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Brief Report

Changes in PTSD, depression, and generalized anxiety before and during the COVID-19 pandemic in Ireland

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ABSTRACT

Background: : In this study, we compared the prevalence of posttraumatic stress disorder (PTSD), depression, and generalized anxiety disorder (GAD) before and during the COVID-19 pandemic across nationally representative samples of Irish adults.
Methods: : Participants were sampled in February 2019 (N = 1,020), April 2020 (N = 1,041), May 2020 (N = 1,032), and December 2020 (N = 1,100) using the same self-report measures.
Results: : The prevalence of PTSD significantly increased from 12.5% in 2019 to 18.0% in April 2020, to 22.0% in May, and returning to 17.6% in December 2020. PTSD increases were most consistently observed in males, those aged 18–34 years, those without a university qualification, and those living in the Leinster region of Ireland, where the capital city of Dublin is located. There were no significant changes in the prevalence of depression or GAD.
Limitations: : The 2020 samples were not completely independent of one another and while the analysis took this into account, this bias cannot be completely removed.
Conclusions: : These findings show an increase in PTSD during the initial stages of the COVID-19 pandemic compared to the pre-pandemic period and suggest specificity in mental health responses to the COVID-19 pandemic.

1. Introduction

The first case of COVID-19 was confirmed in the Republic of Ireland on February 29th, 2020. Subsequent measures introduced to mitigate the spread of the virus raised concerns that associated disruptions to daily life may lead to adverse mental health effects (Hyland et al., 2020a; Torjesen, 2020). Indeed, meta-analytic data indicates that population mental health may have deteriorated slightly during the early phase of the pandemic relative to pre-pandemic levels (Prati and Mancini, 2021; Robinson et al., 2021). Longitudinal studies in the United States (Daly and Robinson, 2020a) and the United Kingdom (Daly et al., 2020; Daly and Robinson, 2020b) however suggest that increases in distress following the onset of the pandemic disappeared in the months that followed. Nationally representative studies with pre- and peri-pandemic assessments of mental health are scarce which makes it difficult to ascertain the scale of change in mental health problems related to the pandemic (Prati and Mancini, 2021). This study used nationally representative data from Irish adults to examine rates of posttraumatic stress disorder (PTSD), depression, and generalized anxiety disorder (GAD) before and during the pandemic. We also examined whether certain population subgroups were vulnerable to mental health difficulties throughout the pandemic.

2. Method

2.1. Participants

This study was based on nationally representative data of the general

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adult population of the Republic of Ireland. Quota sampling methods were used to construct samples that were representative of the Irish adult population in terms of sex, age, and geographical distribution. In each case, potential participants were contacted by email, text, or in-app notification with a request to complete a survey of approximately 20 min in length. To minimize selection bias at the initial contact, potential participants were not given information about the nature of the study at this initial contact. Interested participants followed a link to a secure platform operated by the survey company where they were provided with detailed information about the nature of the study, prior to providing informed consent. All participants were reimbursed for their time by Qualtrics, and ethical approval was provided by the University of Sheffield, Ulster University, and Maynooth University.

Data collection occurred in February 2019 ($N = 1020$), April 2020 ($N = 1041$), May 2020 ($N = 1032$), and December 2020 ($N = 1100$). Participants in the April 2020 and May 2020 surveys were invited to take part in subsequent surveys, such that the May 2020 and December 2020 samples included a portion of participants who had participated in prior 2020 surveys (49% and 40% of participants respectively). To maintain national representativeness, the May 2020 and December 2020 samples included new participants to 'top-up' outstanding quotas due to sample attrition.

