Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.
Health, well-being, and persisting symptoms in the pandemic: What is the role of psychological flexibility?

Lance M. McCracken a, Monica Buhrman a, Farzaneh Badinlou b, Karin C. Brocki b,*

a Division of Clinical Psychology, Department of Psychology, Uppsala University, Uppsala, Sweden
b Division of Emotion Psychology, Department of Psychology, Uppsala University, Uppsala, Sweden

ARTICLE INFO

Keywords:
Psychological flexibility
COVID-19
MPFI
Pandemic
Long-COVID
Acceptance and commitment therapy

ABSTRACT

Finding psychological factors that can reduce the substantial impact of COVID-19 on mental and physical health is important. Here we replicate and expand a previous study regarding the role of psychological flexibility (PF) in this context. We employed a comprehensive and well validated measure of PF and examined its role in relation to health outcomes and persistent post COVID-19 symptoms. 1174 participants completed standardized measures of depression, anxiety, insomnia and the Multidimensional Psychological Flexibility Inventory (MPFI), and reported the presence of persistent symptoms associated with “long COVID.” All PF and psychological inflexibility (PI) facets, except for acceptance, correlated with the three mental health outcomes and with persistent symptoms. PF and PI accounted for significant variance in depression, anxiety, and insomnia after adjusting for background and health status variables. A notable finding was the particularly stronger correlations obtained for the PI facets. Our findings emphasize the potentially mitigating effects of PF on mental ill health, as well as the particularly aggravating effects of PI, in the pandemic context. A novel finding is the significant association of PI with persisting symptoms of COVID.

1. Introduction

During the relatively short duration of the pandemic, numerous psychosocial studies have appeared (Mahmud et al., 2021; Mukherjee et al., 2021). Some of these identify psychological flexibility, or the ability to act with openness, awareness, and engagement (Hayes et al., 2006) as an important target in the treatment and recovery of those adversely affected (see Crasta et al., 2020; Daks et al., 2020; Dawson & Golijani-Moghaddam, 2020; Gloster et al., 2017; Kroska et al., 2020; McCracken et al., 2021; Pakenham et al., 2020; Smith et al., 2020). Several of these studies used a comprehensive measure of PF, the Multidimensional Psychological Flexibility Inventory (MPFI, Rollfs et al., 2018). At the time that the study of PF and mental health in the pandemic was conducted in Sweden this measure had not been successfully translated and validated in Swedish. This means that the previous results (McCracken et al., 2021) are limited due to the incomplete representation of all facets of the model and the use of PF measures with known limitations (Ong et al., 2020; Rogge et al., 2019).

Along with other impacts a new long-term health condition, “long COVID,” has emerged during the pandemic (Crook et al., 2021). Long COVID includes persisting symptoms, following directly after an infection with the COVID-19 virus (Crook et al., 2021; Nalbandian et al., 2021). In a previous study including 1482 participants surveyed in Sweden 84.5% reported at least one of 25 persistent symptoms, and 49.7% attributing one or more of these to COVID-19 infection (Brocki et al., 2022). Importantly, the role of PF has not been addressed in relation to these symptoms.

The purpose of this study was to replicate our previous study into the role of PF in mental health in the pandemic context in Sweden (McCracken et al., 2021), but to do so with a more adequate and comprehensive assessment of these processes, using the MPFI. The second purpose was to study the role of PF in relation to long COVID symptoms. We predicted that facets assessed by the MPFI would correlate with depression, anxiety, and insomnia, and with persistent physical symptoms. We also predicted that the PF and PI facets would continue to correlate with depression, anxiety, and insomnia in analyses that control for relevant personal background factors and the impact of persistent symptoms on these outcomes. The third purpose was to identify the relative role of PF and PI facets in relation to outcomes, but we made no a priori predictions about which would appear most important.

