

The Short-Term Psychological Impact of the COVID-19 Pandemic in Psychiatric Patients: Evidence for Differential Emotion and Symptom Trajectories in Belgium



EGON DEJONCKHEERE 

MARLIES HOUBEN 

EVELIEN SCHAT 

EVA CEULEMANS 

PETER KUPPENS 

**Author affiliations can be found in the back matter of this article*



ABSTRACT

The spread of COVID-19 and the implementation of various containment strategies across the world have seriously disrupted people's everyday life, and it is especially uncertain what the psychological impact of this pandemic will be for vulnerable individuals, such as psychiatric (ex-)patients. Governments fear that this virus outbreak may prelude a major mental health crisis, and psychiatrists launch critical calls to flatten an upcoming mental ill-health surge. Here, we aim to add nuance to the idea that we are heading towards a mental health pandemic and that psychiatric populations will unavoidably (re)develop psychopathology. Despite being subjected to the same challenges posed by COVID-19, we argue that people with a history of psychiatric illness will psychologically deal with this adversity in different ways. To showcase the short-term differential impact of COVID-19 on patients' mental health, we present the day-to-day emotion and symptom trajectories of different psychiatric patients that took part in an experience sampling study before, during, and after the start of the first wave of the COVID-19 pandemic in March 2020 and associated lockdown measures in Belgium. Piecewise regression models show that not all patients' psychological well-being is affected to a similar degree. As such, we argue that emphasizing human resilience, also among the more vulnerable in society, may be opportune in these unsettling times.

CORRESPONDING AUTHOR:

Dr. Marlies Houben

Faculty of Psychology and Educational Sciences, KU Leuven, Tiensestraat 102, Leuven, 3000, Belgium

Mind-Body Research and Center for Contextual Psychiatry, Department of Neurosciences, KU Leuven, Kapucijnenvoer 7, Leuven, 3000, Belgium

marlies.houben@kuleuven.be

KEYWORDS:

COVID-19; mental health crisis; resilience; experience sampling methods, psychological well-being

TO CITE THIS ARTICLE:

Dejonckheere, E., Houben, M., Schat, E., Ceulemans, E., & Kuppens, P. (2021). The Short-Term Psychological Impact of the COVID-19 Pandemic in Psychiatric Patients: Evidence for Differential Emotion and Symptom Trajectories in Belgium. *Psychologica Belgica*, 61(1), pp. 163–172. DOI: <https://doi.org/10.5334/pb.1028>

INTRODUCTION

The COVID-19 pandemic, together with the ensuing isolation or lockdown measures taken by a greater number of countries, poses unprecedented challenges in various life domains (Druss, 2020). Whether it is the fear of virus contagion, the restriction of real-life contact with family and friends, or the economic insecurity associated with unemployment: Drastic changes in physical, social and professional life are thought to have major direct or indirect repercussions for our psychological health as expressed by public surveys and expert panels (Holmes et al., 2020). Consequently, both researchers and policy makers call for a close and timely monitoring of people's mental well-being (United Nations, 2020), as they anticipate a steep increase in psychological problems, reflected in, for example, elevated suicide levels and self-harm prevalence (based on empirically established suicide models [Kawohl & Nordt, 2020] and preliminary case evidence [Sahoo et al., 2020]), increased alcohol abuse and relapse (personal opinion based on scientific literature review; Clay & Parker, 2020), or domestic violence (extrapolations based on previous natural disasters' effects on family violence; Campbell, 2020). Moreover, in several countries, national assessments already reported preliminary evidence for a significant surge in depression and anxiety-related complaints in the general population (Ambraw et al., unpublished data; Chaix et al., 2020; Qiu et al., 2020), underscoring the potential psychological impact of the coronavirus outbreak and related quarantine measures.

Despite the pandemic's global proportions, it is feared that this outbreak may disproportionately affect vulnerable and at-risk individuals (Druss, 2020), and people with a pre-existing psychiatric illness are thought to be among the worst affected in the community (Kavoor, 2020). Based on a preliminary literature review about the potential psychological impact of COVID-19, Rajkumar (2020) expects that, while this pandemic may trigger temporary uncertainty, stress and worry in healthy individuals, for patients who suffer from mental disorders, the threat of this virus is thought to add burden to their psychiatric condition. As a consequence, this pandemic could cultivate the further deterioration of their mental health status. Similarly, for ex-patients or recovered individuals, initial case studies illustrate that this pandemic may prelude a new episode of debilitating psychiatric symptoms or instigate a relapse into old, yet maladaptive coping strategies (Columb, Hussain, & O'Gara, 2020; Mehra et al., 2020). Compounded by a limited or interrupted access to mental health facilities as a result of physical distancing measures (Duan & Zhu, 2020; Kavoor, Chakravarthy, & John, 2020), an executive summary of the United Nations (2020) warns that *the coronavirus pandemic could have the seeds of a major mental health crisis*, in which many at-risk individuals (re-)experience psychological complaints. In response,

researchers and health care professionals launch critical calls to urgently *flatten the mental-ill health curve* (Carbone, 2020; Xiang et al., 2020).