2.2. Measures

PTSD was measured using the International Trauma Questionnaire (ITQ: Cloitre et al., 2018). The ITQ is a self-report measure aligned to ICD-11 diagnostic guidelines and has been found to produce reliable and valid scores in diverse samples (Vallières et al., 2018). There are six items measuring symptoms of '*Re*-experiencing in the here and now', 'Avoidance', and 'Sense of Threat', and there are three items measuring functional impairment associated with these symptoms. Participants indicate how bothered they have been in the past month using a five-point Likert scale ranging from 0 (*Not at all*) to 4 (*Extremely*). The 2019 sample completed the ITQ based on their worst traumatic event, as identified from a standard list of traumas, and 82% of the sample reported lifetime trauma exposure (Hyland et al., 2020b). The participants in the 2020 samples completed the ITQ in relation to their experiences of the COVID-19 pandemic. Probable PTSD was indicated by the presence of one symptom per cluster (a score of ≥ 2), and the presence of functional impairment. Internal reliabilities were $\alpha \geq 0.90$ at each time-point.

Depression and GAD were assessed using the Patient Health Questionnaire-9 (PHQ-9: Kroenke et al., 2001) and the Generalized Anxiety Disorder 7-item Scale (GAD-7: Spitzer et al., 2006), respectively. Participants indicated how often they have been bothered by each symptom over the past two weeks using a four-point Likert scale ranging from 0 (*Not at all*) to 3 (*Nearly every day*). The standard cut-off score of ≥ 10 was used to indicate the presence of probable depression and GAD (Kroenke et al., 2001; Spitzer et al., 2006). Internal reliabilities were $\alpha \geq 0.9$ at each time-point for both measures.

2.3. Covariates

Participants reported their age in years (recoded as 18–34, 35–54, 55+), sex (male/female), completion of a third-level qualification (yes/no), and the Irish region where they resided (Leinster/Munster/Connaught/Ulster).

2.4. Statistical analysis

Prevalence rates were calculated at each time-point. Given that changes in the prevalence of depression and GAD corresponded closely, we chose to present findings for those experiencing either depression or GAD. Findings for depression and GAD when examined separately are presented in the Supplementary Materials. Prevalence estimates were produced using binary logistic regression analysis with cluster-robust standard errors to account for non-independence of repeated observations on individuals. Marginal effects were assessed using the Stata margins postestimation command to estimate percentage point changes in PTSD and depression/GAD from February 2019 to April 2020, May 2020, and December 2020. Finally, we ran logistic regression models comparing the proportion of participants screening positive for PTSD and depression/GAD in 2019 and in 2020 for each demographic subgroup. All analyses were adjusted for differences in demographic characteristics between waves.

3. Results

The mean age of the sample was 44.5 years (SD = 15.6, range = 18–88), 51.5% were female, and 56.7% had a third-level education. PTSD increased by 5.5% (95% CI = 2.5, 8.6) from February 2019 to April 2020 (Table 1). Furthermore, the 4.0% increase between April 2020 and May 2020 was statistically significant (95% CI = 1.0, 7.0), and was followed by a significant 4.9% (95% CI: −8.0, −1.8) decrease in PTSD between May 2020 and December 2020. December 2020 PTSD levels remained significantly above February 2019 levels. The significant rise in PTSD between 2019 and 2020 was most consistently observed among males, those aged 18–34, those without a third-level qualification, and those living in Leinster. A further logistic regression analysis showed that the overall increase in PTSD over this period (contrasting 2019 with 2020 waves) only differed significantly between males and females. For males, there was a 10.8% (95% CI = 7.3, 14.3, $p < .001$) increase in PTSD from 2019 to 2020 whereas for females the increase over this period was 2.9% (95% CI = −0.6%, 6.4%, $p = .100$), a significant difference of 7.9% (95% CI = 3.0, 12.7, $p = .001$).

The prevalence of depression/GAD did not differ significantly between 2019 and any of the 2020 waves (Table 1). There was little evidence of consistent changes in the prevalence of depression/GAD between 2019 and 2020, whether prevalence levels were examined by demographic subgroup or when depression and GAD were examined separately (Supplementary Tables S1-S2).

4. Discussion

In line with a recent review and meta-analysis examining mental health before vs. during the pandemic (Robinson et al., 2021), there was no evidence of consistent long-term changes in the proportion of Irish adults screening positive for depression and/or GAD during the first nine months of the pandemic relative to the period before the pandemic. However, significant changes were evident for PTSD. Specifically, the prevalence of PTSD was 5.5 percentage points higher at the onset of the COVID-19 pandemic compared to one year earlier, rising by a further 4 percentage points by May 2020 as public health restrictions continued.

