

Sharing data to better understand one of the world's most significant shared experiences:
Data Resource Profile of the longitudinal COVID-19 Psychological Research Consortium
(C19PRC) Study

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Word count: 3498

This paper serves to alert IJPDs readers to the availability of a major new longitudinal survey data resource, *the COVID-19 Psychological Research Consortium (C19PRC) Study*, which is being released for secondary use via the Open Science Framework. The C19PRC Study is a rich and detailed dataset that provides a convenient and valuable foundation from which to study the social, political, and health status of European adults during an unprecedented time of change as a direct result of the COVID-19 pandemic and Brexit. Here, we provide an overview of the C19PRC Study design, with the purpose of stimulating interest about the study among social scientists and maximising use of this resource.

How did the study come about?

On 11 March 2020, Professor Richard Bentall (C19PRC Study Principal Investigator, at the University of Sheffield) convened a team of psychologists, political scientists, mental health researchers, and data analysts to establish a large, national study of the UK public to understand how they would respond to the existential threat of the novel coronavirus (SARS-CoV-2). The C19PRC Study aims to assess how the unprecedented nature of the pandemic would influence the lives of ordinary citizens to (i) contribute to a 'real-time' understanding of the short-to-medium term psychological, social, political, and economic impact of the pandemic, and to (ii) help plan effectively for future public health crises [1]. Although the core C19PRC Study team is UK-based, existing collaborations have been leveraged to establish similar studies in the Republic of Ireland, Spain, and Italy.

Seed funding for baseline and first follow-up waves of the C19PRC Study in all countries was obtained from the Consortium members' home institutions. Funding for the progression of the C19PRC Study in the UK was secured from the UKRI/ESRC Rapid COVID-19 Response call [Ref: ES/V004379/1; May, 2020], in the Republic of Ireland from the Irish Health Research Board/Irish Research Council [Ref: COV19-2020-025; December, 2020]; and in Spain from the Instituto de Salud Carlos III fund [Ref: COV20/00737-CM, September, 2020]. No external funding was secured for the Italian survey.

How was the study designed?

The Consortium's substantive research interests and expertise dictated that the core C19PRC Study outcomes would be the public's experiences of common mental disorders (e.g., anxiety, depression, and post-traumatic stress) during the pandemic, whilst also measuring a broad range of social, economic, psychological, and political protective and risk factors to help explain variability in these outcomes over time. Importantly, the C19PRC Study design was informed by (i) studies that investigated the non-biological consequences of previous outbreaks of other infectious respiratory diseases, specifically SARS-CoV (SARS), the H1N1 flu pandemic, and the Middle East Respiratory Syndrome (MERS); (ii) recommendations from researchers and public health representatives in response to these outbreaks; and (iii) the country-specific context of the pandemic, given that each European country was experiencing different trends in COVID-19 infection and death rates, and being subjected to different levels of government-imposed curtailments relating to social and economic activities (see [1] for more details). In addition to the pandemic, the UK was anticipating the completion of Brexit (the UK's withdrawal from the European Union) in late 2020, which was an historic and political event with considerable potential to compound the anticipated impact of the pandemic in the UK.

The C19PRC Study is a large, longitudinal online survey of the general adult population (aged 18 years and older) in each country, with regular and timely repeated assessments of the baseline samples planned as the pandemic unfolded. Power calculations were conducted to determine the optimal baseline sample size which would provide robust prevalence estimates for common mental disorders in each country (set at ~2000 respondents in the UK; see [1]). In addition to self-reported mental health measures, the C19PRC Study design also prioritises the collection of data on a wide range of beliefs, political attitudes, socio-economic contextualising information, and potentially important neurocognitive mechanisms involved in risk perception and decision making with respect to COVID-19 at each wave (see *What has been measured?* section below). The baseline sample also served as a recruitment spine from which smaller, supplementary (qualitative and experimental) studies could be conducted, particularly with groups vulnerable to the effects of COVID-19 (e.g., older people, medically vulnerable people, pregnant women, frontline workers, etc.). Finally, the C19PRC Study aims (using data from Wave 6 of the UK strand) to develop, and test, the psychometric performance of brief self-reported measures of generalised anxiety and depression that are strictly aligned to the current International Classification of Diseases 11th Edition (ICD-11) diagnostic criteria for these disorders. These measures incorporate: (i) the revised symptom sets; (ii) an assessment of the frequency of symptom presence (including the persistence criteria); and (iii) an indicator of functional impairment. These scales will provide a symptom-severity score and also an indication if participants have met the diagnostic criteria (caseness).

