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Longitudinal changes in psychological distress in the UK from 2019 to September 2020 during the COVID-19 pandemic: Evidence from a large nationally representative study

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ABSTRACT

In a large (n=10918), national, longitudinal probability-based sample of UK adults the prevalence of clinically significant psychological distress rose from prepandemic levels of 20.8% in 2019 to 29.5% in April 2020 and then declined significantly to prepandemic levels by September (20.8%). Longitudinal analyses showed that all demographic groups examined (age, sex, race/ethnicity, income) experienced increases in distress after the onset of the pandemic followed by significant decreases. By September 2020 distress levels were indistinguishable from prepandemic levels for all groups. This recovery may reflect the influence of the easing of restrictions and psychological adaptation to the demands of the pandemic.

1. Introduction

There is widespread concern among policy makers, scientists, and the public that the COVID-19 pandemic may have substantial and long-lasting mental health effects (Öngür et al., 2020). A series of nationally representative studies have shown that mental health deteriorated immediately following the onset of the COVID-19 pandemic in the UK and US (Daly et al., 2020; Daly and Robinson, 2021; Li and Wang, 2020; McGinty et al., 2020a; Pierce et al., 2020). This rise in mental distress has been attributed to pandemic-related stressors including risk of infection and death, financial concerns, and enforced isolation (Robinson and Daly, 2020). However, it is unclear whether elevated rates of mental distress have persisted in the aftermath of the first wave of the pandemic.

A nationally representative longitudinal study of US adults recruited after the pandemic outbreak found that psychological distress levels were stable from April to July 2020 (McGinty et al., 2020b) but this study did not have data on the sample's pre-pandemic levels of distress. Conversely, a longitudinal study drawing on a nationally representative cohort of US adults found a decrease in distress over this period and levels were comparable to pre-pandemic levels by July (Daly and Robinson, 2021). In the UK, two studies have shown declines in symptoms of anxiety in the months following the introduction of lockdown measures (Fancourt et al., 2021; O'Connor et al., 2020). Findings in relation to other aspects of mental health including depressive symptoms were mixed. Critically, these studies did not track the same group of individuals from before the COVID-19 outbreak to during the pandemic, making it difficult to assess true change in mental distress from pre-pandemic baseline levels over the course of the pandemic.

A recent review and meta-analysis of 201 longitudinal comparisons of mental health before vs. during the pandemic (Robinson et al., 2021) showed that while there was an increase in mental health symptoms after the emergence of the COVID-19 pandemic (March-April 2020) symptoms were not different from pre-pandemic levels by mid-2020 (May-July 2020) when examined across existing studies. Building on this work, in this study, we analyzed survey data from six waves of a large-scale nationally representative study of UK adults to describe trends in psychological distress from 2019 to September 2020 in the UK general population and across demographic subgroups.

2. Methods

2.1. Study sample

The UK Household Longitudinal Study (UKHLS) is a nationally representative probability-based panel study of British adults. The

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COVID-19 Study sample was drawn from 42,330 UKHLS participants originally recruited via address-based sampling (Institute for Social and Economic Research, 2020). Those who agreed to take part in the monthly COVID-19 Study provided distress assessments in April (n =16,051), May (n =14,442), June (n =13,730), July (n =13,395), and September 2020 (n =12,419). Distress data was available in 2019 for 18,539 participants who took part in the UKHLS COVID-19 Study.

In this study, we first utilized all available assessments from the UKHLS COVID-19 Study to conduct repeated cross-sectional analyses of temporal trends in the prevalence of psychological distress from 2019 through to April/May/June/July, and September 2020 (n =19,938, observations =88,576). We then restricted our analyses to those who provided data in three study waves: 2019, April 2020 and September 2020 (n =10,918, observations =32,754). This latter longitudinal sample allowed within-person changes in psychological distress to be examined from before COVID-19 emerged, to during the first wave of the pandemic, and across the first six months of the pandemic.

This study was performed in accordance with the Declaration of Helsinki. Ethics approval for this human study was waived by the Maynooth University Social Research Ethics Sub-Committee. All participants provided informed consent to participate in the study.

2.2. Materials

2.2.1. Psychological distress

In each survey wave participants responded to the General Health Questionnaire-12 (GHQ-12), a validated self-completion measure of general mental distress that includes symptoms such as sleep difficulties, feeling under strain, and loss of confidence (Aalto et al., 2012; Goldberg et al., 1997). The GHQ-12 asks participants how often they have experienced each symptom in the past few weeks. Scores on each item were dichotomized following the standard scoring system to indicate the number of symptoms experienced (ranging from 0-12) (Aalto et al., 2012). A symptom score equal to or above 4 on the 0-12 scale is indicative of the presence of serious levels of psychological distress or probable non-psychotic psychiatric cases (Goldberg et al., 1997). In line with other work, we refer to scores above this cut-off threshold as 'clinically significant psychological distress' (Pierce et al., 2020).

