STUDY PROTOCOL

Assessing and protecting the mental health of the nation: A study protocol [version 1; peer review: awaiting peer review]

Philip Hyland¹,², Frédérique Vallières²

¹Department of Psychology, National University of Ireland, Maynooth, Kildare, Ireland
²Centre for Global Health, University of Dublin, Dublin, Ireland

First published: 18 Jan 2021, 4:5
https://doi.org/10.12688/hrbopenres.13207.1
Latest published: 18 Jan 2021, 4:5
https://doi.org/10.12688/hrbopenres.13207.1

Abstract

Background: Coronavirus disease 2019 (COVID-19) and the public health measures enacted to control its spread may affect the mental health of the general population of Ireland. Funded under the Health Research Board's COVID-19 Pandemic Rapid Response Funding Call, this protocol outlines the aims of a project to assess and protect the mental health of the population of Ireland during this pandemic. We will determine (i) the prevalence of common mental health disorders at various times during the first year of the pandemic, (ii) changes in the prevalence of mental health disorders during the first year of the pandemic, (iii) if there are distinct groups of people experiencing different mental health responses to the pandemic, and (iv) the factors associated with different mental health reactions.

Methods: This quantitative study uses cross-sectional and longitudinal designs. Data have been collected from a nationally representative sample of Irish adults at four assessments: Wave 1 (N = 1,041) occurred during the first week of lockdown in March 2020, Wave 2 in May, Wave 3 in August, and Wave 4 in December. Wave 5 is planned for March 2021. Participants from Wave 1 have been recontacted at each wave to produce a longitudinal dataset. New participants were recruited using quota sampling to ensure the availability of nationally representative samples at each wave. Self-report measures of demographic, economic, psychological, and mental health variables were completed.

Conclusion: This design will allow us to determine whether there has been a change in mental health disorders in the general population during the first year of the pandemic, and if so, what variables are associated with changes in mental health. Results will be used to inform the government's ongoing response to this crisis, to better protect the mental health of the nation during this and any future public health emergency.

Keywords

Mental health, covid-19
Corresponding author: Philip Hyland (philip.hyland@mu.ie)

Author roles: Hyland P: Conceptualization, Data Curation, Funding Acquisition, Investigation, Methodology, Project Administration, Writing – Original Draft Preparation, Writing – Review & Editing; Vallières F: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: No competing interests were disclosed.

Grant information: Health Research Board Ireland [COV19-2020-025]

Copyright: © 2021 Hyland P and Vallières F. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

How to cite this article: Hyland P and Vallières F. Assessing and protecting the mental health of the nation: A study protocol [version 1; peer review: awaiting peer review] HRB Open Research 2021, 4:5 https://doi.org/10.12688/hrbopenres.13207.1

First published: 18 Jan 2021, 4:5 https://doi.org/10.12688/hrbopenres.13207.1
**Introduction**

The outbreak of coronavirus disease 2019 (COVID-19) was accompanied by several warnings of the consequences that the pandemic would wreak on the mental health of the general population (Adhanom Ghebreyesus, 2020; Campion et al., 2020; Carvalho et al., 2020; Reger et al., 2020). Included among these was a message from the President of the Royal College of Psychiatrists in the United Kingdom (UK), who cautioned that ‘the prevalence of mental health issues is also expected to grow enormously due to the repercussions of the virus and the lockdown on mental health’ (Torjesen, 2020).

Trepidation at the possibility of negative mental health consequences during the pandemic is reasonable given the threat posed to billions of people by a novel coronavirus spreading across the globe. The risk of contracting COVID-19 remains a serious risk for billions of people, especially for those aged 65 years or older and those with one or more chronic medical conditions. This prevailing risk, combined with images of mass graves, overrun hospitals, patients being placed on assisted ventilation, as well as stories of people’s loss of family members and livelihoods prevailing in the media, justifies wondering whether the pandemic, and the public health measures imposed to contain the spread of the virus, might have a negative effect on people’s mental health. Moreover, existing data suggests that individuals who had been quarantined within previous pandemics were at risk for negative psychological outcomes (Brooks et al., 2020). Unfortunately, however, many of the early commentaries did not question whether the pandemic might affect people’s mental health, but instead were presented in such a way that assumed that mental health problems would axiomatically follow from the outbreak of COVID-19. This was done in spite of the now well-established literature in support of resilience as, by far, the modal response to stressful and traumatic life events (Galatzer-Levy et al., 2018).