Ethical approval for the C19PRC Study was granted by the lead academic institutions in each country (UK: Department of Psychology, University of Sheffield [Reference number 033759]; Republic of Ireland; Social Research Ethics Committee at Maynooth University [Ref SRESC-2020-2402202]; Spain: School of Psychology, Complutense University Madrid (Ref: 2019/20-034); Italy: Ethical Committee for Psychological Research of the University of Padua [protocol: 3818]).

Recruitment was conducted by reputable online marketing research companies (*Qualtrics* in UK, Republic of Ireland, and Italy; *Sondea* in Spain). Detailed methodological reports for the C19PRC Study are available elsewhere: UK [1-4], Republic of Ireland [5], Spain [6], and Italy [7].

Who is in the sample?

Quota sampling methods were used to ensure the representativeness of each country's general adult population sample with respect to age, gender, household income (in the UK and Italy only); and/or geographical or political region (Republic of Ireland, Spain, and Italy only). Table 1 outlines the characteristics of each country's baseline samples, which are diverse and nationally representative beyond the socio-demographic characteristics used for quota sampling [1]. We have produced detailed a methodological report to demonstrate the national representativeness of the UK baseline sample with respect to nation of residence, economic activity, household composition, and ethnicity [1]. We encourage interested readers to consult our Consortium's methodological reports for more detailed findings on sample representativeness [1, 5].

Insert Table 1 about here

How often have they been followed up?

The C19PRC Study commenced in the UK on 23 March 2020, 52 days after the first case of COVID-19 was detected in this country and strict lockdown measures were announced by the British Prime Minister. Studies in the other European countries were initiated shortly thereafter (see Table 2). Five follow-up waves have been conducted in the UK to date, with two additional waves planned for November 2021 and March 2022 under the remit of the current UKRI/ESRC funding award. Four post-baseline waves have been conducted in the Republic of Ireland (final wave completed in April 2021), three post-baseline waves in Spain (fourth wave conducted in April 2021; fifth wave planned for March 2022), and one follow-up wave in Italy (in May 2020, no additional waves are planned).

Insert Table 2 about here

What about attrition?

The recruitment and follow-up of participants during a protracted period of social and economic upheaval was uncharted territory for many research teams, including our Consortium. A summary of attrition levels across survey waves by country is provided in Table 2. It is important to note, however, that no information is available in the C19PRC Study with respect to the number of respondent deaths that occurred during the study period.

The UK and Spanish surveys fared well with respect to attrition, retaining 57.4% and 76.8% of the baseline sample at the one-year follow-up surveys, respectively (UK Wave 5; March-April 2021; Spanish Wave 4; April 2021). Moreover, approximately 60% of adults in the UK survey who participated in a previous wave (i.e., including new respondents entering the sample post-baseline) were re-contactable at the subsequent wave [4]. However, attrition has been more problematic in other countries (e.g., only 40-50% of baseline respondents were successfully followed-up at post-baseline waves in the Republic of Ireland and Italy) [5]. Our Consortium has demonstrated that attrition in the panel followed from baseline has been mostly influenced by baseline socio-demographic characteristics rather than baseline experiences of mental health problems; that is, women, younger adults, lower income earners, and those with dependent children are more likely to drop out of the study than their counterparts [4]. Survey weights have been developed and are available for use in longitudinal analyses of the UK and Ireland C19PRC Study data (see [1-5] for details).

