

## Correspondence

\*These authors have equal contribution to this work

**Cite this article:** Gambin M *et al* (2023). Pandemic trajectories of depressive and anxiety symptoms and their predictors: five-wave study during the COVID-19 pandemic in Poland. *Psychological Medicine* **53**, 4291–4293. <https://doi.org/10.1017/S0033291721005420>

Received: 6 July 2021

Revised: 10 December 2021

Accepted: 14 December 2021


First published online: 20 December 2021

**Author for correspondence:**

Małgorzata Gambin,

E-mail: [mgambin@psych.uw.edu.pl](mailto:mgambin@psych.uw.edu.pl)

# Pandemic trajectories of depressive and anxiety symptoms and their predictors: five-wave study during the COVID-19 pandemic in Poland

Małgorzata Gambin<sup>1</sup> , Tomasz Oleksy<sup>1,\*</sup>, Marcin Sękowski<sup>2,\*</sup>, Anna Wnuk<sup>3,\*</sup>, Małgorzata Woźniak-Prus<sup>1,\*</sup>, Grażyna Kmita<sup>1,4</sup>, Paweł Holas<sup>1</sup>, Ewa Pisula<sup>1</sup>, Emilia Łojek<sup>1</sup>, Karolina Hansen<sup>1</sup>, Joanna Gorgol<sup>1</sup>, Karolina Kubicka<sup>1</sup>, Mirosława Huflejt-Łukasik<sup>1</sup>, Andrzej Cudo<sup>5</sup>, Agnieszka Ewa Łyś<sup>1</sup>, Anna Szczepaniak<sup>6</sup> and George A. Bonanno<sup>7</sup>

<sup>1</sup>Faculty of Psychology, University of Warsaw, ul. Stawki 5/7, 00-183 Warsaw, Poland; <sup>2</sup>Institute of Psychology, The Maria Grzegorzewska University, ul. Szczęśliwicka 40, 02-353 Warsaw, Poland; <sup>3</sup>The Robert Zajonc Institute for Social Studies, University of Warsaw, ul. Stawki 5/7, 00-183 Warsaw, Poland; <sup>4</sup>Institute of Mother and Child, ul. Kasprzaka 17a, 01-211 Warsaw, Poland; <sup>5</sup>Institute of Psychology, The John Paul II Catholic University of Lublin, Al. Raclawickie 14, 20-950 Lublin, Poland; <sup>6</sup>Empowering Children Foundation, ul. Mazowiecka 12/25, 00-048 Warsaw, Poland and <sup>7</sup>Department of Clinical Psychology, Teachers College, Columbia University, New York, NY, USA

Shevlin *et al.* (2021) noted that mean population estimates of mental health during coronavirus disease-2019 (COVID-19) pandemic may not adequately reflect the heterogeneity across individuals. Actually, heterogeneous patterns in COVID-19 outcomes indicate that the majority of the participants responded with consistently low intensity of anxiety/depressive symptoms during the pandemic (e.g. Kimhi, Eshel, Marciano, Adini, & Bonanno, 2021; Saunders, Buckman, Fonagy, & Fancourt, 2021; Shevlin *et al.*, 2021). Shevlin *et al.* (2021) claimed to be ‘Refuting the myth of a ‘tsunami’ of mental ill-health’ during COVID-19. However, before we can truly refute such a myth, more longitudinal research is needed in different countries affected by the pandemic. Our aim was to explore trajectories of change in anxiety-depressive symptoms during the first year of the COVID-19 pandemic in Poland. We also examined risk/protective factors associated with the trajectories to identify vulnerable individuals and to implicate possible effective therapeutic and preventive interventions.

We collected data in five waves, between May 2020 and April 2021. T1 took place at the end of the first lockdown in Poland. By T2 and T3 almost all restrictions have been lifted. At T4 tighter restrictions were implemented, and by T5 a second lockdown was introduced. The study was approved by the institutional review board of the Faculty of Psychology, University of Warsaw. Participants were recruited online. The T1 sample ( $N = 1179$ ) was representative of the Polish population with respect to gender, age, and place of residence. After removing 79 outliers, 1100 participants (51% females, 49% males) aged 18–85 ( $M = 44.70$ ,  $S.D. = 15.82$ ) were followed-up for approximately 1 year: T2 ( $N = 944$ ), T3 ( $N = 792$ ), T4 ( $N = 666$ ) and T5 ( $N = 584$ ). Detailed characteristics of the sample, data analytic strategy and results can be found at: <https://osf.io/mpfwq/>

We used the following questionnaires: *Patient Health Questionnaire Anxiety-Depression Scale* (PHQ-ADS; Kroenke *et al.*, 2016); *Difficulties in Emotion Regulation Scale Short Form* (DERS-SF; Kaufman *et al.*, 2016); *Brief Empathic Sensitivity Questionnaire* (Brief-ESQ; Gambin *et al.*, 2020), *Scale of Perceived Health and Life Risk of COVID-19* and *Social Support Scale* (Gambin *et al.*, 2021).