Notwithstanding long-term monitoring of people's psychological well-being will be imperative in the aftermath of this virus outbreak, we argue that emphasizing human resilience (Bonanno & Burton, 2013; Kalisch et al., 2017), also among the more vulnerable in society, may be opportune in these unsettling times. The premonition of a mental health *pandemic* or *crisis* may falsely create the impression that this unusual event will psychologically affect all people with (a history of) mental illness in a similar devastating way. However, decades of research decisively demonstrate critical person-situation interactions in psychological adjustment after exposure to an impactful stressor, a pattern that has been established in both healthy and at-risk populations, and for different types of hardship (Bonanno & Burton, 2013; Fergusson et al., 2014; Waugh & Koster, 2015). Although COVID-19 shows new and unique stressor features (e.g., the invisibility of the virus, its global proportions; Polizzi, Lynn & Perry, 2020), this pandemic also shows many characteristics shared with other commonly investigated stressors (Anisman & Merali, 1999), such as chronicity (e.g., war or famine; Lothe & Heggen, 2003; McAndrew et al. 2017), uncontrollability and unpredictability (e.g., tsunamis, hurricanes or earthquakes; Norris, Tracy & Galea, 2009; Tsuboya et al., 2016; Sasaki et al., 2019). Therefore, based on this body of research, we expect that, despite being subjected to the same challenges posed by the COVID-19 pandemic, at-risk individuals will psychologically deal with this adversity in different ways, depending on their own personal situation and their available coping abilities (e.g., Bonanno, Westphal, & Mancini, 2011). As such, we hypothesize that at least a significant subgroup of people with existing psychiatric difficulties will resiliently cope with this unusual stressor, showing either no or limited psychological distress in response to the pandemic, or temporary psychological distress that constitutes a normal reaction to an abnormal event. In contrast, a second subgroup may develop sustained stress-related mental dysfunction, with (sub)clinical symptoms aggravating over time.

PARTICIPANTS

To showcase the short-term differential impact of COVID-19 on at-risk people's mental health, we analyzed the day-to-day mood and symptom trajectories of four single case participants (4 women; $M_{\text{age}} = 39$, $SD_{\text{age}} = 17.17$) who took part in a longitudinal and tailored experience sampling (ESM) study (for a general introduction on ESM, see Myin-Germeys et al., 2018). Participants all had a history of psychiatric illness and were contacted in February / March 2019 during the rehabilitation phase of their psychiatric hospitalization in a large Belgian clinic. They were part of a subject pool for another clinical ESM

study (of which the study details are described elsewhere; Heininga et al., 2019), and we invited them without obligation to take part in a longitudinal and idiosyncratic adaptation of this protocol (more information below).

In total, 12 participants began the tailored ESM protocol. However, five participants had already discontinued the study before the first Belgian lockdown ensued (i.e., March, 13th) for reasons unrelated to COVID-19 (e.g., because the protocol was incompatible with their jobs). Another three participants had no ESM data directly following the start of the first lockdown due to temporary drop-out (e.g., due to temporary loss of the study phone) or technical issues. Consequently, only four participants were able to provide adequate time series data around the time the first lockdown was issued.

During an intake session prior to the actual ESM protocol, participants' clinical status was evaluated using the Dutch version of the Structured Clinical Interview for DSM-IV Axis I disorders (SCID-I; Van Groenestijn et al., 1999) and DSM-IV Axis II disorders (SCID-II; Weertman, Arntz, & Kerkhofs, 2000). Interrater reliability, based on a comparison of the two first-authors' ratings of seven randomly selected audiotaped interviews, was excellent, both at the level of diagnosis ($\kappa = .93$) and individual symptoms ($\kappa = .92$). For Patient 1 intake diagnoses comprised bipolar disorder (Type II) and panic disorder with agoraphobia. Patient 2 suffered from major depressive disorder and panic disorder with agoraphobia at the time of intake. Patient 3 was diagnosed with major depressive disorder, remitted substance abuse (amphetamines), panic disorder with agoraphobia, and borderline personality disorder. Finally, for Patient 4, we could not conclude any formal SCID-I or SCID-II diagnoses, but her symptoms were all related to burn-out, together with somatization-related complaints (e.g., extreme fatigue and unexplained pain symptoms).

During the ESM protocol, no information about patients' mental health status was collected in the form of clinical diagnoses. For a detailed summary of all participant characteristics, we refer to [Table 1](#).

PROCEDURE AND MATERIALS

All four participants took part in a tailored and longitudinal ESM protocol that aimed to detect personalized early warning signals for a gradual or abrupt transition in patients' mental well-being (e.g., Wichers et al., 2016). Because we started recruiting participants in February 2019, we were able to capture changes in their well-being in response to the unfolding of this pandemic at the beginning of 2020. Contrary to other corona-related ESM studies (e.g., Fried, Papanikolaou, & Epskamp, 2020), the available information about their mental health prior to the COVID-19 outbreak provides critical baseline data and enables unique insights into the dynamical nature of idiosyncratic symptomatology directly in response to the Belgian COVID-19 spread (first wave in March 2020) and the associated lockdown measures.

As part of the ESM study, participants carried a study smartphone with our custom-made software for ESM studies (www.m-path.io; www.mobileq.org; Meers et al., 2019) in their everyday lives, and we instructed them to report on their momentary level of various idiographic symptoms and emotions, four times per day. The specific content of momentary surveys was determined in agreement with each patient via clinical interviews with the first two authors of this paper, ensuring optimal personal relevance and excellent face validity of the survey items for the participant in question. The full quantitative item list for each participant can be found

INFORMATION	PATIENT 1	PATIENT 2	PATIENT 3	PATIENT 4
Baseline information				
Gender	Female	Female	Female	Female
Age	58	20	30	48
Intake diagnoses	Bipolar disorder (Type II)	Major depressive disorder	Major depressive disorder	Burn-out
	Panic disorder with agoraphobia	Panic disorder with agoraphobia	Panic disorder with agoraphobia	Somatization-related complaints
			Substance abuse (remitted)	
			Borderline personality disorder	
ESM information				
Days of ESM since intake	464	406	393	393
Number of items	14	16	16	12
Waking hours	9AM-8PM	8AM-9PM	8.30AM-9PM	8AM-8PM
Compliance	60.09%	40.00%	82.68%	46.71%

Table 1 Summary of all participant characteristics.

in Supplemental Materials 1, together with the exact phrasing of all questions. All quantitative items were rated on a continuous slider ranging from 0 (*not at all*) to 100 (*very much*). Categorical (e.g., *Who are you with right now?*) and binary items (e.g., *Did you take your medication last night?*) are not presented, because these time series data are hard to visualize.