Initial public declarations of an impending mental health catastrophe were followed by a series of high-profile studies in the initial months after the pandemic claiming to have found a substantial increase in mental health problems in the general population. For example, a study published in JAMA suggested that the rate of clinically relevant psychological distress in the general population of the United States had more than tripled in April 2020, compared to 2018 (McGinty et al., 2020). Another study published in The Lancet Psychiatry using data collected from the United Kingdom Household Longitudinal Study (UKHLS) found that the proportion of people experiencing clinically significant distress rose from 19% in 2014–2016 to 27% in April 2020, and led the authors to conclude that the mental health of the nation had ‘deteriorated compared to pre-pandemic levels’ (Pierce et al., 2020, p. 883). While this conclusion is possible, these studies (among others not mentioned) suffer from significant methodological flaws that preclude any conclusions regarding how the pandemic has affected the mental health of populations.

Notably, the McGinty et al. study was based on a comparison of data derived from two distinct samples, each recruited using different methods. Similarly, the Pierce et al. study used data collected in 2014–2016 via face-to-face interviews, and compared this to the same information collected via a self-report, internet survey conducted in 2020. The latter is problematic given that using online, self-report assessments are known within mental health research to yield higher rates of distress than interview-based assessments (Hoffman et al., 2011) - likely because respondents are more comfortable disclosing personal and sensitive information in these situations (Pickard et al., 2018). It is therefore possible (or, indeed, probable) that the observed increases in mental health problems in these general populations are due to methodological issues, rather than to the outbreak of the virus itself. Moreover, we are unaware of any findings published from a population-based study that has assessed mental health disorders pre- and post-the outbreak of the COVID-19 pandemic using identical methods. Without such data, it remains difficult to conclude whether the pandemic has had an effect of people’s mental health.

While we remain open to the possibility that the pandemic has led (or could lead) to a deterioration in the mental health of the general population, given what is known about human resilience to adversity and trauma (Galatzer-Levy et al., 2018), and the importance of scientists remaining sceptical and prudent in the absence of sufficient evidence, we argue in favour of assuming the null hypothesis to be true (i.e., that the onset of the pandemic is not associated with significant changes in mental health outcomes in the general population) until we can confidently refute it. To this end, we are aware of several longitudinal, nationally representative surveys, taking place across different countries, using identical methods, that were convened in the immediate aftermath of the outbreak of COVID-19.

Among these is the project described herein, entitled ‘Assessing and Protecting the Mental Health of the Nation’ (Mental Health ASAP), as one of a number of arms of the COVID-19 Psychological Research Consortium (C19PRC: McBride et al., 2020), Mental Health ASAP makes up part of the Republic of Ireland arm of the C19PRC (C19PRC-ROI). Launched in March 2020, with the intention of tracking a nationally representative sample of Irish adults over at least the first 12 months of the pandemic, the first three waves of data were collected in late March, early May, and late July/early August 2020, through funding made available by internal university support. Studies based on these data have already been published (e.g., Hyland et al., 2020a). Funding from the Health Research Board (HRB) and the Irish Research Council (IRC) was subsequently obtained in October 2020, allowing us to continue the work of tracking the Republic of Ireland cohort through two new waves of data collection, planned for December 2020 and March 2021, respectively.

The primary goal of Mental Health ASAP is therefore to develop a robust understanding of the mental health of the general adult population of Ireland during the first year following the outbreak of COVID-19, as well as what individual
and psychosocial factors are associated with experiencing positive or negative changes in mental health. To achieve this goal, several objectives were formulated as part of Mental Health ASAP.

First, we will determine (i) what proportion people meet criteria for major depressive disorder (MDD), generalized anxiety disorder (GAD), and posttraumatic stress disorder (PTSD), and (ii) what proportion of people meet criteria for any of these disorders at each assessment during the first year of the pandemic. Moreover, we will assess what proportion of people screen positive for loneliness and somatic problems. Second, we will determine if the proportion of people suffering from each, or any, of these disorders significantly changed during the first year of the pandemic. Third, we will determine if there are distinct groups of people who have experienced different patterns of change in their mental health during the first year of the pandemic. Fourth, and assuming that there will be different groups of people with specific patterns of change in their mental health (e.g., ‘deteriorating’, ‘improving’, ‘stable’), we will determine the individual and psychosocial factors associated with these different changes in mental health during the first year of the pandemic.