* Corresponding author. Department of Psychology, Uppsala University, Box 1225, 751 42, Uppsala, Sweden.
E-mail address: karin.brocki@psyk.uu.se (K.C. Brocki).

https://doi.org/10.1016/j.jcbs.2022.10.003
Received 26 April 2022; Received in revised form 4 October 2022; Accepted 6 October 2022
Available online 12 October 2022
2212-1447/© 2022 The Authors. Published by Elsevier Inc. on behalf of Association for Contextual Behavioral Science. This is an open access article under the CC BY license (http://creativecommons.org/licenses/by/4.0/).
2. Methods

This study is based on survey data collected in Sweden between 29th June to August 23, 2021. Participants were recruited via social media and via local university and hospital web pages, and data were collected using the electronic survey tool Research Electronic Data Capture (REDCap, Harris et al., 2009, 2019). The study had ethics approval (Swedish national ethical board, dnr 2021–01647) and all participants provided informed consent. The analyses presented here are secondary analyses following a primary study of rates of depression, anxiety, and insomnia in Sweden 18 months after the start of the pandemic (Brocki et al., 2022).

2.1. Participants

A total of 1657 people provided their consent and participated in the survey. Because this study focused specifically on PF, participants were selected only if they completed the MPFI. This yielded a sample size for analysis of 1174 participants, or 70.9% of the total number of consented participants.

For participant characteristics see Table 1. Mean age was 47.8 years (SD = 11.5) and 90.5% of participants were women. Participants were generally well-educated, mainly Swedish, married or in a relationship, working full or part time, economically secure, with good or average overall rated health, and had relatively few co-morbid medical conditions. Nearly half reported that they had experienced mental health problems in the past. About half of the participants reported having had COVID-19, with roughly two thirds of these reporting a confirmed diagnosis and one third a presumptive diagnosis. All participants reported having been vaccinated.

2.2. Measures

Persistent COVID symptoms. All participants reported on the presence of 25 different symptoms presented at the time and based on available literature as potential symptoms of long COVID by the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU, 2020). The following symptoms were included: fatigue, sleeping problems, problems with attention, joint pain, memory difficulties, depression, headache, impaired daily functioning, anxiety, shortness of breath, pins and needles, gut problems, heart palpitations, changes in smell, changes in taste, decreased lung function, chest pain/pressure, cough, nausea, skin changes, appetite loss, sore throat, weight loss, fever, and reduced quality of life. Participants were instructed to report any of these symptoms if they had them for at least six weeks. This list of symptoms was used to calculate a summary score. In order to avoid overlap with our mental health outcomes, the summary score for long COVID was adjusted by removing items related to sleep, depression, impaired daily functioning, anxiety, and reduced quality of life, and creating a sum from the remaining 20 items.

Multidimensional Psychological Flexibility Inventory (MPFI). The MPFI is a 60-item measure of the six facets of PF and the six facets of PI (Rolffs et al., 2018). It includes five items for each facet, each item rated on a six-point scale from “never true” to “always true.” The facets PF/PI include Acceptance/Experiential Avoidance; Contact with the Present Moment/Lack of Contact with the Present Moment; Self as Context/Self as Content; Defusion/Fusion; Committed Action/Inaction; and Values/Lack of Contact with Values (Rolffs et al., 2018). Studies show that MPFI has adequate validity and reliability (Landi, Pakenham, Crocetti, et al., 2021a, 2021b; Rolffs et al., 2018) and responsiveness to change over time (Rolffs et al., 2018). The instrument has been translated and validated in Swedish and this version has been found to be a reliable instrument with sufficient support for validity (Tabrizi et al., 2022).

Patient Health Questionnaire (PHQ-9). The PHQ-9 is based on the DSM-IV criteria for depression (Kroenke et al., 2001; Kroenke & Spitzer, 2002). The PHQ-9 score ranges from 0 to 27, based on the nine symptom-related items rated on a 4-point rating scale, from 0 = “not at all” to 3 = “nearly every day”. The PHQ-9 has shown to have adequate validity and internal consistency, α = 0.89 (0.88 in the current sample) (Kroenke et al., 2001; Kroenke & Spitzer, 2002).

General Anxiety Disorder-7 (GAD-7). The GAD-7 is a measure of anxiety symptoms (Spitzer et al., 2006). It consists of seven items and is commonly used for assessing symptoms of general anxiety in clinical and non-clinical settings and populations (Beard & Bjorvlinson, 2014). Scores for the GAD-7 ranges from 0 to 27 based on items rated on a

