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Original Research

A 2-year longitudinal evaluation of the impact of the COVID-19 pandemic on individuals with pre-existing anxiety disorders

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Abstract

Objectives: To examine if the COVID-19 pandemic is associated with a differential effect over a 2-year time period in relation to its psychological and social impact on patients with established anxiety disorders.

Methods: Semi-structured interviews were conducted with 21 individuals attending the Galway-Roscommon Mental Health Services in Ireland with an ICD-10 diagnosis of an anxiety disorder. Interviews occurred at three time-points over a 2-year period to determine the impact of the COVID-19 pandemic and associated restrictions on anxiety and depressive symptoms, social and occupational functioning, and quality of life.

Results: No statistical difference in symptomatology was noted between the three time-points in relation to anxiety symptoms as measured utilising psychometric rating scales (Beck Anxiety Inventory (BAI), Hamilton Anxiety Rating Scale (HARS) or Likert Scale measures). The greatest impact of COVID-19 at all time-points related to social functioning and quality of life. Significant variability was noted for individual participants. Qualitative analysis noted a tentative optimism for the future in the setting of vaccination and societal re-opening. Fear of re-emerging anxiety symptoms with the removal of societal restrictions was noted.

Conclusions: No significant overall change in symptomatology or functioning over time was noted for individuals with pre-existing anxiety disorders, however variability was demonstrated, with some individuals describing ongoing anxiety, social isolation and concern for their future. A strong theme of hope for the future and less concern regarding the COVID-19 pandemic was evident; however tailored supports including the utilisation of tele-psychiatry is suggested, particularly for those experiencing increased anxiety with the removal of societal restrictions.

Keywords: COVID-19; anxiety disorders; obsessive compulsive disorder

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Introduction

On March 11th 2020, COVID-19, the infectious disease associated with the coronavirus, SARS-CoV-2 was characterised as a global pandemic by the World Health Organisation (WHO). This pandemic has resulted in significant economic and societal disruption worldwide, and as of February 6th 2023, there have been approximately 754 million COVID-19 cases and approximately 6.82 million deaths attributable to COVID-19 (World Health Organisation 2023). Subsequent robust public containment measures, resulted in the closure of many facilities deemed as 'non-essential" and included facilities attended by individuals with mental health disorders such as day hospitals and day centres. Throughout the pandemic, there have been periods of gradual easing and re-implementation of restrictions in many countries including

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Ireland, which, until February 28th, 2022 was based on the advice of Ireland's National Public Health Emergency Team (NPHET). Many therapeutic interventions normally available for individuals with mental health difficulties both within and outside the mental health services were unattainable during this time, including group psychotherapeutic activities, and where these continued, most had to adapt to a range of public health measures, with for example face-to-face interactions often replaced by tele-consultations (Kopelovich et al., 2021; Rojnic-Kuzman et al., 2021; Li et al., 2022).

The impact of these prolonged periods of restrictions and lockdowns for individuals' mental well-being is somewhat unclear, with contrasting data available to date. Early research documented an initial increase in the prevalence of anxiety and depressive symptoms amongst individuals attending mental health services and in general population cohorts during 2020 (COVID-19 Mental Disorders Collaborators 2021; Hao et al., 2020; Hyland et al., 2020; Li et.al., 2020), although this was not a universal finding (Plunkett et al., 2021; Fahy et al., 2021; McLoughlin et al., 2021). However, the longer-term veracity of this assertion was challenged on the grounds that data were collected during the nascent phase of COVID-19 (early 2020), where symptomatology was
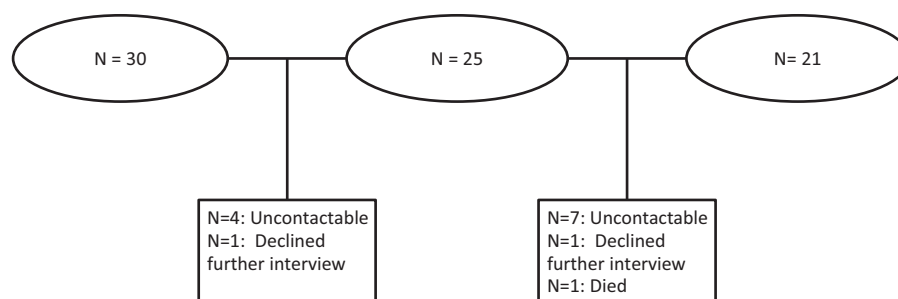
Fig. 1. Study flow chart.