Adopting a time-contingent semi-random sampling protocol, each patient's waking hours (excluding moments where therapy sessions were scheduled) were divided into four time blocks, in which a questionnaire was randomly triggered. This typically resulted in one survey being scheduled in the morning before 9AM, one around noon, and two surveys after 4.30PM. This approach allowed us to comprehensively sample an entire day in people's lives (ensuring ecological representativeness of the data), without the surveys being too predictable (which could compromise natural behavior and introduce interference of the protocol; Dejonckheere & Erbas, 2021). Within a day, the average time interval between two consecutive surveys was 3 hours and 14 minutes per participant ($SD = 34$ minutes), and participants' compliance at the survey-level ranged from 40.0% to 82.7% for the time period under study ($M = 57.4\%$, $SD = 18.8\%$). Participants received €20 per week of ESM if they completed 75% of the momentary surveys or more (with a €2 deduction per 5% completed less).

STATISTICAL ANALYSES

The data we analyzed, span from January to April 2020, and thus provide information regarding their mood and symptom levels several weeks before and after the first major lockdown was proclaimed in Belgium (March, 13th). To detect meaningful changes in patients' symptom and emotion levels in response to the first COVID-19 lockdown, we fitted multiple piecewise regression models for all participants' tracked features. This approach enabled us to statistically evaluate critical changes in temporal mood and symptom trajectories before and after the first COVID-19 lockdown. To eliminate situational within-day fluctuations, we averaged all symptom or emotion rating scores per day. The generic model structure in which we predict the daily severity of a particular *symptom* (e.g., feeling depressed) at day d is presented below:

$$\text{symptom}_d = \beta_0 + \beta_e \text{event} + \beta_d \text{day}_d + \beta_{e*d} \text{event} * \text{day}_d + \beta_1 \text{symptom}_{d-1}$$

For participant 1 to 3, the effect β_e of dummy *event* denotes the change in symptom severity on the day the lockdown was issued. For participant 4, *event* refers to a self-reported intense family conflict (see below for more information). Next, β_d represents the *day* trend of a particular symptom before the event occurred. We centered *day* around that *event* for an intuitive interpretation of all coefficients, meaning that the event day was day zero. Critical to our

research question, the effect β_{e*d} demonstrates how this *day* trend shifts before and after the *event*, and denotes change in the trajectory of the examined features due to the announced lockdown (for patients 1 to 3) or family conflict (for patient 4). Finally, to take into account the serial dependency in participants' symptom or emotion time series, we always added a lagged symptom version symptom_{d-1} and evaluated its effect β_1 . In this way, we could establish *event * day* interactions above and beyond the self-predictiveness of patients' symptoms or emotions. Given that we tested a considerable number of models per patient, we controlled for multiple testing per participant following the False Discovery Rate (FDR) procedure of Benjamini and Hochberg (1995).

RESULTS

For each subject, the temporal trajectories of six case-representative emotions or symptoms are visualized in **Figure 1** (see Supplemental Materials 2 for a graphical overview of all assessed features and **Table 2** for a numerical summary of all piecewise regression models).

For Patient 1, we observe notable shifts in a substantial group of symptoms directly following the lockdown measures. While no symptom or emotion significantly increases or decreases before the lockdown was issued (β_d), on the day of the lockdown, a significant increase is observed in levels of *experienced social pressure not to feel depressed* and *rumination, anxiety*, and in *difficulties saying no to people* (β_e). This abrupt change is followed by significant increases over time in *depression, concentration problems, anxiety*, and *stress*, and decreases over time in *energy* and *social pressure not to feel depressed* after the lockdown (β_{e*d}). These effects are observed after controlling for the self-predictiveness (β_1) of day-to-day emotion or symptom intensities (which was significant for all features, except *energy*, feeling *stressed* and *relaxed*, and feeling like *going outside*).

Similarly, for Patient 2, we do not observe significant trends in symptom or emotion intensity before a lockdown took place (β_d). However, in contrast to Patient 1, also after the lockdown all mood and symptoms of Patient 2 remain completely unaffected, showing no remarkable sudden shifts (β_e) or gradual aggravations (β_{e*d}) after the lockdown was issued. Furthermore, daily symptom or emotion intensities were never significantly auto-correlated (β_1).

Next, Patient 3 presents evidence for symptom-specific worsening: While we observe minimal gradual increases over time in symptom and emotion levels before the lockdown began (β_d ; e.g., feeling more *down* or *anxious*, more *rumination* and *suppression*, but no changes in, for example, *anhedonia*, *self-esteem* or *impulsivity*), only her *craving* levels for amphetamines significantly increased on the day of the lockdown (β_e), and increased further over time (β_{e*d}) after the lockdown. For all other complaints,