Table 1

| Variable                              | n   | %    |
|---------------------------------------|-----|------|
| Gender                                |     |      |
| Female                                | 1062| 90.5 |
| Male                                  | 107 | 9.1  |
| Non-binary                            | 5   | 0.4  |
| Education                             |     |      |
| Pre-secondary                         | 24  | 1.8  |
| Secondary                             | 223 | 30.4 |
| University                            | 874 | 59.5 |
| Post graduate                         | 51  | 4.3  |
| Country of Birth                      |     |      |
| Sweden                                | 1027| 87.5 |
| Other Scandinavian country            | 35  | 3.0  |
| Other European country                | 84  | 7.2  |
| Other                                 | 28  | 2.4  |
| Domestic Status                       |     |      |
| Married                               | 530 | 45.1 |
| In a relationship                     | 297 | 25.3 |
| Single                                | 213 | 18.1 |
| Divorced/separated                    | 74  | 6.3  |
| Living apart                          | 54  | 4.6  |
| Widowed                               | 6   | 0.5  |
| Work Status                           |     |      |
| Working full time                     | 763 | 65.0 |
| Working part time                     | 181 | 15.4 |
| Retired                               | 83  | 7.1  |
| Student                               | 52  | 4.4  |
| Sick leave                            | 55  | 4.7  |
| Unemployed                            | 20  | 1.7  |
| Parental leave                        | 17  | 1.4  |
| Unpaid work                           | 3   | 0.3  |
| Self-Rated Economic Status            |     |      |
| Average                               | 540 | 46.0 |
| Above average                         | 413 | 35.2 |
| Below average                         | 137 | 11.7 |
| Much below average                    | 40  | 3.4  |
| Much above average                    | 44  | 3.7  |
| Self-Rated Health Status              |     |      |
| Good                                  | 422 | 35.9 |
| Average                               | 415 | 35.3 |
| Very good                             | 164 | 14.0 |
| Poor                                  | 144 | 12.3 |
| Very poor                             | 29  | 2.5  |
| History of a Mental Health Condition  |     |      |
| No                                    | 630 | 53.7 |
| Yes                                   | 544 | 46.3 |
| Relevant Collateral Physical Conditions+|    |      |
| None                                  | 763 | 66.3 |
| One                                   | 279 | 24.3 |
| Two                                   | 79  | 6.9  |
| Three or more                         | 29  | 2.6  |
| COVID-19 Vaccine                      |     |      |
| Two dose                              | 623 | 53.1 |
| One doses                             | 299 | 25.5 |
| Three doses                           | 251 | 21.4 |
| Infected with COVID-19                |     |      |
| No                                    | 555 | 47.4 |
| Yes, diagnosed                        | 440 | 37.5 |
| Yes, unconfirmed                      | 117 | 15.1 |

Note. + Sum of conditions representing risks for poor outcome of COVID-19: age over 70, hypertension, angina, stroke, heart disease, diabetes, cancer, smoking, respiratory disease, and immune suppressant.
4-point rating scale, from 0 = “not at all” to 3 = “nearly every day.” The GAD-7 has shown strong psychometric properties in the general population, including adequate internal consistency, $\alpha = 0.89$ (0.89 in the current sample) (Löwe et al., 2008; Spitzer et al., 2006).

### Insomnia Severity Index (ISI)

The ISI is a measure of insomnia (Bastien et al., 2001). It includes seven items designed to assess severity of insomnia. Scores for the ISI range from 0 to 28, based on items rated on a 5-point rating scale, with 0 = “no problem” and 4 = “very severe problem.” In a population-based sample the validity and internal consistency were good, $\alpha = 0.90$ (0.91 in current sample) (Bastien et al., 2001).

#### 3. Results

##### 3.1. Preliminary analyses

All skewness and kurtosis values for the MPFI were well within a range from $-1$ to 1. Table 3 shows means, standard deviations, and Cronbach’s alpha values for each of the facets and the overall flexibility and inflexibility dimensions.

There were several significant correlations between the background variables and depression, anxiety, insomnia, and the persistent symptom summary score (see Table 2). Remaining background variables, not included in Table 2, were not significantly correlated with outcomes or symptoms.

##### 3.2. Correlation analyses

Table 3 shows the correlation results demonstrating relations between MPFI scores with depression, anxiety, insomnia, and physical symptoms. The acceptance subscale did not correlate with any of the outcomes. For depression, anxiety, and insomnia, every other facet of flexibility and inflexibility and the overall dimension scores correlated in the expected direction, at $p < .001$. For persistent physical symptoms ten of 14 correlations were significant at $p < .001$. Amongst the flexibility facets seven of 24 correlations were medium-sized, none were large, and the remainder, 13, were small, or less than small, four. Amongst the inflexibility facets, eight of 24 correlations were large, seven were medium, and nine were small.