representative of an acute reaction/distress to an unknown, unexpected, and unfolding crisis (Daly and Robinson 2022). Subsequent studies revealed that some initial increase in symptoms at pandemic onset were not sustained, and declined significantly as the pandemic progressed, reverting to pre-pandemic levels within months of the initial outbreak (Bendau et al., 2021; Fancourt et.al, 2021; Robinson et al., 2022; Daly and Robinson 2021; Bartels et al., 2022; Daly and Robinson 2022), with longitudinal studies conducted at this site noting in individuals with pre-existing anxiety (this study cohort) and psychotic disorders, that anxiety symptoms remained at a relatively low level 6 and 12 months after the onset of the COVID-19 pandemic respectively (Hennigan et al., 2021; Rainford et al., 2022).

There remains limited research to date assessing the impact of the COVID-19 pandemic on individuals attending mental health services with pre-existing mental health disorders. Extant international literature has noted general impairment for individuals with serious mental illness (schizophrenia and affective disorders), with those with affective and anxiety disorders particularly affected (Fleischmann et al., 2021; Asmundson et al., 2020). To our knowledge, there have been no studies that have evaluated this potential impact longitudinally over a 2-year period. Whilst, we previously noted a modest impact on symptomatology, variability was demonstrated between individuals with some participants describing ongoing anxiety symptoms with social isolation and significant distress (Hennigan et al., 2021). However, this study did not demonstrate an overall change in symptomatology and functioning over time compared to their review 6 months previously (5-7 weeks after the introduction of COVID-19 mandated restrictions; Plunkett et al., 2021; Hennigan et al., 2021). Consequently, in this study we wanted to assess the psychological and social impact of COVID-19 including its associated mandated social restrictions on individuals with diagnosed anxiety disorders attending a general adult mental health service longitudinally over a longer time period (2 years). We hypothesised that participants would not have increased symptomatology, but that impaired social functioning would remain. We additionally wanted to evaluate participants' views on the delivery of mental health services during the pandemic and suggestions participants had for the future delivery of mental health services based on their experiences.

Methods

Participants

This longitudinal study examines a cohort of individuals with pre-existing anxiety disorders who engaged in the initial study between April 20th and May 7th 2020, approximately 5-7 weeks after governmental mandated restrictions had commenced (Plunkett

et al., 2021). The same cohort were invited to participate in a further study utilising the same psychometric instruments approximately 6 months later (October 15th to October 29th, 2020; Hennigan et al., 2021). At both of these time-points, significant mandated restrictions were in place, with these restrictions similar at both time-points and denoted as Level 5 on a 5-point level of NPHET mandated restrictions at the second time-point (this notation of restriction levels was not in situ when the initial study was conducted).

All patients (except one who had died in the interim from a medical illness) who previously engaged in the initial study ($n = 30$) (Plunkett et al., 2021) were invited to participate in this second follow-up visit by letter and subsequently phoned to provide clarification regarding the purpose of and procedure associated with this study. Anxiety disorders, as previously detailed consisted of those related to triggering events denoted as *'trigger disorders'* and included Obsessive Compulsive Disorder (OCD), social phobia and agoraphobia (e.g. obsessional thought or image, social engagement, crowded environment) and those predominantly unrelated to a trigger event denoted as *'non-trigger disorders'* and included Generalised Anxiety Disorder (GAD), panic disorder and mixed anxiety and depressive disorder, with all clinical diagnoses based on International Classification of Diseases (ICD)-10 diagnostic criteria. Inclusion and exclusion criteria have previously been detailed (Plunkett et al., 2021; Hennigan et al., 2021) and included being over 18 years of age and having capacity to provide written informed consent for study participation. Research interviews were undertaken by psychiatrists with several years of clinical practice (KM, AMcL, KH, RP, BH), with training in study procedures provided by the principal investigator (BH). All responses were anonymised and all data stored securely and handled in accordance with the Data Protection Act, 2018. Ethical approval was attained prior to study commencement from the Galway University Hospitals Research Ethics Committee.