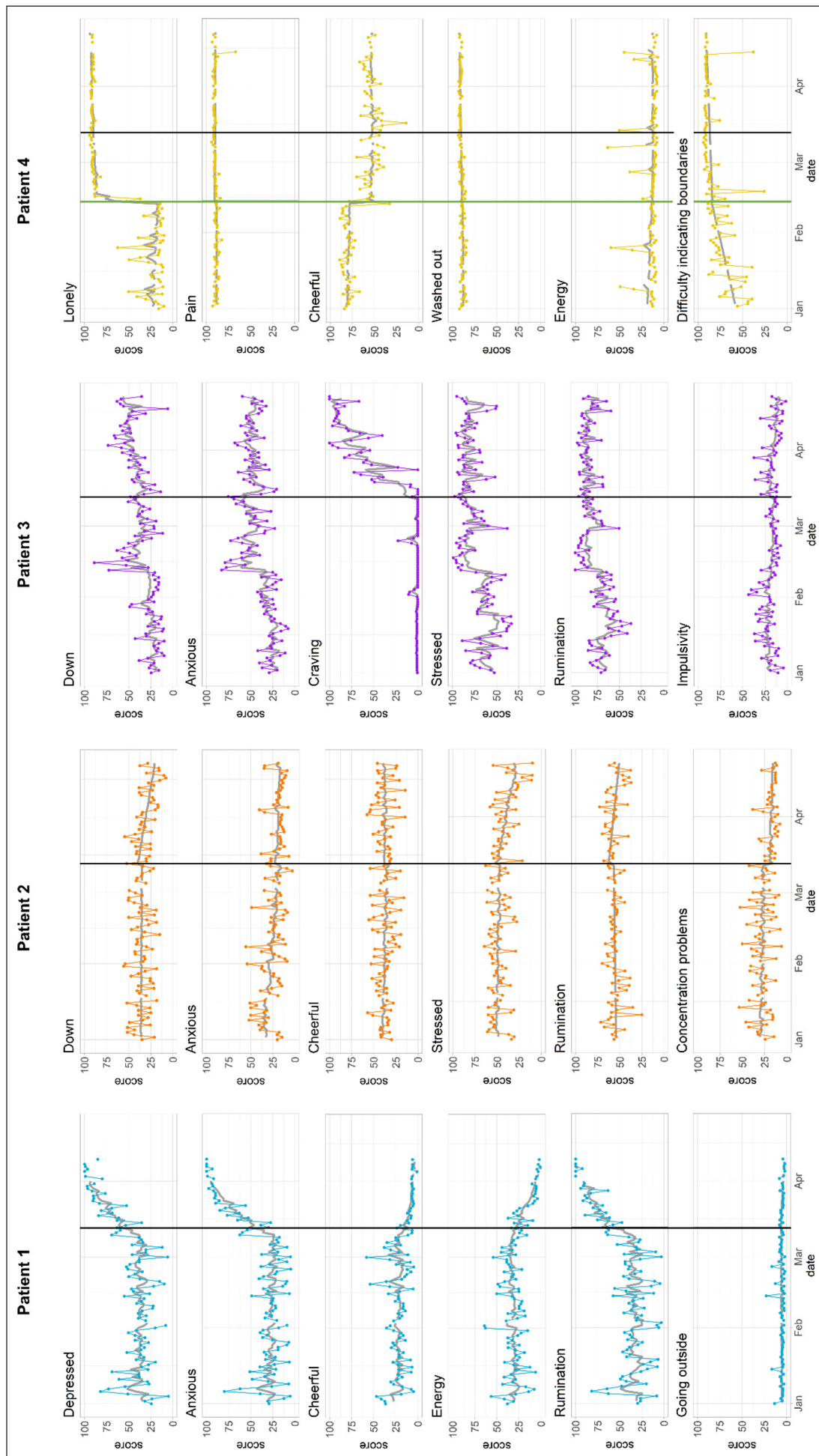


Figure 1 Different mood and symptom trajectories in response to the Belgian COVID-19 lockdown measures. Panel A depicts six case-representative symptoms or emotions for each subject. All momentary states are rated on continuous slider scales ranging from 0 (*not at all*) to 100 (*very much*). In all graphs, the colored line represents the original time series data (averaged per day to get an indication of daily emotion and symptom fluctuations); the grey line shows the model-based predicted time-series, allowing to assess model fit. The black vertical line denotes the beginning of the lockdown period (issued on March 13th). For Patient 4, the green line depicts a self-reported family conflict (February 14th).