Methods
Study design and sample
Mental Health ASAP is a quantitative, longitudinal study of the Irish adult population aged 18 years and older. Participants were recruited from traditional, actively managed, double-opt-in research panels via email, SMS, or in-app notifications by the survey company Qualtrics. Quota sampling methods were used to construct a sample that was nationally representative in terms of sex, age, and geographical distribution, as per data from the 2016 Irish census (Central Statistics Office, 2020). Inclusion criteria required that respondents be aged 18 years or older, residing in the Republic of Ireland, and capable of completing the survey in English. Participants were remunerated for their time by Qualtrics, and written informed consent was obtained from all participants.

Power analyses were conducted to determine the optimal sample size. As this study was primarily concerned with identifying mental health disorders such as MDD, GAD, and PTSD in the general population, sample size calculations were based on existing prevalence estimates for these disorders. In Ireland, the estimated prevalence of PTSD is approximately 5%, and lower than the prevalence estimates of depression and generalized anxiety (Hyland et al., 2020b). To detect a disorder with a prevalence of 5%, with precision of 1%, and 95% confidence level, a sample size of 1824 was required. The survey company could only guarantee a sample size of 1,000 participants. Therefore, the target sample size was set at 1,000 which, holding all other parameters in the sample size calculation equal, resulted in a precision of 1.35%.

Wave 1 (N = 1,041) was collected from March 31st to April 5th, 2020 during the first week of Ireland’s initial lockdown, and details of this sample are available elsewhere (Hyland et al., 2020a). Wave 2 (N = 1,032) was collected from April 30th to May 19th, 2020 at the end of the lockdown. The Wave 2 sample included 506 participants from Wave 1 (recontact rate = 48.6%) as well as 526 newly recruited participants. New participants were also recruited using the previously described quota sampling method to ensure that the final sample was representative of the general population. Wave 3 (N = 534) was collected from July 16th to August 8th, 2020. The goal in this survey was to maximise the number of recontacts and no need participants were recruited. The recontact rate was 51.3%. Wave 4 (N = 1,100) took place between December 2nd and 22nd. This sample included 412 participants from Wave 1 (recontact rate = 39.6%), and 688 new participants who recruited using the previously described quota sampling method to ensure that the final sample was representative of the general population. Wave 5 is scheduled to take place in March 2021. This wave will follow the same approach as Wave 4.

Assessments
In line with the overarching goal of the C19PRC study to determine the social and psychological impact of the COVID-19 crisis on the population, a comprehensive battery of tests measuring participants’ demographic characteristics, socio-political views, economic status, health problem, mental health status, and psychology are used at each assessment. Table 1 provides a comprehensive overview of the survey content.

Data analysis
Changes in the proportion of people meeting criteria for MDD, GAD, and PTSD will be assessed using a structural equation modelling (SEM). SEM was chosen such that missing data can be handled using full information maximum likelihood estimation, recognised as the most appropriate method for handling missing data (Li & Stuart, 2019; Schafer & Graham, 2002). Models with constrained and unconstrained proportions will be estimated and compared to determine rates of each disorder at each timepoint, and whether any statistically significant change over time has occurred, in fulfilment of the first two research objectives.