Procedure

All individuals previously provided written informed consent and consent was re-attained verbally for this study. For individuals providing informed consent for engagement in the follow-up study ($n = 21$, 70% response rate – one person refused, one person had died in the intervening period, and seven individuals were un-contactable (see Fig. 1), clinical case notes were reviewed to ascertain if there were any changes relating to clinical data, including changes in prescribed psychotropic medications including dose of medications, where participants described uncertainty pertaining to their treatment regimen.

Assessments

A semi-structured interview was conducted by telephone (in-line with governmental and health service policy) between April 15th and July 10th 2022, approximately 2 years and 18 months after individuals participated in baseline and initial repeat assessments, and occurred at a time when governmental mandated social restrictions had recently been discontinued but COVID-19 rates remained relatively high (HSE – Health Protection Surveillance Centre, July 2022).

Demographic and clinical variable data additionally attained in this study related to physical health status including COVID-19 diagnosis and testing status, and the effect of COVID-19 on the participants' employment or vocational status and/or site of employment. Categorical data pertaining to the effect of COVID-19 on participants' mental health status overall and severity of anxiety symptoms (better, no change, worse) was attained. Participants' subjective experience of the impact of the COVID-19 pandemic was measured utilising the same Likert scales at both time-points (0-10) to measure: 1) anxiety symptoms, 2) mood symptoms 3) social functioning, 4) occupational functioning and 5) quality of life; with 0 indicating no adverse impact and 10 indicating a very severe impact due to restrictions imposed because of the COVID-19 pandemic.

The same established psychometric instruments with known high reliability and validity indices that had been utilised at both previous time-points were employed to measure current symptomatology and included the: 1) Beck Anxiety Inventory (BAI, Beck and Steer 1993), 2) Hamilton Anxiety Rating Scale (HARS, Hamilton 1959), 3) Clinical Global Impression-Severity (CGI–S, Guy 1976), 4) Global Assessment of Function (GAF, Hall 1995) and 5) the Yale-Brown Obsessive Compulsive Scale (Y-BOCS, Goodman et. al 1989) (for participants with a diagnosis of OCD only ($n = 11$)). The Clinical Global Impression-Improvement (CGI-I) scale was utilised to compare participants overall mental state to previous observations. Free-text data illustrating participants' perspectives on the performance of the mental health service during the pandemic and the impact of COVID-19 for them were also invited.

Statistical analysis

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) 27.0 for Windows (SPSS Inc., IBM, New York, USA). Descriptive analyses (frequencies, percentages, means and standard deviation) on key demographic and clinical data were performed for both categorical and continuous variables, as appropriate. We utilised repeated measures analysis of co-variance (Wilkes-Lambda statistic) to compare psychometric data between baseline and both follow-up visits. Post hoc data to examine differences between groups was undertaken utilising analysis of variance, with the Wilcoxon ranked test utilised for non-parametrically distributed data.

Changes in psychometric data over time were examined for the entire group with analyses repeated for participants with 'trigger' or 'non-trigger' disorders, for individuals with and without a diagnosis of OCD, and for individuals with and without a diagnosis of a co-morbid mental health or physical health disorder. All statistical tests were two-sided and the α-level for statistical significance was 0.05.