##### 3.3. Multiple regression analyses

Six hierarchical regression analyses were calculated in two sets (see Tables 4 and 5). In the first set, the PF facets were examined as predictors of depression, anxiety and insomnia. In the second set with the PI facets were predictors. In all analyses the first four blocks of variables entered included (1) age, relationship status, employment, self-rated finances, (2) mental health history, COVID-19 risk factors, (3) COVID-19 infection status, and (4) the persistent physical symptoms summary score. The PF or PI facets were then entered in the fifth and final block.

In the set of regression equations examining the PF facets (see Table 4), the first block including the background variables accounted for a moderate amount of variance, with age being the strongest predictor of both depression and anxiety. In the second block, including health status variables, mental health history was the main significant predictor. The COVID-19 infection variable entered in the third block contributed relatively little additional variance. The fourth block including the persistent symptoms summary accounted for the largest proportion of variance in the equations including 25% for depression, 17% for anxiety, and 16% for insomnia. And finally, the variance accounted for by the psychological flexibility facets entered in the final block was significant in each case, including 7.6% for depression, 8.1% for anxiety, and 3.0% for insomnia. Defusion was clearly the strongest individual predictor with standardized regression coefficients second in magnitude only to those obtained by the persistent physical symptoms. Committed action also obtained a significant coefficient in relation to depression. Total $R^2$ values for the equations were respectable at .54 for depression, .43 for anxiety and .32 for insomnia.

The analyses of the inflexibility facets were like the analyses of the flexibility facets in that all the $\Delta R^2$ values were the same in the first four blocks, although some of the standardized regression coefficients shrank slightly in the final equation (see Table 5). The coefficients that shrank the most were the inflexibility facets were analyzed, relative to the flexibility facets, were the ones for the mental health history variable, which shrunk by approximately 50%. The coefficients for the persistent symptoms in the final equations also were smaller relative to the equations calculated for PF. Another difference was in the final block where variance accounted for at entry was substantially greater, 18% for depression, 23% for anxiety, and 8% for insomnia. This time fusion was a consistent stronger unique predictor for each outcome, and self-as-content was also significant in predicting depression and anxiety, as was inaction.

### 4. Discussion

The purpose of the present study was to replicate and improve upon a previous study of the role of psychological flexibility in relation to depression, anxiety, and insomnia during the pandemic in Sweden (McCracken et al., 2021). Our results are consistent with the growing number of studies, showing that psychological flexibility may play a protective role against poor physical and mental health in the pandemic context, and that inflexibility does the opposite (Crasa et al., 2020; Daks et al., 2020; Dawson & Golijani-Moghaddam, 2020; Kroksa et al., 2020; McCracken et al., 2021; Pakenham et al., 2020; Smith et al., 2020). The results with respect to the failure of the acceptance facet to correlate with mental health outcomes was also found by others (Pakenham et al., 2020), as was our result that inflexibility facets correlate more strongly with outcomes compared to the flexibility facets (Crasa et al., 2020; Pakenham et al., 2020).

Among the flexibility facets, cognitive defusion played the strongest unique role, emphasizing the very important role of cognition in developing mental ill-health. In the analyses of depression and anxiety, the fusion, self as content, and inaction facets all played a significant role, in essence cutting directly across the tripartite PF model of “open, aware, and engaged.” Overall, prediction of insomnia was less successful as the variance accounted for in this outcome from the PF and PI facets was much less compared to the results for depression and anxiety.

A new finding in this study relates to the correlations between PF and PI with the set of persistent post COVID symptoms. Here five of the PF facets (with the exception of acceptance) correlated significantly with these symptoms, albeit the correlations were small in size. Consistent with findings from the other outcomes, the PI facets showed stronger relations. This finding is relevant from a clinical and public health perspective as it indicates that the capacity for psychological flexibility is a target for enhancing health and well-being broadly in the pandemic context, both for the generally expected impacts but also for the unexpected persistent post COVID symptoms.