PATIENT 1			PATIENT 2			PATIENT 3			PATIENT 4										
ITEMS	β_e	β_d	β_{e+d}	β_e	β_d	β_{e+d}	ITEMS	β_e	β_d	β_{e+d}	ITEMS	β_e	β_d	β_{e+d}	β_e	β_d	β_{e+d}		
Depressive features																			
Depressed	13.97	0.00	1.33*	0.31*	Down	4.49	-0.01	-0.44	0.03	Down	-3.62	0.20*	0.07	0.36***					
Sad	12.47	-0.09	0.19	0.29*	Guilt	3.96	-0.11	0.07	-0.04	Frustrated	9.23	0.03	0.08	0.31**	Anger	-0.49	0.12	-0.05	0.09
Cheerful	-5.32	-0.02	-0.24	0.32*	Cheerful	2.87	-0.08	0.08	-0.11	Cheerful	-2.18	-0.07	0.06	0.51***	Cheerful	-20.71**	-0.08	0.08	0.13
Anhedonia	12.98	-0.11	0.79	0.37*	Anhedonia					Anhedonia	2.86	0.10	-0.10	0.38***					
Self-esteem	-4.93	-0.02	-0.38	0.33*	Self-esteem	-1.37	0.03	-0.14	-0.10	Self-esteem	-3.80	-0.05	0.01	0.31**					
Rumination	19.21*	0.03	0.92	0.33*	Rumination	5.76	0.04	-0.32	0.00	Rumination	0.90	0.17*	-0.24	0.49***					
Suppression	13.95	0.11	0.50	0.41**	Suppression	2.00	-0.10	0.14	-0.02	Suppression	-8.33	0.23*	0.04	0.55***					
Energy	-5.26	0.05	-0.93*	0.22	Tired	0.19	-0.04	-0.19	0.08	Energy	-1.33	-0.06	0.05	0.52***	Energy	-0.51	-0.13	0.13	0.15
Conc. problems	-4.58	-0.02	0.87**	0.56***	Conc. problems	-8.20	-0.04	-0.06	-0.14	Conc. problems	0.75	0.15*	-0.24	0.45***	Conc. problems	1.25	0.03	-0.03	0.17
Social pressure	14.14*	0.00	-0.95*	0.88***	Unease	-0.93	-0.06	0.06	0.12										
Anxiety features																			
Anxious	17.91*	-0.04	1.79**	0.28*	Anxious	2.62	-0.21	0.14	0.16	Anxious	-7.79	0.30**	-0.21	0.45***					
Stressed	12.19	-0.03	2.70***	-0.01	Stressed	2.09	-0.04	-0.43	0.11	Stressed	-0.66	0.19*	-0.22	0.52***					
Relaxed	-8.16	-0.02	-0.61	0.18	Relaxed	-1.11	0.05	0.01	0.05	Relaxed	-2.19	-0.13*	0.05	0.31**	Relaxed	-14.61*	-0.02	-0.12	0.11
Going outside	0.69	0.01	-0.18	-0.16	Crowded	-3.22	-0.07	0.09	0.04	Crowded	2.17	0.13	-0.05	0.06					
					Hyperventilation	0.60	-0.08	0.20	-0.05										
					Restless	-3.34	-0.05	0.15	0.06										
Borderline features																			
					Paranoia	0.68	-0.07	0.13	0.15	Fear abandonment	7.68	0.17**	-0.32*	0.16	Diff. being alone	38.61***	-0.08	0.19	0.37**
										Impulsivity	4.80	-0.09	-0.13	0.23*	Lonely	48.56***	-0.14	0.24	0.28**
														Good relations	-4.41	-0.15	0.01	0.44***	
Substance abuse																			
										Craving	10.96*	0.00	1.05***	0.49***					
Somatization and burn-out features																			
										Pain	2.29	-0.01	0.00	0.00	-0.03				
										Washed-out	0.43	0.03	0.02	0.02	0.09				
										Empty	1.47	0.00	0.05	-0.03					
										Diff. indic. bound.	-1.06	0.64**	-0.54*	-0.01					

Table 2 Summary of all piecewise regression models.

Note. β_e , β_d , β_{e+d} , β_l denote the event effect (lockdown for Patient 1 to 3 or family conflict for Patient 4), day trend before the event (with day centered around the event), the interaction between event and day predictors, and a lagged version of the modeled feature that refers to the previous day (to take into account serial dependencies), respectively. For each participant, we controlled for multiple testing using the false discovery procedure by Benjamini and Hochberg (1995). * $p < .05$, ** $p < .01$, *** $p < .001$.

critical changes following the lockdown remained absent (e.g., feeling *down* or *anxious*). Similar to Patient 1, all Patient 3's assessed features were self-predictive, except for experiencing *fear* of abandonment and *crowdedness* (β_1).

Finally, for Patient 4, clear shifts in several emotions and symptoms are observed, similar to those observed for Patient 1 and 3. However, these changes occur directly following an unrelated family dispute that precedes the lockdown measures (February 14th). On the day of the dispute, clear upward shifts in *loneliness* and *difficulties being alone*, and downward shifts in *cheerfulness* and feelings of being *relaxed* are observed (β_e) that remain stable in the time period following the family conflict (i.e., non-significant $\beta'_{e,d}$). In contrast, Patient 4's *difficulties indicating boundaries* gradually decreased before the family conflict (β_e) and significantly increased over time thereafter ($\beta_{e,d}$). Taken together, these changes mirror some of the changes in symptom and emotion trajectories observed in other patients in response to the first COVID-19 lockdown in Belgium. Finally, only Patient 4's daily experienced *difficulties being alone*, *loneliness* levels, and *good relations* with others were self-predictive (β_1).

DISCUSSION

Taken together, these empirical time series data show four different trajectories in the short-term psychological responsiveness to the COVID-19 pandemic and associated measures taken by the Belgian government during the first wave in March 2020 in at-risk populations with pre-existing psychiatric conditions. For some individuals, the start of the COVID-19 pandemic had detrimental effects on their mental health, showing a sudden steep decline in emotional well-being that coincides with the start of the first lockdown in Belgium. However, others show remarkable levels of resilience, with little to no change in well-being following the lockdown measures in the first wave, or limited impact on only some specific features. Moreover, in one patient significant changes in mental health were observed, however, not following the COVID-19 lockdown, but in response to a personally relevant family dispute that occurred a few weeks earlier, suggesting that for some, the impact of the start of the COVID-19 pandemic may not be more detrimental than the impact of other more common daily life stressors.

Although the current data only provide preliminary indications, these different mood and symptom trajectories suggest that, at least on the short-term, not all at-risk individuals suffer equally and inevitably from the COVID-19 pandemic. In combination with other resilience studies, this makes us believe that the COVID-19 crisis will not necessarily lead to a large-scale mental-health crisis that will unavoidably affect all people with a history of mental illness to a similar degree. Indeed, these differential patterns align with previous resilience research in at-risk populations to other stressors (e.g.,