Free-text data were examined and were open-coded based on the framework of the questionnaire and on any other themes unrelated to these questions that emerged. This data attained from free-texts was then grouped into themes by consensus of the researchers (AMcL, KM, BH).

Results

Demographic and clinical data

Of the 30 participants in the initial study, 20 (67.7%) were available for follow-up interview at both time-points, with 25 (83.3%) available at time-point 2, and 21 (70.0%) available at time-point 3. There was no significant difference in age, gender or diagnosis between respondents and non-respondents. Data for the 20 participants who engaged in all 3 stages of this study is presented in Table 1. Of note, 11 participants were female (55.0%), four participants lived alone (16.0%) and the mean age of participants was 40.9 (SD = 13.2) years at study onset. One of the initial participants had died prior to time-point 3 from a medical illness. Seven individuals (35.0%) had been in employment prior to the COVID-19 pandemic. At study end, eight individuals (40.0%) were employed, with two individuals employed who were not working initially, and one individual not regaining their employment that was lost shortly after the onset of the COVID-19 pandemic.

Seven individuals (25.0%) had been diagnosed with COVID-19, with 19 (95.0%) previously vaccinated (18 had received a booster dose). None had been hospitalised secondary to adverse sequelae related to infection with COVID-19.

Twelve (60.0%) participants fulfilled criteria for an anxiety disorder denoted as a 'trigger anxiety' disorder. The most common anxiety disorder was OCD ($n = 10$, 50.0%) followed by GAD ($n = 6$, 30.0%). Nine (45.0%) participants fulfilled diagnostic criteria for an additional mental health disorder, with emotionally unstable personality disorder of borderline type ($n = 3$, 15.0%), and schizophrenia ($n = 3$, 15.0%) most common. Five (25.0%) participants were diagnosed with co-morbid physical disorders. Nineteen (95.0%) participants were prescribed psychotropic medication with 9 (45.0%) participants prescribed a Selective Serotonin Reuptake Inhibitor, and 6 (30.0%) participants prescribed a Serotonin and Noradrenaline Reuptake Inhibitor. Eight (40.0%) participants were prescribed more than one psychotropic medication.

Change in symptomatology

As demonstrated in Table 2, no statistical difference in symptomatology was noted between the three time-points when analysing the total group in relation to anxiety symptoms as measured utilising psychometric rating scales (BAI, HARS) or utilising a Likert Scale (Figs. 1 and 2). Similarly, there was no difference in levels of symptoms of OCD, or measures of mood, social or occupational functioning, quality of life or global functioning between the three time-points. However, post hoc testing noted an increase in global functioning at time-point 3 compared to time-point 1 (4.85 points, (95% CI 0.17, 9.53), $p = 0.043$). The greatest impact of COVID-19 related to social functioning and quality of life at all time-points. As some Likert scale data was non-parametrically distributed, analysis was repeated utilising the Wilcoxon Rank test and no difference in results was demonstrated.

Data pertaining to clinical symptomatology for individuals characterised as 'trigger' and 'non-trigger' disorders are presented in Tables 3 and 4. No difference over time was noted across

Table 1. Demographic and clinical variables

Variable	n (%)
Gender	
Male	9 (45.0)
Female	11 (55.0)
Marital status (Time-point 3)	
Single	13 (65.0)
Married/Civil partnership	2 (10.0)
Separated/Divorced	5 (25.0)
Employment status (Time-point 3)	
Unemployment	12 (60.0)
Employed	8 (40.0)
Anxiety disorder	
"Trigger anxiety disorders"	
Obsessive compulsive disorder	10 (50.0)
Social phobia	1 (5.0)
Agoraphobia	1 (5.0)
"Non-trigger anxiety disorders"	
Generalised anxiety disorder	6 (30.0)
Mixed anxiety and depression	2 (10.0)
Substance use (Time-point 3)	
Alcohol*	9 (45.0)
Nicotine	3 (15.0)
Cannabis*	1 (5.0)
Other psycho-active substances	0 (0.0)
COVID-19	
Yes	7 (35.0)
No	13 (65.0)
COVID-19 vaccination	
Yes	19 (95.0)
No	(5.0)
Co-morbid psychiatric disorder	
EUPD of borderline type	3 (15.0)
Schizophrenia	3 (15.0)
Other Disorders**	3 (15.0)
Psychotropic medications	
Selective serotonin reuptake inhibitor	9 (45.0)
Serotonin noradrenaline reuptake inhibitor	6 (30.0)
Tricyclic antidepressant	3 (15.0)
Mirtazapine	4 (20.0)
Atypical antipsychotic	4 (20.0)
Pregabalin	1 (5.0)
Co-morbid physical disorder	
Diabetes mellitus	1 (5.0)
COPD/Asthma	1 (5.0)
Other physical health disorders***	3 (15.0)