It is noteworthy that the UK and Republic of Ireland surveys (but not those conducted in Spain or Italy) employed sample replenishment procedures at some post-baseline waves (again, see Table 2). Specifically, quota sampling has been used in an attempt to 're-balance' the sample to national benchmarks and to maintain sample sizes that are sufficiently large to conduct robust statistical analyses (see [2, 4] for details). In practice, this strategy assumes that the pandemic experiences of adults entering the C19PRC Study post-baseline to fill 'vacant' quotas are similar to those lost to follow-up, though it is possible that these sample replenishment procedures are not foolproof. Nevertheless, we have demonstrated that prevalence estimates for common mental health conditions of new entrants at post-baseline waves (i.e., those younger adults, women, and lower income earners recruited to fill 'vacant' quotas) were higher than those for members who entered the panel at baseline [2]. Such evidence provides reassurance that these sample replenishment procedures have been

successful in recruiting adults in these population groups who are experiencing poorer levels of mental health, for example.

What has been measured?

Supplementary Table 1 provides details of the content administered at each wave, by country. Common across all countries is the collection of robust mental health outcome data. Specifically, in contrast to other longitudinal COVID-19 studies which have utilised short screening tools [8] or general measures of psychological distress [9], the C19PRC Study used 'gold-standard' [10] self-report, diagnostic-specific measures of major depressive disorder (the Patient Health Questionnaire, PHQ-9, [11]), generalized anxiety disorder (the Generalised Anxiety Disorder scale, GAD-7 [12]), and a measure of COVID-19 related posttraumatic stress (adapted version of the International Trauma Questionnaire, ITQ [13]).

The C19PRC Study includes extensive and detailed coverage of individual-level psychological factors (e.g., personality, memory, cognitive reasoning ability, locus of control, death anxiety, happiness, and resilience), political attitudes and behaviours (e.g., party identification, voting behaviour, policy preferences, trust in government, nationalism, patriotism, authoritarianism, and social dominance orientation), economic factors (e.g., changes in household income, work hours, economic activity status), and COVID-19 health-related knowledge, behaviours, and experiences. The UK C19PRC study data has also been linked to population density estimates and multiple deprivation deciles using area-level geography obtained from participants' residential location.

What has the study found? Key findings and publications

Between March 2020 and September 2021, over 30 peer-reviewed publications have been produced from the C19PRC Study (full details available on our Consortium [website](#)), and multi-country papers [14, 15] have been prioritised, where appropriate.

Key publications relate to examining trends in the prevalence estimates of 'caseness' for common mental disorders at specific points in the pandemic [7, 16-18] and longitudinal changes in mental health status over time [6, 19-21]. For example, in the UK and Republic of Ireland, we have demonstrated that a sizeable proportion (~65%) of the adult population has been highly resilient or have reported improvements in their mental health during the period first year of the pandemic [19, 22, 23], and that there were no changes in the prevalence estimates of (past two-week) non-suicidal self-injury or attempted suicide in the Republic of Ireland between May and August 2020 [24]. Research outputs from the Spanish and Italian surveys have also identified patterns of pandemic-related resilience and post-traumatic growth [25, 26]. Collectively, this body of evidence refutes the popularly held view that the pandemic has caused a 'tsunami' of mental illness [27], and that the evidence suggests prevention efforts should focus on specific sub-groups of the population who have been particularly impacted by the pandemic. Findings from the C19PRC Study have been cited by our Consortium's non-academic partner – Public Health England – in their COVID-19 mental health and wellbeing surveillance report [28].

Our Consortium's investigations of the UK's social and political landscape are informed by a range of politically-oriented measures such as right-wing authoritarianism, social dominance orientation, and ethnocentrism. Our findings indicate that these political-psychological predispositions predict belief in a range of COVID-19 conspiracy theories, which are in turn associated with unwillingness to social distance and vaccinate against COVID-19 [29]. Investigations of the populations' health and wellbeing have been informed

by data collected on engagement in social distancing and hygienic practices, alcohol use, health service use, pandemic-related buying behaviours, life satisfaction and attitudes towards vaccination [30-32]. These data have been used, for example, to profile the population in relation to their intentions to vaccinate over time, finding that resistance to COVID-19 vaccination steadily increased in the UK over the period March to December 2020 and, furthermore, that around one fifth of individuals belong to a group who have fluctuated in their intentions to vaccinate over this period of time [33, 34].

What are the main strengths and weaknesses?

The C19PRC Study has many methodological strengths, but also some weaknesses. Our Consortium has committed to debating these methodological challenges throughout the course of the study via the publication of detailed methodological reports, and we encourage interested IJPDS readers to consult these publications when accessing the data for more details (see [1-4]).