The set of persistent symptoms played a significant role in predicting mental health, accounting for the largest proportions of variance. We note that the unique role of these symptoms appears smaller in the

### Table 2

Preliminary correlations of depression, anxiety, insomnia, and persistent COVID symptoms with background variables.

|            | Age | Unemployed | Finances positive | Health positive | Had COVID |
|------------|-----|------------|-------------------|-----------------|-----------|
| Depression | -.18** | .21**      | -.15**            | -.54**          | .15**     |
| Anxiety    | -.22** | .17**      | -.13**            | -.43**          | .092**    |
| Insomnia   | -.03  | .17**      | -.07              | -.40**          | .13**     |
| Persistent | -.14** | .24**      | -.16**            | -.46**          | .10**     |

*p < .01. **p < .001.
The study has several limitations. The recruitment via social media seems to have produced a selected sample, possibly a sample of those most affected or most concerned. That 90.5% were women may be a result of some kind of distortion in the recruitment process, but the nature of this is unclear. In any case, generalizability remains a question.

The argument made from the previous studies is that methods to improve psychological flexibility (or reduce psychological inflexibility) might lead to better clinical and population outcome in those suffering from depression, anxiety, or insomnia in the pandemic context. Our results add emphasis to this argument, and extend it. It appears that methods to enhance psychological flexibility may also benefit people who suffer with complex persistent mental and physical health conditions following COVID-19. Further studies are needed to design and test appropriate treatments, at the required scale, preferably without delay.
expected. The results obtained suggest either that acceptance is irrelevant in this context, an interpretation that seems unlikely given the weight of evidence to the contrary, or that the subscale requires some revision or refinement. The fact that this has happened in previous research with the MPFI in Italy (Pakenham et al., 2020) suggests that this is not a problem specific to the Swedish translation or context.

The aim here was to replicate and improve upon a previous study of PF in relation to depression, anxiety, and insomnia during the pandemic in Sweden (McCracken et al., 2021). Our findings may not be entirely new but add reliability and generality to the evidence base for PF as an important factor in future treatment designs for mental health and well-being in the pandemic context. Having said this, we do expand previous findings by our novel inclusion of persistent symptoms in relation to PF. Clinically, it is important to provide empirical evidence for such a link in a way that can specifically support a treatment agenda for this condition from which many people suffer. A potential next step in future research could be to use Ecological momentary assessment (EMA) to minimize recall bias and maximize ecological validity and to even better understand the processes underlying mental ill-health in the pandemic context.

Table 5
Hierarchical multiple regression analyses of facets of psychological inflexibility in relation to health outcomes.

| Block | Predictor | Depression | Anxiety | Insomnia |
|-------|-----------|------------|---------|----------|
|       |           | $\Delta R^2$ | $\beta$ | $\Delta R^2$ | $\beta$ | $\Delta R^2$ | $\beta$ |
| 1     | Background | .094**     |         |          | .084** | .12** | .046** |
|       | Age       | −.096**    |         |          | −.12** | .009 |         |
|       | In a relationship | −.076** |         |          | −.019 |         | .087** |
|       | Employed  | −.048      |         |          | −.024 | .067 |         |
|       | Finances above average | −.010 |         |          | .002 |         | .039 |
| 2     | Health status | .089** |         |          | .086** | .057** |
|       | Mental health history |          |         |          | −.062 | .004 |         |
|       | Physical risk factors |          |         |          | .044 |         | .049 |
| 3     | COVID     | .027**     |         |          | .011* | .055 | .023** |
|       | COVID infection |          |         |          |         |         | .018 |
| 4     | Persistent symptoms | .25** | .43** | .33** | .17** | .16** | .36** |
|       | Symptom total |          |         |          |         |         | .36** |
| 5     | Psychological inflexibility | .18** | .23** | .20** | .029 | .022 | .085 |
|       | Avoidance | −.031      |         |          | .020 |         | .065 |
|       | Fusion    | .17**      | .32**   |          | .17** |         | .022 |
|       | Lack contact | .024 |         |          | .13** |         | .022 |
|       | Self/content | .11** |         |          | .024 |         | .022 |
|       | Lack values | .013      | .042    |          | .085 |         | .095 |
|       | Inaction  | .24**      |         |          | .14** |         | .063 |
|       | Inaction  |          |         |          |         |         | .37 |

Note: Beta is from final equation.