*No participant fulfilled criteria for harmful use or dependence.
**Includes Autism Spectrum Disorder, Bipolar Disorder and,
***Included neurological, inflammatory and musculoskeletal disorders.

Table 2. Change in symptomatology over time

Variable	Baseline Mean (SD)	Follow-Up 1 Mean (SD)	Follow-up 2 Mean (SD)	Statistics F, p
BAI (n = 20)	12.70 (13.46)	15.55 (13.13)	15.90 (13.97)	0.833, 0.19
HARS (n = 20)	11.84 (8.57)	11.84 (8.81)	13.63 (11.94)	0.36, 0.70
Y-BOCS (n = 9)				
Obsessions	7.00 (1.24)	7.67 (1.64)	6.00 (1.27)	0.66, 0.55
Compulsions	7.30 (1.17)	5.60 (1.42)	5.50 (1.24)	1.28, 0.33
Total	14.22 (2.28)	14.89 (2.40)	12.11 (2.72)	0.42, 0.42
GAF (n = 20)*	60.20 (2.72)	60.75 (2.64)	65.05 (2.43)	2.31, 0.13
CGI (n = 20)				
Severity	4.40 (0.88)	4.30 (0.92)	4.15 (0.99)	0.55, 0.59
Improvement**	4.80 (0.27)	5.05 (0.24)	4.55 (0.29)	1.24, 0.31
Likert Scales (n = 20)				
Anxiety	4.10 (3.11)	3.85 (2.83)	2.95 (2.63)	1.23, 0.32
Mood	3.20 (0.69)	3.15 (0.58)	2.15 (0.59)	1.01, 0.38
Social functioning	4.75 (2.90)	4.25 (2.90)	3.60 (3.14)	0.61, 0.56
Occupational functioning	2.60 (0.75)	2.60 (0.72)	1.55 (0.63)	1.05, 0.37
Quality of life	4.75 (0.52)	4.15 (0.63)	3.10 (0.62)	1.68, 0.21

BAI = Beck Anxiety Inventory, CGI = Clinical Global Impression, GAF = Global Assessment of Functioning; HARS = Hamilton Anxiety Rating Scale, Y-BOCS = Yale-Brown Obsessive Compulsive Scale.
*Post hoc analysis demonstrated higher GAF scores at time-point 3 compared to baseline (4.85 points, (95% CI 0.17, 9.53), $p = 0.043$).
**Higher scores suggest less improvement.

psychometric instruments or Likert Scales for either group. However post hoc analysis noted reduced anxiety symptoms at time-point 3 for individuals with a *'trigger'* anxiety disorder, compared to baseline for the subjective anxiety Likert scale (-2.13 points, 95% CI -3.70, -0.55 points, $p = 0.015$). Including all study participants, individuals with *'non-trigger'* anxiety disorders ($n = 15$) had higher levels of subjective depressive symptoms at time-point 2 (Mean = 4.10 (SD = 2.64) v. 1.87 (SD = 1.96), $p = 0.37$) compared to those with *'trigger disorders'* ($n = 10$); with no other differences evident between these groups.