Latent class growth analysis (LCGA) will be used to identify whether there are different groups in the sample who have experienced different patterns of change in mental health over time (objective three). An internalizing psychopathology latent variable will be modelled at each time period from the observed scores on depression, anxiety, PTSD, loneliness, and somatic problems. Assuming that qualitatively distinct groups are identified in the Internalizing latent variable, predictor variables will be added to the LCGA model to assess which individual and psychosocial variables predict class membership. Here, a three-step approach will be taken to ensure that the inclusion of the predictors will not influence the formation of the classes. This will be achieved by incorporating the classification uncertainties in the mixture model, as an approach shown to produce more accurate parameter estimates compared to other approaches that do not account for error in classification.
| Theme                          | Indicative content                                                                                                                                                                                                                                                                                                                                 |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Demographics                  | Age, gender, country of residence, marital status, economic activity, key/essential worker status, born in Ireland, grow up in Ireland, urbanicity, level of education, religion                                                                                                                                                                      |
| Housing characteristics       | Living alone, Number of adults living in household, Number of children living in household, Housing tenure, Residential details (type of property; number of bedrooms; length at property)                                                                                                                                  |
| Household finances            | Estimated annual gross income, change in monthly household income during pandemic, financial spending/saving during pandemic, Perceived future financial security                                                                                                                                                         |
| Health conditions             | Existence of any major underlying health conditions – self and family, Currently pregnant – self (partner)                                                                                                                                                                                                                                               |
| Coronavirus disease 2019 (COVID-19) | Sourcing of information (newspapers, TV, radio, social media, internet, etc.)                                                                                                                                                                                                                                                                         |
| Anxiety                        | Level of trust in information source                                                                                                                                                                                                                                                                                                                   |
| Engagement                     | Engaging in behaviour to reduce risk of contracting COVID-19 (e.g. wearing face mask)                                                                                                                                                                                                                                                                                                                             |
| Lockdown restrictions          | Engagement with lockdown restrictions                                                                                                                                                                                                                                                                                                                  |
| Anxiety-level relating to COVID-19 | Perceived individual risk contracting COVID-19 over next 6 months                                                                                                                                                                                                                                                                                  |
| Self-isolation                | Experiences of self-isolation                                                                                                                                                                                                                                                                                                                          |
| Infected with COVID-19         | Experience of being infected with COVID-19 (including testing) - self                                                                                                                                                                                                                                                                                  |
| Having COVID-19               | Experience of having COVID-19 (feeling unwell, admitted to hospital)                                                                                                                                                                                                                                                                                  |
| Closest family /friends       | Knowing someone close (family member/friend) who has tested positive for COVID-19                                                                                                                                                                                                                                                                       |
| Died due to COVID-19          | Knowing someone close (family member/friend) who has tested died due to COVID-19                                                                                                                                                                                                                                                                       |
| COVID-19 vaccine acceptability | COVID-19 vaccine acceptability (self)                                                                                                                                                                                                                                                                                                                |
| Vaccine acceptability (child) | COVID-19 vaccine acceptability (child)                                                                                                                                                                                                                                                                                                               |
| Comfort engaging              | Comfort engaging in activities (e.g. socialising, shopping, going to the gym etc.)                                                                                                                                                                                                                                                                        |
| Going on holiday/travel abroad | Preference for pace of easing lockdown restriction                                                                                                                                                                                                                                                                                                      |
| Anxiety                        | Predicted course of the pandemic                                                                                                                                                                                                                                                                                                                          |
| Mental health                 | Going on holiday/travel abroad                                                                                                                                                                                                                                                                                                                          |
| Depression                    | Depression: Patient Health Questionnaire-9 (Kroenke et al., 2001)                                                                                                                                                                                                                                                                                     |
| Anxiety                       | Anxiety: Generalized Anxiety Disorder Scale-7 (Spitzer et al., 2006)                                                                                                                                                                                                                                                                                  |
| Traumatic stress              | Traumatic stress: International Trauma Questionnaire (Cloitre et al., 2018)                                                                                                                                                                                                                                                                        |
| Paranoia                      | Paranoia: Persecution and Deservedness Scale (Melo et al., 2009)                                                                                                                                                                                                                                                                                     |
| Somatic symptoms              | Somatic symptoms: Patient Health Questionnaire-15 (Kroenke et al., 2002)                                                                                                                                                                                                                                                                            |
| Self-harm                     | Self-harm, suicidal thoughts, and suicide attempts                                                                                                                                                                                                                                                                                                     |
| Social anxiety                | Social anxiety: Mini Social Phobia Inventory (Mini-SPIN) (Connor et al., 2001)                                                                                                                                                                                                                                                                       |
| Personality                   | Personality: Big-Five Inventory-10 (Rammstedt & John, 2007)                                                                                                                                                                                                                                                                                          |
| Loneliness                    | Loneliness: Loneliness Scale (Hughes et al., 2004)                                                                                                                                                                                                                                                                                                    |
| Death anxiety                 | Death anxiety: Death Anxiety Inventory (Tomás-Sábado et al., 2005)                                                                                                                                                                                                                                                                                   |
| Locus of control              | Locus of control: Locus of Control Scale (Sapp & Harrod, 1993)                                                                                                                                                                                                                                                                                        |
| Self-esteem                   | Self-esteem: Single-Item Self-esteem Scale (Robins et al., 2001)                                                                                                                                                                                                                                                                                     |
| Resilience                    | Resilience: Brief Resilience Scale (Smith et al., 2008)                                                                                                                                                                                                                                                                                              |
| Attachment style              | Attachment style: Relationships Questionnaire (Bartholomew & Horowitz, 1991)                                                                                                                                                                                                                                                                        |
| Happiness                     | Happiness: Subjective Happiness Scale (Lyubomirsky & Lepper, 1999)                                                                                                                                                                                                                                                                                  |
| Life satisfaction             | Life satisfaction                                                                                                                                                                                                                                                                                                                                   |
| Aspects of life better/worse | Aspects of life better/worse since pandemic                                                                                                                                                                                                                                                                                                          |
| Social support                | Social support: Modified Medical Outcome Social Support Survey (mMOS-SS) (Moser et al., 2012)                                                                                                                                                                                                                                                        |
Institutions of Central Statistics Office Ireland: website: made available through various channels, including the project public health emergency. All research related outputs will be the mental health needs of the population during any future the current pandemic and (b) better prepared to respond to towards a health system that is (a) better informed during mental health problems more clearly in the population during findings will also be used to generate policy recommendations and submitted for publication in peer-reviewed journals. Find Study findings will be submitted as pre-prints to PsychArXiv Dissemination Research Ethics Committee at Maynooth University [Ref Ethical approval for this study has been granted by the Social Ethics approval Muthén, 2017. All analyses will be executed using Mplus version 8.2 (Muthén & Muthén, 2017).