Key strengths include: (1) baseline data secured during the very earliest stages of the pandemic, with repeated assessments of participants over the first two years of the pandemic; (2) large samples recruited in multiple countries (with additional booster sampling conducted at Wave 4 in the UK to facilitate robust between-country comparisons), permitting an opportunity to identify potentially important national and international differences in the psychosocial impact of the COVID-19 pandemic; (3) collection of robust mental health outcome data using 'gold standard' self-report measures [10]; (4) broad and deep coverage of a wide range of important psychosocial risk/protective factors and outcomes that warrant long-term investigation during a pandemic; and (5) recording of area-level indicator data, permitting potential linkage to important administrative data.

Key limitations include: (1) the recruitment of study participants via non-probability, opt-in online survey panels means that it was not possible to generate a response rate for the baseline survey due to the lack of a known denominator or sampling; (2) the lack of comparable pre-pandemic baseline data for common mental disorders; and (3) the exclusion of non-English speaking citizens in the UK and Republic of Ireland, as well as those adults in the general population without access to the Internet.

Conclusion: How can I collaborate/find out more?

Data from completed waves of the UK and Republic of Ireland surveys are available on the Open Science Framework ([UK](#), [Ireland](#)), and data from all survey waves, including those from Spain and Italy, are due to be made publicly available for secondary use within six months of the end of the Consortium's funding awards. Our Consortium wholeheartedly encourages secondary use of this data by other researchers. We also welcome contact from interested social scientists who have ideas for using the data and/or who are keen to collaborate on future projects. This could include, for example, opportunities to harmonise data from other established COVID-19 research projects in the fields of public mental health. In sum, the C19PRC Study data presents a unique opportunity to study the psychosocial impact of the COVID-19 pandemic from an ecological perspective, considering the influences of social, political, media, economic and demographic factors on the psychological health and wellbeing of the adult population in several European countries.

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Table 1 Characteristics of baseline respondents in the COVID-19 Psychological Research Consortium (C19PRC Study), by country

Socio-demographic characteristics		Country – N (%)			
		UK (N=2025)	Republic of Ireland (N= 1041)	Italy (N=1038)	Spain (N= 1949)
Gender	Female	1047 (51.7)	536 (51.5)	531 (51.2)	917 (47.0)
	Male	972 (48.0)	502 (48.2)	507 (48.8)	1027 (52.7)
	Other	6 (0.3)	3 (0.3)	-	5 (0.3)
Age group (years)	18-24	246 (12.1)	116 (11.1)	83 (8.0)	155 (8.0)
	25-34	380 (18.8)	200 (19.2)	138 (13.3)	273 (14.0)
	35-44	353 (17.4)	214 (20.6)	171 (16.5)	469 (24.1)
	45-54	410 (20.2)	165 (15.9)	186 (17.9)	518 (26.6)
	55-64	349 (17.2)	219 (21.0)	195 (18.8)	427 (21.9)
	65+	287 (14.2)	127 (12.2)	265 (25.5)	107 (5.5)
Born in country	Yes	1834 (90.6)	736 (70.7)	1003 (96.6)	1812 (93.0)
Living location	City	498 (24.6)	255 (24.5)	569 (54.8)	1642 (84.2)
	Suburbs	572 (28.2)	188 (18.1)	123 (11.8)	-
	Town	620 (30.6)	298 (28.6)	297 (28.6)	-
	Rural	335 (16.5)	300 (28.8)	49 (4.7)	307 (15.8)
Ethnicity	White	1848 (91.2)	962 (92.4)	775 (74.7%)	1897 (97.3)
	Other	177 (8.8)	79 (7.6)	263 (25.3%)	52 (2.7)
Education level	No qualification	58 (2.9)	12 (1.2)	0	6 (0.3)
	Up to secondary level	751 (37.1)	298 (28.6)	86 (8.3)	235 (12.1)
	Some third level	302 (44.4)	268 (25.7)	506 (48.7)	441 (22.6)
	Third level completed	888 (43.9)	440 (42.3)	422 (40.7)	975 (50.0)
	Other	26 (1.3)	23 (2.2)	24 (2.3)	292 (15.0)
Household composition	Lone adult	454 (22.4)	192 (18.4)	139 (13.4)	257 (13.2)
	Children in home	592 (29.2)	413 (39.7)	358 (34.5)	786 (40.3)