Qualitative data

The 21 participants at time-point 3 provided 56 separate comments. Nineteen individuals provided comments relating to the mental health services' management of the COVID-19 pandemic and all participants provided comments regarding the impact of the COVID-19 pandemic for them, or their view for the future with regards to the COVID-19 pandemic.

The most common theme pertaining to mental health services was that participants believed that services did all that was possible for them ($n = 14$). The other most predominant theme was that the option of telemedicine consultations was helpful and could potentially remain as an option in the future where appropriate ($n = 3$). Four themes emerged pertaining to the current and future impact of COVID-19: (1) optimism for the future ($n = 8$), (2) beneficial impact of receiving the COVID-19 vaccine and booster ($n = 4$), (3) risk of re-opening of society too quickly and subsequent risk of re-emergence of COVID-19 ($n = 7$), and (4) concern for re-emergence of anxiety symptoms ($n = 4$).

Box 1. Themes emanating from free-text responses (Free-Text Data Themes).

Mental Health Services (MHS)
Theme 1: MHS did all they could (*n* = 14)
• *'They did everything possible for me'*(#11, Male)
• *'They did all they could, and I knew where they were'* (#16, Female)

Theme 2: Role for Telemedicine in the future
• *'Having prescriptions emailed to the pharmacy and appointments on the phone were both helpful for me'* (#7, Male)
• *'Virtual appointments were good and should continue into the future'* (#19, Female)

Impact of COVID-19
Theme 1: Optimism for the future (*n* = 8)
• *'I am now hopeful for the future'* (#15, Male)
• *'I will be able to go to town, and meet people in coffee shops and restaurants'* (#24, Female)

Theme 2: Beneficial Impact of COVID-19 and booster (*n* = 4)
• *'I feel relieved that I have received my vaccines'* (#8, Male)
• *'I am looking forward to my second booster to further reduce my risk of COVID-19'* (#18, Male)

Theme 3: Society re-opening too soon (*n* = 7)
• *'My anxiety is higher due to society re-opening'* (#7, Male)
• *'Restrictions have been removed too quickly from a social and business perspective'* (#17, Female)

**Theme 4: Re-emergent anxiety (*n* = 4)**
• *'I am not looking forward to groups'* (#10, Female)
• *'My anxiety is higher socially, my mask had been my safety blanket for my anxiety'* (#16 Female)
• *'I am anxious around people without masks, that I or my family might contract COVID-19'* (#20, Female)

Discussion

This study evaluates at three time-points over a 2-year period, anxiety, functioning and quality of life since the onset of the COVID-19 pandemic in individuals with pre-existing diagnosed anxiety disorders who are attending secondary mental health services. Although individual differences were evident, the impact overall of the COVID-19 pandemic on anxiety symptoms was not marked, with only minimal changes in symptomatology noted over time. Free-text data, whilst noting optimism for the future, also demonstrated that many participants believed that the reduction in restrictions (March 2022) and re-opening of society was being undertaken too hastily, leading to a risk of another spike in COVID-19 case numbers and consequently a risk of additional societal restrictions. Some concern was expressed that societal re-opening would lead to participants experiencing increased anxiety symptoms, particularly in social scenarios.