Min et al., 2013; Waugh & Koster, 2015), and with other preliminary COVID-19 studies that reveal crucial person-level well-being moderators in other (non-clinical) populations (e.g., Grossman et al. 2021; Havnen et al., 2020; Paredes et al., 2021). However, with respect to other aspects, our work and other COVID-19 well-being studies also provide complementing perspectives. First, our study had critical baseline data about people's well-being before the pandemic started, which is an essential benchmark to establish actual resilience (Bonanno & Burton, 2013). Second, the intensive and longitudinal nature of our ESM protocol allowed to detect fine-grained changes in well-being as the first wave of the pandemic gradually ensued, which is not possible in basic cross-sectional designs or single pre- versus post-assessments. Moreover, our idiosyncratic approach allowed us to detect changes in features that are directly relevant for a participant. In contrast, other COVID-19 well-being studies have sample sizes that are typically larger, allowing researchers to move beyond simple case evidence and to detect nomothetic regularities. Relatedly, other studies also generally provide more insight into the exact explanatory mechanisms or behavioral correlates that underlie differences in resilience (e.g., Grossman et al. 2021). Indeed, our work remains rather descriptive and does not provide possible explanations for the reason why some participants showed psychological deterioration and others did not. For example, in our study, no data was obtained on participants' physical health condition, making it hard to assess whether differences in objective threat level could explain the current findings (i.e., we cannot rule out the possibility that Patient 1 and 3 have increased risk for COVID-19 infection or more severe disease complications upon actual contagion). Similarly, we did not assess individual differences in the general or situational coping strategies that would cultivate psychological resilience or symptom aggravation. Future COVID-19 well-being research could therefore benefit from integrating the strengths of both approaches, by adopting a more explicit focus on (changes in) the state-like or situational mechanisms or processes that underlie patients' psychological well-being in response to this adversity. Here, previous resilience studies (e.g., Norris, Tracy & Galea, 2009) may provide both scientists and practitioners with useful leads for which situational coping strategies to investigate and implement (ranging from concrete behavioral strategies [e.g., trying to maintain a healthy day routine] to more cognitive approaches [e.g., practicing mindfulness and developing self-compassion]; Polizzi, Lynn, & Perry, 2020).

In sum, embedding our findings with the emerging COVID-19 well-being literature, we suspect that many at-risk individuals will likely show sufficient coping abilities to resiliently deal with the challenges they encounter as a result of the COVID-19 pandemic. We believe that emphasizing this resilience will empower

people to overcome the difficulties they may experience as results of the pandemic (Silver, 2020). Nevertheless, for a significant group of vulnerable people, the impact of the pandemic could be more deleterious, and hence should not be underestimated. For those, timely and affordable professional help will be crucial.

ADDITIONAL FILES

The additional files for this article can be found as follows:

- **Supplemental Materials 1.** Full quantitative item list and exact phrasing. DOI: <https://doi.org/10.5334/pb.1028.s1>
- **Supplemental Materials 2.** Complete graphical overview of symptom and emotion time series. DOI: <https://doi.org/10.5334/pb.1028.s2>

ETHICS AND CONSENT

The study was approved by the Medical Ethics Committee UZ Leuven. All participants provided informed consent at the beginning of the study.


COMPETING INTERESTS

The authors have no competing interests to declare.


AUTHOR CONTRIBUTIONS


Egon Dejonckheere and Marlies Houben contributed equally to this manuscript and share first authorship.


AUTHOR AFFILIATIONS

Egon Dejonckheere  orcid.org/0000-0002-7219-7506
KU Leuven – Faculty of Psychology and Educational Sciences, Belgium

Marlies Houben  orcid.org/0000-0002-1082-9600
Faculty of Psychology and Educational Sciences, KU Leuven, Tiensestraat 102, Leuven, 3000, Belgium;
Mind-Body Research and Center for Contextual Psychiatry, Department of Neurosciences, KU Leuven, Kapucijnenvoer 7, Leuven, 3000, Belgium

Evelien Schat  orcid.org/0000-0003-1169-3984
KU Leuven – Faculty of Psychology and Educational Sciences, Belgium

Eva Ceulemans  orcid.org/0000-0002-7611-4683
KU Leuven – Faculty of Psychology and Educational Sciences, Belgium

Peter Kuppens  orcid.org/0000-0002-2363-2356
KU Leuven – Faculty of Psychology and Educational Sciences, Belgium

REFERENCES

- Anisman, H., & Merali, Z.** (1999). Understanding stress: Characteristics and caveats. *Alcohol Research and Health*, 23, 241–249.
- Benjamini, Y., & Hochberg, Y.** (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B (Methodological)*, 57, 289–300. DOI: <https://doi.org/10.1111/j.2517-6161.1995.tb02031.x>
- Bonanno, G. A., & Burton, C. L.** (2013). Regulatory flexibility: An individual differences perspective on coping and emotion regulation. *Perspectives on Psychological Science*, 8, 591–612. DOI: <https://doi.org/10.1177/1745691613504116>
- Bonanno, G. A., Westphal, M., & Mancini, A. D.** (2011). Resilience to loss and potential trauma. *Annual Review of Clinical Psychology*, 7, 511–535. DOI: <https://doi.org/10.1146/annurev-clinpsy-032210-104526>
- Campbell, A. M.** (2020). An increasing risk of family violence during the Covid-19 pandemic: Strengthening community collaborations to save lives. *Forensic Science International: Reports*, 2, 100089. DOI: <https://doi.org/10.1016/j.fsir.2020.100089>
- Carbone, S. R.** (2020). Flattening the curve of mental ill-health: the importance of primary prevention in managing the mental health impacts of COVID-19. *Mental Health & Prevention*, 19, 200185. DOI: <https://doi.org/10.1016/j.mhp.2020.200185>
- Chaix, B., Delamon, G., Guillemasse, A., Brouard, B., & Bibault, J.-E.** (2020). Psychological distress during the COVID-19 pandemic in France: A national assessment of at-risk populations. *MedRxiv*. DOI: <https://doi.org/10.1101/2020.05.10.20093161>
- Clay, J. M., & Parker, M. O.** (2020). Alcohol use and misuse during the COVID-19 pandemic: A potential public health crisis? *The Lancet Public Health*, 5, e259. DOI: [https://doi.org/10.1016/S2468-2667\(20\)30088-8](https://doi.org/10.1016/S2468-2667(20)30088-8)
- Columb, D., Hussain, R., & O’Gara, C.** (2020). Addiction psychiatry and COVID-19: Impact on patients and service provision. *Irish Journal of Psychological Medicine*, 1–5. DOI: <https://doi.org/10.1017/ipm.2020.47>
- Dejonckheere, E., & Erbas, Y.** (2021). How to design an ESM study? In I. Myin-Germeys & P. Kuppens (Eds.), *The open handbook of Experience Sampling Methodology: A step-by-step to designing, conducting, and analyzing ESM studies*, Amazon Publishing.
- Druss, B. G.** (2020). Addressing the COVID-19 pandemic in populations with serious mental illness. *JAMA Psychiatry*. DOI: <https://doi.org/10.1001/jamapsychiatry.2020.0894>
- Duan, L., & Zhu, G.** (2020). Psychological interventions for people affected by the COVID-19 epidemic. *The Lancet Psychiatry*, 7, 300–302. DOI: [https://doi.org/10.1016/S2215-0366\(20\)30073-0](https://doi.org/10.1016/S2215-0366(20)30073-0)
- Fergusson, D. M., Horwood, L. J., Boden, J. M., & Mulder, R. T.** (2014). Impact of a major disaster on the mental health of a well-studied cohort. *JAMA Psychiatry*, 71, 1025–1031. DOI: <https://doi.org/10.1001/jamapsychiatry.2014.652>