Socio-demographic characteristics		Country – N (%)			
		UK (N=2025)	Republic of Ireland (N=1041)	Italy (N=1038)	Spain (N=1949)
2019 gross annual household income band ¹	Lowest	410 (20.2)	256 (24.6)	218 (21.0)	693 (35.6)
	Second lowest	410 (20.2)	222 (21.3)	214 (20.6)	673 (34.5)
	Middle	385 (19.0)	203 (19.5)	212 (20.4)	455 (23.3)
	Second highest	410 (20.2)	132 (12.7)	211 (20.3)	128 (6.6)
	Highest	410 (20.2)	228 (21.9)	183 (17.6)	NA
Employment status	Full-time	988 (48.8)	451 (43.3)	461 (44.4)	1125 (57.7)
	Part-time	303 (15.0)	163 (15.7)	99 (9.5)	195 (10.0)
	Unemployed	305 (15.0)	205 (19.7)	170 (16.4)	350 (18.0)
	Retired	334 (16.5)	156 (15.0)	251 (24.2)	170 (8.7)
	Student	95 (4.7)	66 (6.3)	57 (5.5)	109 (5.6)
Religion	Christian	1020 (50.4)	727 (69.8)	772 (74.4)	1069 (54.8)
	Atheist	514 (25.4)	159 (15.3)	152 (14.6)	422 (21.7)
	Agnostic	254 (12.5)	78 (7.5)	69 (6.6)	375 (19.2)
	Other	237 (11.7)	77 (7.4)	45 (4.4)	83 (4.3)

Note. ¹ Income bands across countries varied, as follows: (1) UK (lowest: £0 - £15,490, second lowest: £15,491 - £25,340; middle: £25,341 - £38,740; second highest: £38,741 - £57,930, highest: £57,931+); (2) Republic of Ireland (lowest: €0 - €19,999; second lowest: €20,000 - €29,000; middle: €30,000 - €39,000; second highest: €40,000 - €49,999; highest: €50,000+); (3) Italy (lowest: €0 - €15,000, second lowest: €15,001 - €28,000; middle: €28,001 - €55,000; second highest: €55,001 - €75,000; highest €75,000+) and (4) Spain (lowest: €12,450 - €20,200; second lowest: €20,200 - €35,200; middle: €35,200 - €60,000; second highest: €60,00+)

Table 2 Details of sample replenishment procedures, sample size, and baseline retention rates across C19PRC Study survey waves, by country

Country		Survey wave					
		Wave 1 (Baseline)	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
UK		23 March-28 March 2020	22 April-1 May 2020	9 July – 9 August 2020	25 November-22 December 2020	24 March-20 April 2021	5 August-28 September 2021
	Sample replenishment	NA	No	Yes	Yes	No	Yes
	Total wave sample size	2025	1406	2019	3867	2520	2058
	Retention (from baseline)	NA	69.4%	57.6%	62.8%	57.4%	54.3%
Republic of Ireland		31 March-5 April 2020	30 April-18 May 2020	16 July- 8 August 2020	2 December-22 December 2020	19 March-9 April 2021	
	Sample replenishment	NA	Yes	No	Yes	Yes	
	Total wave sample size	1041	1032	534	1098	1110	
	Retention (from baseline)	NA	48.6%	51.8%	43.0%	37.5%	
Spain		7 April-14 April 2020	7 May-11 May 2020	25 November-7 December 2021	15 April – 22 April 2021		
	Sample replenishment	NA	No	No	No		
	Total wave sample size ¹	1951	1628	1330	1499		
	Retention (from baseline)	NA	83.4%	68.2%	76.8%		
Italy		13 July – 28 July 2020	30 April-18 May 2021				
	Sample replenishment	NA	No				
	Total wave sample size	1038	544				
	Attrition	NA	52.5%				

¹ Two participants were aged under 18 years and removed from subsequent analyses.