We used unconditional univariate latent growth curve modeling to test whether outcome variables changed over time; MLR to account for non-normally distributed data; FIML to impute missing data; growth mixture modeling (GMM) to identify trajectories of anxiety-depressive symptoms; to identify the best fitting GMM for depressive-anxiety symptoms, we compared two- to five-class models using AIC, BIC, sample size adjusted BIC, entropy, BLRT and LRT tests; a three-step auxiliary model was used to explore T1 predictors of membership in each latent class *v.* the other classes.

Based on the various fit statistics, as well as taking into account considerations of model coherence and interpretability, the four-class model (Fig. 1) was chosen as the optimal solution.

In accordance with prototypical trajectories following potential trauma (Bonanno, 2004), as well as those observed in studies during COVID-19 (Kimhi *et al.*, 2021; Saunders *et al.*, 2021; Shevlin *et al.*, 2021), we identified Resilient, Improving, Chronic, and Worsening groups. The majority of participants (60%) were in the Resilient trajectory with stable, low anxiety-

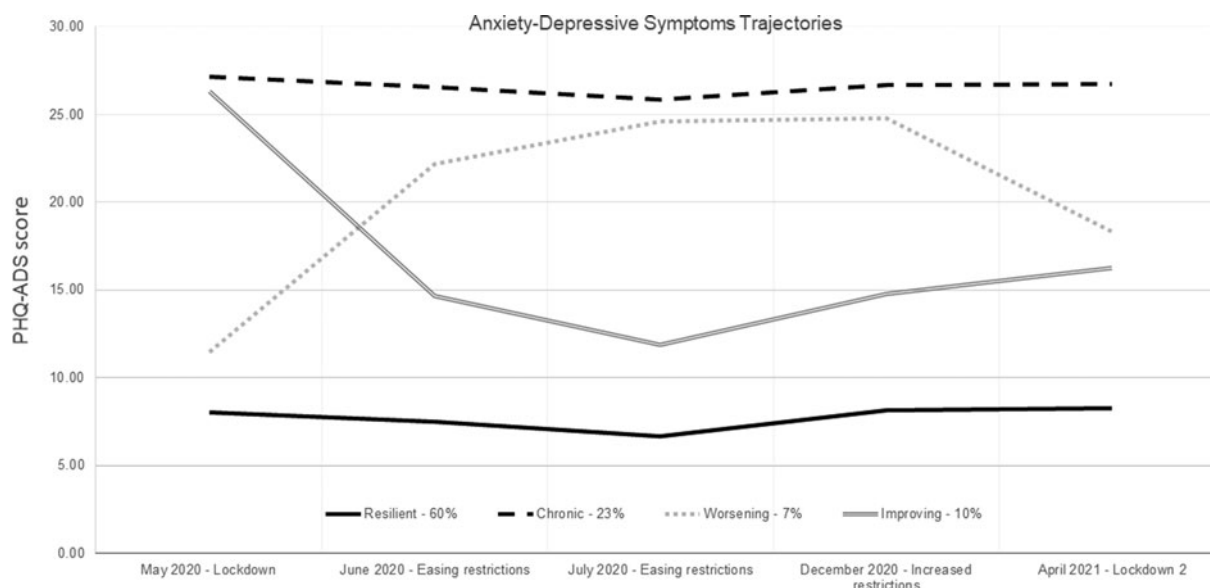


Fig. 1. Anxiety-depressive symptoms trajectories.

depressive symptoms throughout the period considered. A large percentage (23%) of adults was in the Chronic group. The Improving group (10%) experienced the highest levels of symptoms at the beginning of the pandemic, then decreased during loosening restrictions at summer and slightly increased during the second lockdown in April 2021. The Worsening group (7%) experienced an increase in symptoms during summer and autumn and then a slight decrease during the second lockdown.