- Fried, E. I., Papanikolaou, E., & Epskamp, S.** (2020). *Mental health and social contact during the covid-19 pandemic: An ecological momentary assessment study*. DOI: <https://doi.org/10.31234/osf.io/36xkp>
- Grossman, E. S., Hoffman, Y. S. G., Palgi, Y., & Shrira, A.** (2021). COVID-19 related loneliness and sleep problems in older adults: Worries and resilience as potential moderators. *Personality and Individual Differences*, 168, 110371. DOI: <https://doi.org/10.1016/j.paid.2020.110371>
- Havnen, A., Anyan, F., Hjemdal, O., Solem, S., Gurigard Riksfjord, M., & Hagen K.** (2020). Resilience moderates negative outcome from stress during the covid-19 pandemic: A moderated-mediation approach. *International Journal of Environmental Research and Public Health*, 17, 6461. DOI: <https://doi.org/10.3390/ijerph17186461>
- Heininga, V. E., Dejonckheere, E., Houben, M. Obbels, J., Sienaert, P., Leroy, B., van Roy, J., & Kuppens, P.** (2019). The dynamical signature of anhedonia in major depressive disorder: positive emotion dynamics, reactivity, and recovery. *BMC Psychiatry*, 19, 59. DOI: <https://doi.org/10.1186/s12888-018-1983-5>
- Holmes, E. A., O'Connor, R. C., Perry, V. H., Tracey, I., Wessely, S., Arseneault, L., Ballard, C., Christensen, H., Silver, R. C., Everall, I., Ford, T., John, A., Kabir, T., King, K., Madan, I., Michie, S., Przybylski, A. K., Shafran, R., Sweeney, A., ... Bullmore, E.** (2020). Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *The Lancet Psychiatry*, 7, 547–560. DOI: [https://doi.org/10.1016/S2215-0366\(20\)30168-1](https://doi.org/10.1016/S2215-0366(20)30168-1)
- Kalisch, R., Baker, D. G., Basten, U., Boks, M. P., Bonanno, G. A., Brummelman, E., Chmitorz, A., Fernández, G., Fiebach, C. J., Galatzer-Levy, I., Geuze, E., Groppa, S., Helmreich, I., Hendler, T., Hermans, E. J., Jovanovic, T., Kubiak, T., Lieb, K., Lutz, B., ... Kleim, B.** (2017). The resilience framework as a strategy to combat stress-related disorders. *Nature Human Behaviour*, 1, 784–790. DOI: <https://doi.org/10.1038/s41562-017-0200-8>
- Kavoor, A. R.** (2020). COVID-19 in people with mental illness: Challenges and vulnerabilities. *Asian Journal of Psychiatry*, 51, 102051. DOI: <https://doi.org/10.1016/j.ajp.2020.102051>
- Kavoor, A. R., Chakravarthy, K., & John, T.** (2020). Remote consultations in the era of COVID-19 pandemic: Preliminary experience in a regional Australian public acute mental health care setting. *Asian Journal of Psychiatry*, 51, 102074. DOI: <https://doi.org/10.1016/j.ajp.2020.102074>
- Kawohl, W., & Nordt, C.** (2020). COVID-19, unemployment, and suicide. *The Lancet Psychiatry*, 7, 389–390. DOI: [https://doi.org/10.1016/S2215-0366\(20\)30141-3](https://doi.org/10.1016/S2215-0366(20)30141-3)
- Lothe, E. A., & Heggen, K.** (2003). A Study of resilience in young Ethiopian famine survivors. *Journal of Transcultural Nursing*, 4, 313–320. DOI: <https://doi.org/10.1177/1043659603257161>
- McAndrew, L. M., Markowitz, S., Lu, S. E., Borders, A., Rothman, D., & Quigley, K. S.** (2017). Resilience during war: Better unit cohesion and reductions in avoidant coping are associated with better mental health function after combat deployment. *Psychological trauma: theory, research, practice and policy*, 9, 52–61. DOI: <https://doi.org/10.1037/tra0000152>
- Meers, K., Dejonckheere, E., Kalokerinos, E., Rummens, K., & Kuppens, P.** (2019). MobileQ: A free user-friendly application for collecting experience sampling data. *Behaviour Research Methods*, 52, 1510–1515. DOI: <https://doi.org/10.3758/s13428-019-01330-1>
- Mehra, A., Rani, S., Sahoo, S., Parveen, S., Singh, A. P., Chakrabarti, S., & Grover, S.** (2020). A crisis for elderly with mental disorders: Relapse of symptoms due to heightened anxiety due to COVID-19. *Asian Journal of Psychiatry*, 51, 102114. DOI: <https://doi.org/10.1016/j.ajp.2020.102114>
- Min, J.-A., Yu, J. J., Lee, C.-U., & Chae, J.-H.** (2013). Cognitive emotion regulation strategies contributing to resilience in patients with depression and/or anxiety disorders. *Comprehensive Psychiatry*, 54, 1190–1197. DOI: <https://doi.org/10.1016/j.comppsy.2013.05.008>
- Myin-Germeys, I., Kasanova, Z., Vaessen, T., Vachon, H., Kirtley, O., Viechtbauer, W., & Reininghaus, U.** (2018). Experience sampling methodology in mental health research: new insights and technical developments. *World Psychiatry*, 17, 123–132. DOI: <https://doi.org/10.1002/wps.20513>
- Norris, F. H., Tracy, M., & Galea, S.** (2009). Looking for resilience: Understanding the longitudinal trajectories of responses to stress. *Social science & medicine*, 68, 2190–2198. DOI: <https://doi.org/10.1016/j.socscimed.2009.03.043>
- Paredes, M. R., Apaolaza, V., Fernandez-Robin, C., Hartmann, P., Yañez-Martinez, D.** (2021). The impact of the COVID-19 pandemic on subjective mental well-being: The interplay of perceived threat, future anxiety and resilience. *Personality and Individual Differences*, 170, 110455. DOI: <https://doi.org/10.1016/j.paid.2020.110455>
- Polizzi, C., Lynn, S. J. & Perry, A.** (2020). Stress and coping in the time of COVID-19: Pathways to resilience and recovery. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*, 17, 59–62.
- Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y.** (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General Psychiatry*, 33, e100213. DOI: <https://doi.org/10.1136/gpsych-2020-100213>
- Rajkumar, R. P.** (2020). COVID-19 and mental health: A review of the existing literature. *Asian Journal of Psychiatry*, 52, 102066. DOI: <https://doi.org/10.1016/j.ajp.2020.102066>
- Sahoo, S., Rani, S., Parveen, S., Pal Singh, A., Mehra, A., Chakrabarti, S., Grover, S., & Tandup, C.** (2020). Self-harm and COVID-19 Pandemic: An emerging concern – A report of 2 cases from India. *Asian Journal of Psychiatry*, 51, 102104. DOI: <https://doi.org/10.1016/j.ajp.2020.102104>
- Sasaki, Y., Aida, J., Tsuji, T., Koyama, S., Tsuboya, T., Saito, T., Kondo, K., & Kawachi, I.** (2019). Pre-disaster social support is protective for onset of post-disaster depression: Prospective study from the Great East Japan Earthquake & Tsunami. *Scientific Reports*, 9, 19427. DOI: <https://doi.org/10.1038/s41598-019-55953-7>

