness: The mediating role of subjective happiness. *Personality and Individual Differences, 97*, 306–310. https://doi.org/10.1016/j.paid.2015.11.035

Shiota, M. N. (2006). Silver linings and candles in the dark: Differences among positive coping strategies in predicting subjective well-being. *Emotion, 6*, 335–339. https://doi.org/10.1037/1528-3542.6.2.335

Silveira, É.d. M., Passos, I. C., Scott, J., Bristot, G., Scotton, E., Teixeira Mendes, L. S., … Kauer-Sant'Anna, M. (2020). Decoding rumination: A machine learning approach to a transdiagnostic sample of outpatients with anxiety, mood and psychotic disorders. *J. Psychiatr. Res., 121*, 207–213. https://doi.org/10.1016/j.jpsychires.2019.12.005

Soldatos, C. R., Dikeos, D. G., & Paparrigopoulos, T. J. (2000). Athens insomnia scale: Validation of an instrument based on ICD-10 criteria. *Journal of Psychosomatic Research, 48*, 555–560. https://doi.org/10.1016/S0022-3999(00)00095-7

Stickley, A., Koyanagi, A., Koposov, R., Blatný, M., Hrdlička, M., Schwab-Stone, M., & Ruchkin, V. (2016). Loneliness and its association with psychological and somatic health problems among Czech, Russian and U.S. adolescents. *BMC Psychiatry, 16*, 128. https://doi.org/10.1186/s12888-016-0829-2

Strout, T. D., Hillen, M., Gutheil, C., Anderson, E., Hutchinson, R., Ward, H., Kay, H., Mills, G. J., & Han, P. K. J. (2018). Tolerance of uncertainty: A systematic review of health and healthcare-related outcomes. *Patient Education and Counseling, 101*, 1518–1537. https://doi.org/10.1016/j.pec.2018.03.030

Tallis, F., Eysenck, M., & Mathews, A. (1992). A questionnaire for the measurement of nonpathological worry. *Personality and Individual Differences, 13*, 161–168. https://doi.org/10.1016/0191-8869(92)90038-Q

Thoits, P. A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behavior, 52*, 145–161. https://doi.org/10.1177/0022146510395592

Thoits, P. A. (1986). Social support as coping assistance. *Journal of Consulting and Clinical Psychology, 54*, 416–423. https://doi.org/10.1037/0022-006X.54.4.416

Timpano, K. R., Çek, D., Rubenstein, L. M., Murphy, D., & Schmidt, N. B. (2014). Exploring the association between obsessive-compulsive symptoms and loneliness: Consideration of specificity and gender. *Journal of Cognitive Psychotherapy, 28*, 264–273. https://doi.org/10.1891/0889-8391.28.4.264

Topp, C. W., Østergaard, S. D., Søndergaard, S., & Bech, P. (2015). The WHO-5 well-being index: A systematic review of the literature. *Psychotherapy and Psychosomatics, 84*, 167–176. https://doi.org/10.1159/000376585

Trompetter, H. R., de Kleine, E., & Bohlmeijer, E. T. (2017). Why does positive mental health buffer against Psychopathology? An exploratory study on self-compassion as a resilience mechanism and adaptive emotion regulation strategy. *Cognitive Therapy and Research, 41*, 459–468. https://doi.org/10.1007/s10608-016-9774-0

Turner, R. J. (1981). Social support as a contingency in psychological well-being. *Journal of Health and Social Behavior, 22*, 357. https://doi.org/10.2307/2136677

Tyrrell, C. J., & Williams, K. N. (2020). The paradox of social distancing: Implications for older adults in the context of COVID-19. *Psychological Trauma Theory Research Practice and Policy, 12*, S214. https://doi.org/10.1037/tra0000845

Tzur Bitan, D., Grossman-Giron, A., Bloch, Y., Mayer, Y., Shiffman, N., & Mendlovic, S. (2020). Fear of COVID-19 scale: Psychometric characteristics, reliability and validity in the Israeli population. *Psychiatry Research, 289*, Article 113100. https://doi.org/10.1016/j.psychres.2020.113100

Uchino, B. N., Bowen, K., Carlisle, M., & Birmingham, W. (2012). Psychological pathways linking social support to health outcomes: A visit with the "ghosts" of research past, present, and future. *Soc. Sci. Med.*. https://doi.org/10.1016/j.socscimed.2011.11.023

Valkenburg, P. M., & Peter, J. (2009). Social consequences of the internet for adolescents: A decade of research. *Current Directions in Psychological Science, 18*, 1–5. https://doi.org/10.1111/j.1467-8721.2009.01595.x

Vine, V., Hilt, L. M., Marroquín, B., & Gilbert, K. E. (2019). Socially oriented thinking and the biological stress response: Thinking of friends and family predicts trajectories of salivary cortisol decline. *Psychophysiology, 56*. https://doi.org/10.1111/psyp.13461

Wheaton, M. G., Abramowitz, J. S., Berman, N. C., Fabricant, L. E., & Olatunji, B. O. (2012). Psychological predictors of anxiety in response to the H1N1 (swine flu) pandemic. *Cognitive Therapy and Research, 36*, 210–218. https://doi.org/10.1007/s10608-011-9353-3

Wheaton, M. G., & Ward, H. E. (2020). Intolerance of uncertainty and obsessive-compulsive personality disorder. *Personal. Disord. Theory, Res. Treat.*. https://doi.org/10.1037/per0000396

Williams, W. C., Morelli, S. A., Ong, D. C., & Zaki, J. (2018). Interpersonal emotion regulation: Implications for affiliation, perceived support, relationships, and well-being. *Journal of Personality and Social Psychology, 115*, 224–254. https://doi.org/10.1037/pspi0000132

Yook, K., Kim, K. H., Suh, S. Y., & Lee, K. S. (2010). Intolerance of uncertainty, worry, and rumination in major depressive disorder and generalized anxiety disorder. *Journal of Anxiety Disorders, 24*, 623–628. https://doi.org/10.1016/j.janxdis.2010.04.003

Zeidner, M., Matthews, G., & Shemesh, D. O. (2016). Cognitive-social sources of wellbeing: Differentiating the roles of coping style, social support and emotional intelligence. *Journal of Happiness Studies, 17*, 2481–2501. https://doi.org/10.1007/s10902-015-9703-z

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of Personality Assessment, 52*, 30–41. https://doi.org/10.1207/s15327752jpa5201_2

Zsido, A. N., Arato, N., Inhof, O., Budai, T., Stecina, D. T., & Labadi, B. (2021). A Bizonytalanság Intolerancia Skála magyarnyelvű adaptációja. In *Mentálhigiéné és Pszichoszomatika*.

Zsido, A. N., Csokasi, K., Vincze, O., & Coelho, C. M. (2020). The emergency reaction questionnaire – First steps towards a new method. *International Journal of Disaster Risk Reduction, 49*, Article 101684. https://doi.org/10.1016/j.ijdrr.2020.101684