The lack of change in anxiety symptomatology at the three time-points is consistent with studies in other jurisdictions of shorter duration, where no increase and in some instances a modest decrease in symptoms for individuals with high baseline levels of symptomatology were noted (Ahrens et al., 2021; Bendau et al., 2021; Pan et al., 2021). On a positive note, there was some evidence for a modest improvement in functioning at 2-year follow-up in this study, albeit this was not marked. The rationale for relatively modest levels of symptomatology in this patient cohort despite the significant impact of COVID-19 is likely multi-factorial. Firstly, each participant had continued access to supports from their multidisciplinary mental health team over the two year period of this study, despite some aspects of service provision arguably sub-optimal (i.e. lack of group therapeutic interventions such as anxiety management groups). Free-text comments from participants reflected that contact with their mental health team was predominantly positive with teams providing as much support as was feasible during the pandemic. This included access to key workers and pharmacological interventions. Secondly, none of the participants engage to our knowledge in consuming alcohol above the Health Service Executive recommended low-risk alcohol guidelines (https://www2.hse.ie/wellbeing/alcohol/improve-your-health/) or actively abuse psycho-active substances, which could potentially exacerbate symptomatology. Thirdly, a diagnosis of a mental disorder does not mitigate against an individuals' ability to be resilient (Herrman et al., 2011). Viewed as a multi-dimensional capacity to adapt in the face of significant adversity, stress, and trauma by maintaining a stable trajectory of
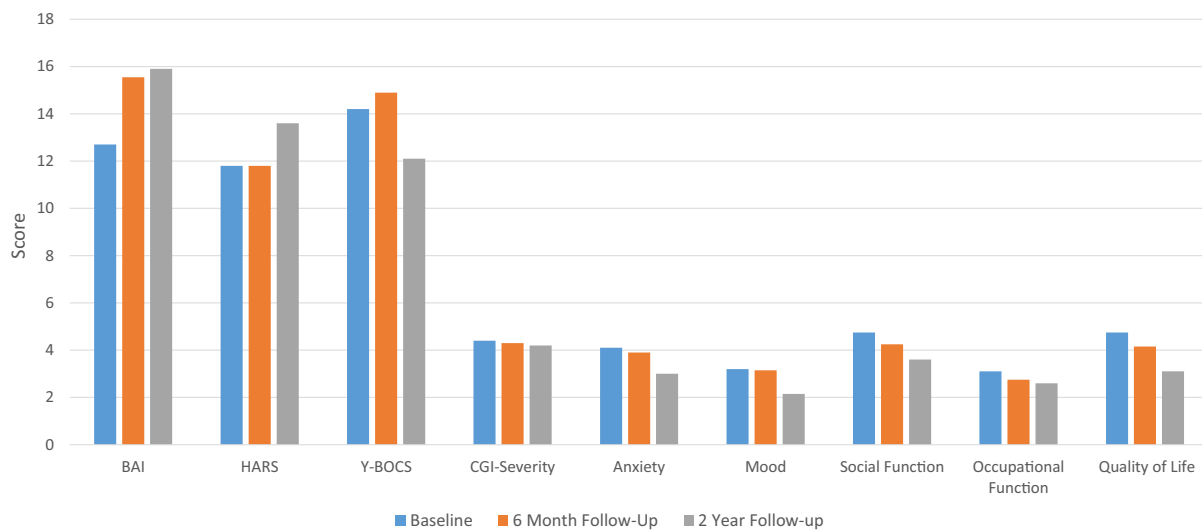
BAI = Beck Anxiety Inventory, HARS = Hamilton Anxiety Rating Scale, Y-BOCS = Yale-Brown Obsessive Compulsive Scale, Likert Scale measurements for anxiety, mood, social function, occupational function and quality of life are provided

Fig. 2. Change in symptomatology.

Table 3. Trigger disorders (N = 12) – change in symptomatology over time

Variable	Baseline Mean (SD)	Follow-Up 1 Mean (SD)	Follow-up 2 Mean (SD)	Statistics F, p
BAI	8.08 (8.95)	13.92 (12.59)	11.92 (10.02)	2.66, 0.12
HARS	9.92 (6.89)	11.42 (8.67)	10.50 (7.63)	0.24, 0.79
GAF	58.67 (14.63)	58.92 (14.34)	64.92 (12.87)	1.63, 0.25
CGI				
Severity	4.50 (1.09)	4.33 (1.07)	4.25 (1.22)	0.44, 0.66
Improvement	4.42 (1.08)	5.08 (1.08)	4.33 (1.50)	1.51, 0.27
Likert Scales (n=20)				
Anxiety	3.25 (2.77)	3.25 (2.83)	2.75 (2.67)	0.11, 0.89
Mood	2.58 (2.75)	2.17 (2.08)	1.83 (2.41)	0.22, 0.81
Social functioning	4.25 (2.93)	4.25 (2.83)	2.75 (2.45)	1.17, 0.35
Occupational functioning	2.25 (3.08)	2.50 (3.55)	0.83 (1.40)	1.56, 0.26
Quality of life	4.08 (2.27)	3.58 (2.91)	2.58 (2.39)	0.82, 0.47