- Silver, R. C.** (2020). Surviving the trauma of COVID-19. *Science*, 369, e11. DOI: <https://doi.org/10.1126/science.abd5396>
- Tsuboya, T., Aida, J., Hikichi, H., Subramanian, S. V., Kondo, K., Osaka, K., & Kawachi, I.** (2016). Predictors of depressive symptoms following the Great East Japan earthquake: A prospective study. *Social Science & Medicine*, 161, 47–54. DOI: <https://doi.org/10.1016/j.socscimed.2016.05.026>
- United Nations.** (2020). *Policy Brief: COVID-19 and the Need for Action on Mental Health*.
- Van Groenestijn, M. A. C., Akkerhuis, G. W., Kupka, R. W., Schneider, N., & Nolen, W. A.** (1999). Gestructureerd klinisch interview voor de vaststelling van DSM-IV as I stoornissen [Structured clinical interview for DSM-IV axis I disorders]. Lisse, The Netherlands: Swets & Zeitlinger.
- Waugh, C. E., & Koster, E. H. W.** (2015). A resilience framework for promoting stable remission from depression. *Clinical Psychology Review*, 4, 49–60. DOI: <https://doi.org/10.1016/j.cpr.2014.05.004>
- Weertman, A., Arntz, A., & Kerkhofs, M. L. M.** (2000). Gestructureerd diagnostisch interview voor DSM-IV persoonlijkheidsstoornissen (SCID-II). Swets Test Publishers, Lisse.
- Wichers, M., Groot, P. C., & Psychosystems, E. G.** (2016). Critical slowing down as a personalized early warning signal for depression. *Psychotherapy and Psychosomatics*, 85, 114–116. DOI: <https://doi.org/10.1159/000441458>
- Xiang, Y.-T., Yang, Y., Li, W., Zhang, L., Zhang, Q., Cheung, T., & Ng, C. H.** (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. *The Lancet Psychiatry*, 7, 228–229. DOI: [https://doi.org/10.1016/S2215-0366\(20\)30046-8](https://doi.org/10.1016/S2215-0366(20)30046-8)

TO CITE THIS ARTICLE:

Dejonckheere, E., Houben, M., Schat, E., Ceulemans, E., & Kuppens, P. (2021). The Short-Term Psychological Impact of the COVID-19 Pandemic in Psychiatric Patients: Evidence for Differential Emotion and Symptom Trajectories in Belgium. *Psychologica Belgica*, 61(1), pp. 163–172. DOI: <https://doi.org/10.5334/pb.1028>

Submitted: 14 September 2020 Accepted: 31 May 2021 Published: 21 June 2021

COPYRIGHT:

© 2021 The Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC-BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited. See <http://creativecommons.org/licenses/by/4.0/>.

Psychologica Belgica is a peer-reviewed open access journal published by Ubiquity Press.