Ethics approval
Ethical approval for this study has been granted by the Social Research Ethics Committee at Maynooth University [Ref SRESC-2020-2402202].

Dissemination
Study findings will be submitted as pre-prints to PsychArXiv and submitted for publication in peer-reviewed journals. Findings will also be used to generate policy recommendations enabling the Government of Ireland to understand the level of mental health problems more clearly in the population during the COVID-19 pandemic. In doing so, we hope to contribute towards a health system that is (a) better informed during the current pandemic and (b) better prepared to respond to the mental health needs of the population during any future public health emergency. All research related outputs will be made available through various channels, including the project website: https://www.mentalhealthasap.com/publications.

Study status
As described in the methods section, four waves of data have thus far been collected and several studies have been published based on data collected from the earliest waves at this point. Data collection will continue into next March, at which point, the objectives outlined in this protocol will be addressed.

Conclusion
By the conclusion of this project, we will have amassed a longitudinal dataset for a nationally representative sample of Irish adults. Additionally, we will have produced several stand-alone nationally representative datasets. With these data, it will be possible to understand if the COVID-19 pandemic has had any effect – positive or negative – on the mental health of the nation.

Data availability
Underlying data
No data are associated with article.

References
Adhanom Ghebreyesus T: Addressing mental health needs: an integral part of COVID-19 response. World Psychiatry. 2020; 19(2): 129–130. PubMed Abstract | Publisher Full Text | Free Full Text
Bartholomew K, Horowitz LM: Attachment styles among young adults: a test of a four-category model. J Pers Soc Psychol. 1991; 61(2): 226–44. PubMed Abstract | Publisher Full Text
Brooks SK, Webster RK, Smith LE, et al.: The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet. 2020; 395(10227): 912–920. PubMed Abstract | Publisher Full Text | Free Full Text
Campion J, Javed A, Sartorius N, et al.: Addressing the public mental health challenge of COVID-19. Lancet Psychiatry. 2020; 7(8): 657–659. PubMed Abstract | Publisher Full Text | Free Full Text
Carvalho PMDM, Moreira MM, de Oliveira, MNA, et al.: The psychiatric impact of the novel coronavirus outbreak. Psychiatry Res. 2020; 286: 112902. PubMed Abstract | Publisher Full Text | Free Full Text
Central Statistics Office of Ireland: Census 2016 Reports. 2020. Reference Source
Cloitre M, Shevlin M, Brewin CR, et al.: The International Trauma Questionnaire: development of a self-report measure of ICD-11 PTSD and complex PTSD. Acta Psychiatr Scand. 2018; 138(6): 536–546. PubMed Abstract | Publisher Full Text
Connor KM, Kobak KA, Churchill LE, et al.: Mini-SPIN: A brief screening assessment for generalized social anxiety disorder. Depress Anxiety. 2001; 14(2): 137–140. PubMed Abstract | Publisher Full Text | Free Full Text
Galatzer-Levy IR, Huang SH, Bonanno GA: Trajectories of resilience and dysfunction following potential trauma: A review and statistical evaluation. Clin Psychol Rev. 2018; 63: 41–55. PubMed Abstract | Publisher Full Text
Hoffman YS, Diamond GM, Lipsitz JD: The challenge of estimating PTSD prevalence in the context of ongoing trauma: the example of Israel during the Second Intifada. J Anxiety Disord. 2011; 25(6): 788–793. PubMed Abstract | Publisher Full Text | Free Full Text
Hughes ME, Waite LJ, Hawkey LC, et al.: A short scale for measuring loneliness in large surveys: Results from two population-based studies. Res Aging. 2004; 26(6): 655–672. PubMed Abstract | Publisher Full Text | Free Full Text
Hyland P, Shevlin M, McBride O, et al.: Anxiety and depression in the Republic of Ireland during the COVID-19 pandemic. Acta Psychiatr Scand. 2020a; 142(3): 249–256. PubMed Abstract | Publisher Full Text
Hyland P, Vallières F, Cloitre M, et al.: Trauma, PTSD, and complex PTSD in the Republic of Ireland: prevalence, service use, comorbidity, and risk factors. Soc Psychiatry Psychiatr Epidemiol. 2020b. PubMed Abstract | Publisher Full Text
Suicide Mortality and Coronavirus Disease Missing data: our view of the state of the art.