2.2.2. Covariates

Participants reported their age, sex (male, female), race/ethnicity (White, non-White include Black, Asian, and Other races) and whether they were living with a partner as part of the COVID-19 Study. Net annual household income was categorised into tertiles (≤ £15,000, £15,000–£49,999, £50,000+).

2.3. Statistical analysis

A logistic regression model with cluster-robust standard errors was first used to estimate the prevalence of significant distress across all time-points (2019 and April/May/June/July/September 2020) in a repeated cross-sectional analysis. To ensure the descriptive trends identified in this analysis were not due to differences in sample composition across waves we then restricted our logistic regression analyses to those with complete data in 2019 and April and September 2020. Longitudinal analysis was conducted first on the overall sample and then for each demographic subgroup with adjustment for other covariates. Finally, we conduced a complete case analysis examining participants who completed all survey waves. Analyses were weighted to account for unequal selection probabilities and non-response to generate nationally representative estimates.

3. Results

Repeated cross-sectional analyses showed that clinically significant distress levels rose from 20.7% (95% CI: 19.6-21.7) in 2019 to 29.8% (95% CI: 28.5-31.1) in April, 2020 (p <.001). Distress levels remained significantly above 2019 levels in May (28.2%, 95% CI: 26.8-29.6) and June 2020 (26.9%, 95% CI: 25.4-28.3) (both p <.001). After this point distress levels declined significantly (p <.001) to pre-pandemic levels and were not significantly different to 2019 levels in either July (21.4%, 95% CI: 20.1-22.7) or September 2020 (21.5%, 95% CI: 20.2-22.9) (see Figure S1).

Longitudinal analyses of participants with complete 2019 and April and September 2020 data (n =10,918) showed that a higher percentage of UK adults reported clinically significant distress in April 2020 (29.5%, 95% CI, 28.0-31.0) compared to 2019 (20.8%, 95% CI: 19.4-22.2) (p <.001) (see Table 1). Significant increases in distress over this period were evident in all demographic groups and were most pronounced for those aged 18-34 and female respondents (Table 1). Distress levels declined significantly from April 2020 to September 2020 (20.8%; 95% CI, 19.5-22.1) and did not differ from pre-pandemic (2019) levels at this point (p =.97). The prevalence of clinically significant distress declined significantly between April and September 2020 for all demographic groups examined and did not differ significantly from pre-pandemic levels by September 2020 (Table 1). Longitudinal analyses examining those with complete data across all survey waves verified the trends observed (see Table S1).

4. Discussion

In this nationally representative study, repeated cross-sectional analysis showed that the initial rise in clinically significant psychological distress during the first wave of the pandemic in the UK was followed by a return to pre-pandemic distress levels within 3 months of the outbreak (July) and remained stable in September. Longitudinal analysis of changes in distress levels confirmed this pattern. Further, while some groups such as young adults and women experienced a larger initial rise in distress than other groups, by September the distress levels of all groups were indistinguishable from pre-pandemic levels.

The consistency of this recovery across demographic groups was striking and may reflect the influence of the easing of lockdown restrictions and psychological adaptation to the demands of the pandemic (Daly and Robinson, 2021; Fancourt et al., 2021). While this trend contrasted with a study of US adults who were recruited post-pandemic outbreak (e.g. (McGinty et al., 2020b), it is consistent with the overall trend of adaptation and resilience in mental health identified across recently reviewed longitudinal studies examining changes in symptoms from before to during the COVID-19 pandemic (Robinson et al., 2021). In line with the results of the current study, the recent meta-analysis suggested that longitudinal changes in mental health symptoms from before to during the pandemic did not tend to differ significantly as a function of participant characteristics such as age and gender (Robinson et al., 2021).

Study limitations include our reliance on a non-institutionalised sample and use of a general distress measure that does not provide a disorder specific clinical diagnosis. To be eligible for COVID-19 questionnaires participants were required to complete measures online and most but not all (>95%) of the UK population have internet access. Analyses were weighted to account for unequal selection probabilities and non-response caused by attrition, but this approach does not completely remove response bias. Nevertheless, our study demonstrates the advantages of drawing on repeated, validated measurements of mental distress to understand how distress has changed over the course of the pandemic.

Our findings suggest that the initial rise in distress in the UK (Daly et al., 2020; Pierce et al., 2020) at the onset of the pandemic may have persisted for approximately three months, after which national restrictions were eased and the general population appear to have psychologically adapted to the remaining challenges posed by the pandemic. It will now be important to identify how mental health responded to the second major wave of the pandemic and the

Table 1
Prevalence of clinically significant psychological distress in 2019 and April and September 2020, and changes in prevalence over time (n = 10 918).