*a* $p < .01; **p < .001.$

References

Bastien, C. H., Vallières, A., & Morin, C. M. (2001). Validation of the Insomnia Severity Index as an outcome measure for insomnia research. Sleep Medicine, 2(4), 297–307. https://doi.org/10.1016/S1389-9457(00)00065-4

Beard, C., & Björkgrén, T. (2014). Beyond generalized anxiety disorder: Psychometric properties of the GAD-7 in a heterogeneous psychiatric sample. Journal of Anxiety Disorders, 28(6), 547–552. https://doi.org/10.1016/j.janxdis.2014.06.002

Brocki, K. C., Bohman, M., Badinlin, F., & McCracken, L. M. (2022). The Context of COVID-19 after 18 Months in Relation to depression, anxiety, insomnia: The emerging Role of persistent “long COVID” symptoms [unpublished manuscript]. Department of Psychology, Uppsala University.

Crasa, D., Daks, J. S., & Rogge, R. D. (2020). Modeling suicide risk among parents during the COVID-19 pandemic: Psychological inflexibility exacerbates the impact of COVID-19 stressors on interpersonal risk factors for suicide. Journal of contextual behavioral science, 18, 117–127. https://doi.org/10.1016/j.jcbs.2019.09.003

Crook, H., Raza, S., Nowell, J., Young, M., & Edison, P. (2021). Long covid—mechanisms, risk factors, and management. BMJ. 374. https://doi.org/10.1136/bmj.n1648

Daks, J. S., Peltz, J. S., & Rogge, R. D. (2020). Psychological flexibility and inflexibility as sources of resiliency and risk during a pandemic: Modeling the cascade of COVID-19 stress on family systems with a contextual behavioral science lens. Journal of Contextual Behavioral Science, 18, 16–27. https://doi.org/10.1016/j.jcbs.2020.08.003

Dawson, D. L., & Geligani-Moghaddam, N. (2020). COVID-19: Psychological flexibility, coping, mental health, and wellbeing in the UK during the pandemic. Journal of contextual behavioral science, 17, 126–134. https://doi.org/10.1016/j.jcbs.2020.07.010

Glotter, A. T., Meyer, A. H., & Lieb, R. (2017). Psychological flexibility as a malleable public health target: Evidence from a representative sample. Journal of Contextual Behavioral Science, 6, 166–171. https://doi.org/10.1016/j.jcbs.2017.02.003

Harris, F. A., Taylor, R., Minor, B. L., Elliott, V., Fernandez, M., O’Neal, L., & Redcap, C. (2019). The REDCap consortium: Building an international community of software platform partners. Journal of Biomedical Informatics, 95, Article 101208. https://doi.org/10.1016/j.jbi.2019.101208

Harris, F. A., Taylor, R., Thiell, R., Payne, J., Gonzales, N., & Conde, J. G. (2009). Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. Journal of Biomedical Informatics, 42(2), 377–381. https://doi.org/10.1016/j.jbi.2008.08.010

Hayes, S. C., Luoma, J. B., Bond, F. W., Masuda, A., & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. Behaviour Research and Therapy, 44(1), 1–25. https://doi.org/10.1016/j.brat.2005.06.006

Kroenke, K., & Spitzer, R. L. (2002). The PHQ-9: A new depression diagnostic and severity measure. Psychiatric Annals, 32(9), 599–615. https://doi.org/10.3928/0048-5713-20020901-06

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. Journal of General Internal Medicine, 16(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.0106906.x

Kroska, E. B., Roche, A. I., Adamowicz, J. L., & Stegall, M. S. (2020). Psychological flexibility in the context of COVID-19 adversity: Associations with distress. Journal of Contextual Behavioral Science, 18, 28–33. https://doi.org/10.1016/j.jcbs.2019.07.011

Landi, G., Pakenham, K. I., Crocetti, E., Grandi, S., & Tossani, E. (2021a). The multidimensional psychological flexibility inventory (MPFI): Discriminant validity...
of psychological flexibility with distress. *Journal of Contextual Behavioral Science, 21*, 22–29. https://doi.org/10.1016/j.jcbs.2021.05.004

Landi, G., Pakenham, K. I., Giovannetti, A. M., Presti, G., Boccolini, G., Cola, A., & Tossani, E. (2021b). Italian validation of the Italian multidimensional psychological flexibility inventory (MPFI). *Journal of Contextual Behavioral Science, 21*, 57–65. https://doi.org/10.1016/j.jcbs.2021.05.007

Lowe, B., Spitzer, R. L., Williams, J. B., Mussell, M., Schellberg, D., & Kroenke, K. (2008). Depression, anxiety and somatization in primary care: Syndrome overlap and functional impairment. *General Hospital Psychiatry, 30*(3), 191–199. https://doi.org/10.1016/j.genhosppsych.2008.01.001.