Covid-19: Mental health services must be boosted to deal with the “tsunami” of cases after lockdown. BMJ. 2020; 369: m1994.

Publisher Full Text

Pierce M, Hope H, Ford T, et al.: Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. Lancet Psychiatry. 2020; 7(10): 883–892.

Publisher Full Text

Regier MA, Stanley IH, Joiner TE: Suicide Mortality and Coronavirus Disease 2019-A Perfect Storm? JAMA Psychiatry. 2020.

Publisher Full Text

Robins RW, Hendin HM, Trzesniewski KH: Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. Pers Soc Psychol Rev. 2001; 27(2): 151–161.

Publisher Full Text

Sapp SG, Harrod WJ: Reliability and validity of a brief version of Levenson’s locus of control scale. Psychol Rep. 1993; 72(2): 539–550.

Publisher Full Text

Schafer JL, Graham JW: Missing data: our view of the state of the art. Psychol Methods. 2002; 7(2): 147–177.

Publisher Full Text

Smith BW, Dalen J, Wiggins K, et al.: The brief resilience scale: assessing the ability to bounce back. Int J Behav Med. 2015; 22(3): 194–200.

Publisher Full Text

Spitzer RL, Kroenke K, Williams JB, et al.: A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006; 166(10): 1092–1097.

Publisher Full Text

Tomás-Sábado J, Gómez-Benito J, Limonero JT: The death anxiety inventory: A revision. Psychological Reports. Psychol Rep. 2005; 97(3): 793–796.

Publisher Full Text

Ramesh B, John OP: Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. Pers Soc Psychol Rev. 2001; 7(2): 147–177.

Publisher Full Text

Rammstedt B, John OP: Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. Pers Soc Psychol Rev. 2001; 7(2): 147–177.

Publisher Full Text

Lyubomirsky S, Lepper HS: A measure of subjective happiness: Preliminary reliability and construct validation. Social Indicators Research. 1999; 46(2): 137–155.

Publisher Full Text

Pickard MD, Wilson O, Roster CA: Development and application of a self-report measure for assessing sensitive information disclosures across multiple modes. Behav Res Methods. 2018; 50(4): 1734–1748.

Publisher Full Text

McGinty EE, Presskreischer R, Han H, et al.: Psychological Distress and Loneliness Reported by US Adults in 2018 and April 2020. JAMA. 2020; 324(1): 93–94.

Publisher Full Text

Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. Pers Soc Psychol Rev. 2001; 7(2): 151–161.

Publisher Full Text

Lyubomirsky S, Lepper HS: A measure of subjective happiness: Preliminary reliability and construct validation. Social Indicators Research. 1999; 46(2): 137–155.

Publisher Full Text

McBride O, Murphy J, Shevlin M, et al.: Monitoring the psychological, social, and economic impact of the COVID-19 pandemic in the population: Context, design and conduct of the longitudinal COVID-19 psychological research consortium (C19PRC) study. Int J Methods Psychiatr Res. 2020; e1861. Advance online publication.

Publisher Full Text

Moser A, Stuck AE, Silman IA, et al.: The eight-item modified Medical Outcomes Study Social Support Survey: psychometric evaluation showed excellent performance. J Clin Epidemiol. 2012; 65(10): 1107–1116.