This placed PTSD levels in Ireland at 22.0% in May 2020 compared to 12.5% in February 2019. This estimate is in line with results from a meta-analysis suggesting a prevalence of PTSD of 21.9% during the pandemic (Cénat et al., 2021). Notably, rates of PTSD then dropped by approximately 5 percentage points between May and December 2020, quite possibly reflecting a process of adaptation seen in other longitudinal studies (Daly and Robinson 2020a; Daly and Robinson, 2020b; Robinson et al., 2021).

While there is no systematic evidence that changes in mental health from before to during the pandemic tend to differ by gender (Robinson et al., 2021), few long-term studies have examined the potential impact of the pandemic on PTSD. In this study, males experienced a sharper rise in PTSD from 2019 to 2020 than females. A potential reason for this is that males have been more likely than females to work in precarious occupations adversely impacted by the pandemic (e.g., the construction sector) as reflected by a higher uptake of emergency wage support payments by males in Ireland (Hennessy and McGauran, 2021). Increases in PTSD were also evident among young adults, those without a

Table 1
Percentage of participants with posttraumatic stress disorder (PTSD) and with generalized anxiety disorder or depression (GAD/Depression) in 2019 compared with three survey waves conducted during the COVID-19 pandemic.

	Obs.	February 2019(N = 1020) 12/02/19 - 28/02/19 % (95% CI)	April 2020(N = 1038) 31/03/20 - 05/04/20 % (95% CI)	May 2020(N = 1029) 30/04/20 - 19/05/20 % (95% CI)	December 2020(N = 1094) 02/12/20 - 22/12/20 % (95% CI)
PTSD					
Overall sample	4181	12.5 (10.6, 14.5)	18.0** (15.7, 20.3)	22.0** (19.6, 24.4)	17.2** (15.0, 19.4)
Sex					
Male	2028	9.7 (7.2, 12.2)	19.6** (16.2, 22.9)	22.8** (19.2, 26.4)	17.4** (14.3, 20.4)
Female	2153	15.2 (12.3, 18.3)	16.6 (13.5, 19.6)	21.4** (18.1, 24.7)	16.9 (13.9, 20.0)
Age group, y					
18 – 34	1288	20.7 (16.3, 25.1)	30.1** (25.0, 35.2)	37.4** (32.1, 42.8)	31.3** (26.3, 36.4)
35 – 54	1594	12.9 (9.8, 16.41)	19.3* (15.3, 23.3)	24.4** (20.1, 28.7)	16.7 (13.1, 20.4)
55+	1299	4.3 (1.8, 6.9)	4.7 (2.4, 6.9)	4.1 (2.0, 6.2)	3.9 (1.9, 5.9)
Third-level qual.					
No	1812	9.7 (7.2, 12.3)	13.9* (10.8, 17.0)	21.3** (17.7, 24.9)	17.4** (14.0 20.8)
Yes	2369	14.8 (11.9, 17.7)	21.2** (18.0, 24.4)	22.6** (19.4, 25.8)	17.3 (14.5, 20.1)
Province					
Leinster	2296	12.8 (10.1, 15.5)	19.5** (16.4, 22.7)	24.5** (21.1, 27.9)	20.4** (17.3, 23.5)
Munster	1143	13.6 (9.7, 17.5)	16.4 (12.2, 20.7)	20.2* (15.8, 24.7)	13.7 (9.8, 17.5)
Connaught	519	8.6 (4.2, 13.0)	16.4 (10.0, 22.8)	19.0* (12.3, 25.6)	13.4 (7.6, 19.3)
Ulster	223	12.0 (4.4, 19.7)	14.8 (5.5, 24.1)	11.4 (2.4, 20.4)	11.5 (3.8, 19.2)
GAD/Depression					
Overall sample	4181	31.3 (28.6, 33.9)	27.9 (25.3, 30.5)	28.4 (25.3, 30.5)	32.9 (30.3, 35.5)
Sex					
Male	2028	23.5 (19.9, 27.1)	22.2 (18.7, 25.7)	23.7 (20.0, 27.4)	30.1* (26.4, 33.9)
Female	2153	38.6 (34.6, 42.5)	33.3 (29.5, 37.1)	32.8* (29.1, 36.6)	35.3 (31.6, 39.0)
Age group, y					
18 – 34	1288	48.3 (43.0, 53.6)	46.7 (41.2, 52.2)	45.0 (39.6, 50.4)	55.0 (49.6, 60.3)
35 – 54	1594	29.2 (25.0, 33.4)	25.6 (21.3, 30.0)	28.4 (23.8, 33.0)	30.0 (25.5, 34.4)
55+	1299	17.6 (12.9, 22.3)	12.5 (9.0, 15.9)	12.2 (8.7, 15.7)	14.9 (11.2, 18.6)
Third-level qual.					
No	1812	32.4 (28.5, 36.4)	26.1* (22.3, 30.0)	26.3* (22.3, 30.3)	37.5 (33.3, 41.7)
Yes	2369	30.3 (26.6, 33.9)	29.4 (25.9, 33.0)	30.0 (26.4, 33.5)	29.7 (26.4, 33.1)
Province					
Leinster	2296	33.7 (30.0, 37.5)	30.8 (27.1, 34.4)	31.1 (27.4, 34.8)	35.4 (31.8, 38.9)
Munster	1143	28.5 (23.5, 33.4)	24.2 19.5, 28.8)	26.1 (21.3, 31.0)	30.6 (25.6, 35.5)
Connaught	519	27.9 (20.6, 35.1)	23.2 (15.8, 30.6)	22.9 (15.5, 30.2)	30.0 (22.2, 37.7)
Ulster	223	26.0 (15.1, 36.8)	29.4 (18.0, 40.7)	26.0 (15.4, 36.7)	25.9 (15.3, 36.4)