Individuals in the Chronic group were younger than Resilient and Improving individuals, had a poorer financial situation than Resilient individuals, greater emotion regulation difficulties than Resilient and Worsening individuals, and greater distress, perceived risk of COVID-19 risk, and more chronic diseases compared to the Resilient group. Taken together, chronic elevations of anxiety-depressive symptoms appear to be coupled with the accumulation of greater pandemic-related stressors and the lack of socio-emotional resources to cope with them. Some of the needs and plans of young adults could be disturbed by the pandemic, as well as they could have less resources and experiences in dealing with crises and changes than older adults (Gambin et al., 2021).

The Improving symptom trajectory was associated with higher baseline levels of emotion regulation difficulties and personal distress and more family members in the household as compared to Resilient group, as well as older age in comparison to Chronic group but a better financial situation compared to Worsening class. Older age and a better financial situation could be associated with having more resources and experiences in dealing with crises and changes in those individuals who were characterized by greater socio-emotional difficulties (higher emotion regulation difficulties and personal distress).

The Worsening trajectory was associated with a poorer financial situation compared to the Resilient and Improving trajectories and more family members in a household as compared to the Resilient group. It seems that the lower availability of economic resources and higher household density may have exacerbated the various challenges and hardships of the pandemic and contributed to growing levels of distress.

The primary limitations of our study were an exclusive use of online data and a lack of anxiety-depressive symptom data prior

to the pandemic. It is difficult to determine the extent, for example, that individuals from the Chronic group may have experienced difficulties prior to the pandemic or elevated symptoms with the onset of the pandemic. Ideally, future research should strive to compare risk and protective factors of various long-term symptom patterns prior to, during, and after the pandemic in various countries and cultures.

Based on our results, we suggest that interventions building emotion regulation abilities and reducing excessive self-focus in interpersonal situations could be effective in reducing depression-anxiety symptoms during the pandemic. It would be crucial to target interventions for at-risk individuals: those in difficult financial and household situations and at a younger age.

**Financial support.** The research and the publication are financed by the funds from the Faculty of Psychology at the University of Warsaw awarded by the Polish Ministry of Science and Higher Education in the form of a subvention for maintaining and developing research potential in 2020.

**Conflict of interest.** The authors declare that they have no conflict of interest.

**Ethical standards.** The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

## References

- Bonanno, G. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *The American Psychologist*, 59, 20–28. doi: 10.1037/0003-066X.59.1.20
- Gambin, M., Sękowski, M., Woźniak-Prus, M., Wnuk, A., Oleksy, T., Cudo, A., ... Maison, D. (2021). Generalized anxiety and depressive symptoms in various age groups during the COVID-19 lockdown in Poland. Specific predictors and differences in symptoms severity. *Comprehensive Psychiatry*, 105, 152222. doi: 10.1016/j.comppsy.2020.152222
- Gambin, M., Woźniak-Prus, M., Sękowski, M., Cudo, A., Pisula, E., Kiepusa, E., ... Kmita, G. (2020). Factors related to positive experiences in parent-child relationship during the COVID-19 lockdown. The role of empathy, emotion regulation, parenting self-efficacy and social support. *PsyArXiv*, 1–23. doi: 10.31234/osf.io/yhtqa

- Kaufman, E. A., Xia, M., Fosco, G., Yaptangco, M., Skidmore, C. R., & Crowell, S. E. (2016). The difficulties in emotion regulation scale short form (DERS-SF): Validation and replication in adolescent and adult samples. *Journal of Psychopathology and Behavioral Assessment*, 38(3), 443–455.
- Kimhi, S., Eshel, Y., Marciano, H., Adini, B., & Bonanno, G. A. (2021). Trajectories of depression and anxiety during COVID-19 associations with religion, income, and economic difficulties. *Journal of Psychiatric Research*, 144, 389–396.
- Kroenke, K., Wu, J., Yu, Z., Bair, M. J., Kean, J., Stump, T., & Monahan, P. O. (2016). The patient health questionnaire anxiety and depression scale (PHQ-ADS): Initial validation in three clinical trials. *Psychosomatic Medicine*, 78(6), 716.
- Saunders, R., Buckman, J. E. J., Fonagy, P., & Fancourt, D. (2021). Understanding different trajectories of mental health across the general population during the COVID-19 pandemic. *Psychological Medicine*, 1–9. doi: 10.1017/S0033291721000957
- Shevlin, M., Butter, S., McBride, O., Murphy, J., Gibson-Miller, J., Hartman, T. K., ... Bentall, R. P. (2021). Refuting the myth of a 'tsunami' of mental ill-health in populations affected by COVID-19: Evidence that response to the pandemic is heterogeneous, not homogeneous. *Psychological Medicine*, 1–9. doi: 10.1017/S0033291721001665