Mahmud, S., Hosain, S., Mayeed, A., Islam, M. M., & Mohsin, M. (2021). The global prevalence of depression, anxiety, stress, and, insomnia and its changes among health professionals during COVID-19 pandemic: A rapid systematic review and meta-analysis. *Heliyon, 7*(7), Article e07393. https://doi.org/10.1016/j.heliyon.2021.e07393

McCracken, L. M., Buhrman, M., Badinlou, F., & Brocki, K. C. (2021). The role of psychological flexibility in the context of COVID-19: Associations with depression, anxiety, and insomnia. *Journal of Contextual and Behavioral Science, 19*, 28–35. https://doi.org/10.1016/j.jcbs.2020.11.003.

Mukherjee, K., Banik, S., & Chakraborty, N. (2021). Impact of COVID-19 pandemic on mental health across different populations. *Minerva Psychiatry, 140–155. https://doi.org/10.23736/S2724-6612.21.02172-2.

Nalbandian, A., Sehgol, K., Gupta, A., Madhavan, M. V., McGroder, C., Stevens, J. S., & Wan, E. Y. (2021). Post-acute COVID-19 syndrome. *Nature Medicine, 27*(4), 601–615. https://doi.org/10.1038/s41591-021-01283-z

Ong, C. W., Pierce, B. G., Petersen, J. M., Barney, J. L., Fruge, J. E., Levin, M. E., & Twohig, M. P. (2020). A psychometric comparison of psychological inflexibility measures: Discriminant validity and item performance. *Journal of Contextual Behavioral Science, 18*, 34–47. https://doi.org/10.1016/j.jcbs.2020.08.007

Pakenham, K. I., Landi, G., Boccolini, G., Farani, A., Grandi, S., & Tossani, E. (2020). The moderating roles of psychological flexibility and inflexibility on the mental health impacts of COVID-19 pandemic and lockdown in Italy. *Journal of contextual behavioral science, 17*, 109–118. https://doi.org/10.1016/j.jcbs.2020.07.003

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology, 88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879.

Rogge, R. D., Daks, J. S., Dubler, B. A., & Saint, K. J. (2019). It’s all about the process: Examining the convergent validity, conceptual coverage, unique predictive validity, and clinical utility of ACT process measures. *Journal of Contextual Behavioral Science, 14*, 90–102. https://doi.org/10.1016/j.jcbs.2019.10.001

Rolfs, J. L., Rogge, R. D., & Wilson, K. G. (2018). Disentangling components of flexibility via the hexaflex model: Development and validation of the multidimensional psychological flexibility inventory (MPFI). *Assessment, 25*(4), 458–482. https://doi.org/10.1177/1073191118804905

Smith, B. M., Twohy, A. J., & Smith, G. S. (2020). Psychological inflexibility and intolerance of uncertainty moderate the relationship between social isolation and mental health outcomes during COVID-19. *Journal of Contextual Behavioral Science, 18*, 162–174. https://doi.org/10.1016/j.jcbs.2020.09.005

Spitzer, R. L., Kroenke, K., Williams, J. B., & Lowe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine, 166*(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092

Swedish Agency for Health Technology Assessment and Assessment of Social Services. (2020). Långvariga symtom vid covid-19. https://www.sbu.se/sv/publikationer/sbu-bereder/langvariga-symtom-vid-covid-19/ (Accessed 25 February 2021) Accessed.

Tabrizi, F. F., Larsson, A., Grovall, H., Soderstrand, L., Hallen, E., Champoux-Larsson, M. F., & Jansson, B. (2022). Psychometric evaluation of the Swedish multidimensional psychological flexibility inventory (MPFI). https://doi.org/10.31234/osf.io/dtbj8

Yu, L., Klokki, K., & McCracken, L. M. (2021). The psychological functioning in the COVID-19 pandemic and its association with psychological flexibility and broader functioning in people with chronic pain. *The Journal of Pain, 22*(8), 926–939. https://doi.org/10.1016/j.jpain.2021.02.001