N = 3170, Obs. = 4181.
Notes: 95% confidence intervals are displayed in parentheses. PTSD levels in 2019 are contrasted with levels April, May and December 2020 in the top panel and Depression/GAD levels were compared over the same periods in the bottom panel.
Estimates are derived from logistic regression with cluster-robust standard errors to account for repeated assessments on individuals.
* $p < .05$, ** $p < .01$.

third-level qualification, and those residing in the region of Leinster, where the capital city of Dublin is located. It is possible therefore that young, urban dwelling men, working in more precarious occupations were experiencing the brunt of traumatic stress reactions related to the pandemic.

A notable limitation is that PTSD rates in the 2020 samples were based on people's experiences of the COVID-19 pandemic meaning that all participants met the trauma-exposure criterion, whereas in the 2019 sample only 82% of people met this diagnostic criterion. However, this change in assessment is unlikely to have contributed to substantive changes in observed rates of PTSD given that previous analyses of the 2019 sample suggest that the trauma-exposure criterion has almost no effect on rates of PTSD (Hyland et al., 2020), and that the COVID-19 pandemic satisfies the ICD-11 guidance for what constitutes a potentially traumatic event (Shevlin et al., 2020). Another limitation is that the 2020 samples were not completely independent of one another and while the analysis took this into account, this bias cannot be completely removed. Finally, we note that prescribed normative responses to the pandemic – for instance, alertness and avoidance, overlap with responses taken to indicate the presence of PTSD, which may have influenced the reported incidence of behaviours associated with PTSD.

Declaration of Competing Interest

None.

Data availability

Anonymized data are available upon request.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jadr.2021.100184.

References

Cénat, J.M., Blais-Rochette, C., Kokou-Kpolou, C.K., Noorishad, P.G., Mukunzi, J.N., McIntee, S.E., Dalexis, R.D., Goulet, M.A., Labelle, P.R., 2021. Prevalence of symptoms of depression, anxiety, insomnia, posttraumatic stress disorder, and psychological distress among populations affected by the COVID-19 pandemic: a systematic review and meta-analysis. Psychiatry Res. 295, 113599 https://doi.org/10.1016/j.psychres.2020.113599.