Survey wave		2019[a]	April 2020	September 2020	Change 2019 – April 2020	Change April – September 2020	Change 2019 – September 2020
Demographic characteristic	*n*	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Overall	10918	20.8 (19.4, 22.2)	29.5 (28.0, 31.0)	20.8 (19.5, 22.1)	8.7*** (6.9, 10.4)	-8.7*** (-10.2, -7.2)	0.0 (-2.0, 1.9)
Sex							
Male	4538	16.7 (14.6, 18.7)	21.1 (19.0, 23.3)	16.0 (14.0, 17.9)	4.5*** (2.0, 7.0)	-5.2*** (-7.2, -3.2)	-0.7 (-2.9, 1.5)
Female	6380	24.5 (22.5, 26.4)	36.8 (34.8, 38.9)	25.0 (23.3, 26.8)	12.4*** (9.9,14.9)	-11.8*** (-14.1, -9.5)	0.5 (-1.8, 2.9)
Age group, y							
18 – 34	1260	25.4 (21.6, 29.2)	39.9 (35.5, 44.4)	23.7 (19.8, 27.6)	14.5*** (9.6,19.4)	-16.2*** (-20.8,-11.6)	-1.7 (-5.9, 2.5)
35 – 49	2449	24.3 (21.5, 27.2)	32.6 (29.7, 35.5)	23.9 (21.2, 26.5)	8.3*** (4.8, 11.8)	-8.8*** (-12.0, -5.5)	-0.4 (-4.0, 3.1)
50 – 64	3762	21.5 (19.2, 23.7)	27.8 (25.5, 30.0)	21.1 (19.1, 23.0)	6.3*** (3.4, 9.2)	-6.7*** (-8.9, -4.5)	-0.4 (-3.0, 2.2)
65+	3447	12.7 (10.3, 15.1)	19.4 (17.1, 21.8)	14.9 (12.9, 16.9)	6.8*** (3.7, 9.8)	-4.5*** (-6.9, -2.2)	2.2 (-0.8, 5.2)
Race/ethnicity							
White	9987	20.8 (19.4, 22.3)	29.4 (27.9, 31.0)	20.9 (19.6, 22.2)	8.6*** (6.7, 10.4)	-8.6*** (-10.2, -6.9)	0.0 (-1.6, 1.7)
Non-white	931	20.4 (14.6, 26.3)	29.8 (23.4, 36.3)	19.4 (13.7, 25.2)	9.4* (2.0, 16.8)	-10.4*** (-14.6, -6.2)	-1.0 (-7.7, 5.6)
Household income[b]							
≤ £15,000	3384	22.9 (20.2, 25.6)	31.2 (28.5, 33.8)	24.0 (21.6, 26.5)	8.3*** (5.0 11.6)	-7.2*** (-9.9, -4.4)	1.1 (-2.1, 4.4)
£15,000 - £49,999	3451	20.7 (18.1, 23.3)	27.2 (24.5, 29.8)	19.5 (17.3, 21.8)	6.4*** (3.1, 9.7)	-7.6*** (-10.5, -4.8)	-1.2 (-4.2, 1.8)
£50,000+	3599	19.0 (17.0, 21.0)	29.6 (27.1, 32.0)	18.8 (16.7, 20.9)	10.5*** (7.0,13.1)	-10.7*** (-13.1, -8.4)	-0.2 (-2.4, 2.0)
Living with partner							
Cohabiting	8111	17.1 (15.7, 18.4)	26.3 (24.7, 27.8)	17.3 (16.0, 18.6)	9.2*** (7.3, 11.0)	-8.9*** (-10.6, -7.3)	0.2 (-1.3, 1.8)
Not cohabiting	2807	27.8 (24.6, 30.9)	35.5 (32.5, 38.6)	27.2 (24.4, 30.1)	7.7*** (4.0, 11.5)	-8.3*** (-11.4, -5.2)	-0.5 (-4.2, 3.1)

Notes: Those with a GHQ-12 symptom score of 4 or greater were classified as experiencing clinically significant distress levels. All estimates are adjusted for covariates and derived from logistic regression analysis with cluster-robust standard errors followed by the Stata margins postestimation command.
[a] Collection of 2019 data was distributed approximately evenly across all 12 months of the year as part of waves 10 and 11 of the UKHLS.
[b] Net annual income. A missing data dummy variable was included for participants who did not provide income data (4.4% of the sample).
* $p < .05$.
** $p < .01$.
*** $p < .001$.

reintroduction of more stringent physical distancing restrictions that were required in a number of countries during late 2020 and early 2021.

CRediT authorship contribution statement

Michael Daly: Conceptualization, Methodology, Formal analysis, Data curation, Writing - original draft, Writing - review & editing, Visualization. **Eric Robinson:** Conceptualization, Methodology, Writing - original draft, Writing - review & editing.

Declaration of Competing Interest

MD has no conflicts of interest to declare. ER has previously received funding from Unilever and the American Beverage Association for unrelated research.

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Author contributions

Dr Daly had full access to the study data and takes responsibility for the integrity of the data and accuracy of the data analysis. All authors were responsible for the concept and design, the drafting of the manuscript, and the critical revision of the manuscript for important intellectual content.

Data availability

The data that support the findings of this study are openly available to researchers registered with the UK Data Archive, at https://beta.ukdataservice.ac.uk/datacatalogue/studies/study?id=6614 / https://beta.ukdataservice.ac.uk/datacatalogue/studies/study?id=8644.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2021.113920.

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