Publisher Full Text

Muthén B, Muthén BO: Mplus user’s guide. (8th ed.). Los Angeles, CA: Muthén & Muthén. 2017.

Reference Source

Kroenke K, Spitzer RL, Williams JB: The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001; 16(9): 606–613.

PubMed Abstract | Publisher Full Text | Free Full Text

Kroenke K, Spitzer RL, Williams JB: The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. Psychosom Med. 2002; 64(2): 259–266.

PubMed Abstract | Publisher Full Text | Free Full Text

Li P, Stuart EA: Best (but oft-forgotten) practices: missing data methods in randomized controlled nutrition trials. Am J Clin Nutr. 2019; 109(3): 504–508.

PubMed Abstract | Publisher Full Text | Free Full Text

Mplus user’s guide. (8th ed.). Los Angeles, CA: Muthén & Muthén. 2009.

Publisher Full Text

Muthén B, Muthén BO: Mplus user’s guide. (8th ed.). Los Angeles, CA: Muthén & Muthén. 2009.

Publisher Full Text

Pickard MD, Wilson O, Roster CA: Development and application of a self-report measure for assessing sensitive information disclosures across multiple modes. Behav Res Methods. 2018; 50(4): 1734–1748.

Publisher Full Text

Pierce M, Hope H, Ford T, et al.: Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. Lancet Psychiatry. 2020; 7(10): 883–892.

Publisher Full Text

Regier MA, Stanley IH, Joiner TE: Suicide Mortality and Coronavirus Disease 2019-A Perfect Storm? JAMA Psychiatry. 2020.

Publisher Full Text

Robins RW, Hendin HM, Trzesniewski KH: Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. Pers Soc Psychol Rev. 2001; 27(2): 151–161.

Publisher Full Text

Schafer JL, Graham JW: Missing data: our view of the state of the art. Psychol Methods. 2002; 7(2): 147–177.

Publisher Full Text

Smith BW, Dalen J, Wiggins K, et al.: The brief resilience scale: assessing the ability to bounce back. Int J Behav Med. 2015; 22(3): 194–200.

Publisher Full Text

Spitzer RL, Kroenke K, Williams JB, et al.: A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006; 166(10): 1092–1097.

Publisher Full Text

Tomás-Sábado J, Gómez-Benito J, Limonero JT: The death anxiety inventory: A revision. Psychological Reports. Psychol Rep. 2005; 97(3): 793–796.

Publisher Full Text

Ramesh B, John OP: Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. Pers Soc Psychol Rev. 2001; 7(2): 147–177.

Publisher Full Text

Rammstedt B, John OP: Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. Pers Soc Psychol Rev. 2001; 7(2): 147–177.

Publisher Full Text

Lyubomirsky S, Lepper HS: A measure of subjective happiness: Preliminary reliability and construct validation. Social Indicators Research. 1999; 46(2): 137–155.

Publisher Full Text

Pickard MD, Wilson O, Roster CA: Development and application of a self-report measure for assessing sensitive information disclosures across multiple modes. Behav Res Methods. 2018; 50(4): 1734–1748.

Publisher Full Text

Pierce M, Hope H, Ford T, et al.: Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. Lancet Psychiatry. 2020; 7(10): 883–892.

Publisher Full Text

Regier MA, Stanley IH, Joiner TE: Suicide Mortality and Coronavirus Disease 2019-A Perfect Storm? JAMA Psychiatry. 2020.

Publisher Full Text

Robins RW, Hendin HM, Trzesniewski KH: Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. Pers Soc Psychol Rev. 2001; 27(2): 151–161.

Publisher Full Text

Schafer JL, Graham JW: Missing data: our view of the state of the art. Psychol Methods. 2002; 7(2): 147–177.

Publisher Full Text

Smith BW, Dalen J, Wiggins K, et al.: The brief resilience scale: assessing the ability to bounce back. Int J Behav Med. 2015; 22(3): 194–200.

Publisher Full Text

Spitzer RL, Kroenke K, Williams JB, et al.: A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch Intern Med. 2006; 166(10): 1092–1097.

Publisher Full Text

Tomás-Sábado J, Gómez-Benito J, Limonero JT: The death anxiety inventory: A revision. Psychological Reports. Psychol Rep. 2005; 97(3): 793–796.

Publisher Full Text

Publisher Full Text

Publisher Full Text