Cloitre, M., Shevlin, M., Brewin, C.R., Bisson, J.I., Roberts, N.P., Maercker, A., Karatzias, T., Hyland, P., 2018. The International Trauma Questionnaire (ITQ):

development of a self-report measure of ICD-11 PTSD and Complex PTSD. Acta Psychiatr. Scand. 138, 536–546. https://doi.org/10.1111/acps.12956.
Daly, M., Robinson, E., 2020a. Psychological distress and adaptation to the COVID-19 crisis in the United States. J. Psychiatr. Res. https://doi.org/10.1016/j.jpsychires.2020.10.0355. S0022-3956(20)31038-4.
Daly, M., Robinson, E., 2020b. 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. PsyArXiv. https://doi.org/10.31234/osf.io/mjg72 doi.org/.
Daly, M., Sutin, A.R., Robinson, E., 2020. Longitudinal changes in mental health and the COVID-19 pandemic: evidence from the UK Household Longitudinal Study. Psychol. Med. 1–10. https://doi.org/10.1017/S0033291720004432.
Hennessey, O., McGauran, A., 2021. Gender and Covid-19 in Ireland. NESC Secretariat Covid-19 Working Paper Series. http://files.nesc.ie/nesc_research_series/Research_series_paper_21_Gender.pdf.
Hyland, P., Shevlin, M., McBride, O., Murphy, J., Karatzias, T., Bentall, R.P., Martinez, A., Vallières, F., 2020a. Anxiety and depression in the Republic of Ireland during the COVID-19 pandemic. Acta Psychiatr. Scand. 142 (3), 249–256. https://doi.org/10.1111/acps.13219.
Hyland, P., Karatzias, T., Shevlin, M., McElroy, E., Ben-Ezra, M., Cloitre, M., Brewin, C. R., 2020b. Does requiring trauma exposure affect rates of ICD-11 PTSD and complex PTSD? Implications for DSM-5. Psychol Trauma. https://doi.org/10.1037/tra0000908.
Kroenke, K., Spitzer, R.L., Williams, J.B., 2001. The PHQ-9: validity of a brief depression severity measure. J. Gen. Intern. Med. 16 (9), 606–613.
Prati, G., Mancini, A., 2021. The psychological impact of COVID-19 pandemic lockdowns: a review and meta-analysis of longitudinal studies and natural experiments. Psychol. Med. 1–11. https://doi.org/10.1017/S0033291721000015.
Robinson, E., Sutin, A.R., Daly, M., Jones, A., 2021. A systematic review and meta-analysis of longitudinal cohort studies comparing mental health before versus during the COVID-19 pandemic. medRxiv. https://doi.org/10.1101/2021.03.04.21252921 doi.org/.
Shevlin, M., Hyland, P., Karatzias, T., 2020. Is Posttraumatic Stress Disorder meaningful in the context of the COVID-19 pandemic? A response to Van Overmeire's commentary on Karatzias et al. (2020). J. Trauma Stress 33 (5), 866–868. https://doi.org/10.1002/jts.22592.
Spitzer, R.L., Kroenke, K., Williams, J.B., Löwe, B., 2006. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch. Intern. Med. 166 (10), 1092–1097.
Torjesen, I., 2020. Covid-19: mental health services must be boosted to deal with "tsunami" of cases after lockdown. BMJ 369, m1994. https://doi.org/10.1136/bmj.m1994 doi.org/.
Vallières, F., Ceannt, R., Daccache, F., Daher, R.A., Sleiman, J.B., Gilmore, B., Byrne, S., Shevlin, M., Murphy, J., Hyland, P., 2018. The validity and clinical utility of the ICD-11 proposals for PTSD and Complex PTSD among Syrian Refugees in Lebanon. Acta Psychiatr. Scand. 138, 547–557. https://doi.org/10.1111/acps.12973.