BAI = Beck Anxiety Inventory, CGI = Clinical Global Impression, GAF = Global Assessment of Functioning; HARS = Hamilton Anxiety Rating Scale, Y-BOCS = Yale-Brown Obsessive Compulsive Scale.

Table 4. Non-trigger disorders (n = 8) – change in symptomatology over time

Variable	Baseline Mean (SD)	Follow-Up 1 Mean (SD)	Follow-up 2 Mean (SD)	Statistics F, p
BAI (*n* = 8)	19.63 (16.57)	18.00 (14.38)	21.88 (17.43)	2.10, 0.20
HARS (*n* = 20)	15.14 (10.65)	12.57 (9.71)	19.00 (16.35)	2.14, 0.21
GAF (*n* = 20)	62.50 (7.35)	63.50 (6.40)	65.25 (7.76)	0.70, 0.53
CGI (*n* = 20)				
Severity	4.25 (0.46)	4.25 (0.71)	4.00 (0.53)	0.33, 0.73
Improvement	5.38 (1.19)	5.00 (1.07)	4.88 (0.99)	0.36, 0.71
Likert Scales (*n* = 20)				
Anxiety*	5.38 (1.18)	4.75 (0.98)	3.25 (0.96)	4.86, 0.06
Mood	4.13 (3.52)	4.63 (2.67)	2.63 (3.07)	1.65, 0.27
Social functioning	5.50 (2.88)	4.25 (3.20)	4.88 (3.76)	0.34, 0.72
Occupational functioning	3.13 (3.87)	2.75 (2.87)	2.62 (4.03)	0.11, 0.90
Quality of life	5.75 (2.12)	5.00 (2.56)	3.88 (3.27)	0.77, 0.50

BAI = Beck Anxiety Inventory, CGI = Clinical Global Impression, GAF = Global Assessment of Functioning; HARS = Hamilton Anxiety Rating Scale, Y-BOCS = Yale-Brown Obsessive Compulsive Scale.
Post hoc analysis demonstrated reduced subjective anxiety symptoms at time-point 3 compared to time-point 1 (−2.13 points (95% CI = −3.70, −0.55), p = 0.015).

functioning via multiple pathways (Southwick et al., 2014; Bonanno 2004), resilience is not intrinsically inherent to each individual; rather it is a process moulded by each person's experience and evolving interaction with the world around them. It is probable that several of the study participants have adapted positively to maintain their mental health, despite the adversity experienced with COVID-19 and its associated restrictions activating previously learned coping strategies and adaptability to change, occurring in a milieu of decreased anxiety-provoking social and occupational demands mandated by restrictions.

Qualitative data noted divergent views, with many participants optimistic for the future, particularly after attainment of vaccinations (note 95% of cohort had attained a COVID-19 vaccination). However, several participants stated that their anxiety symptoms were increasing or expressed concern that anxiety symptoms might re-emerge or intensify in the face of increased social and workplace demands as restrictions are further removed. For some individuals, this anxiety is related to increasing social scenarios, with the COVID-19 pandemic restrictions enabling avoidance of stressful and anxiety-generating interactions and scenarios. For other participants, there was anxiety about the re-emergence of a COVID-19 spike due to a too-rapid reduction in social restrictions.

Many respondents found interaction with their mental health team reassuring and supportive. Telephone consultation as a viable alternative to face-to-face interaction was highlighted by some of the participants, with some stating that 'tele-psychiatry' could have an ongoing role, with recent research noting patient satisfaction for this form of clinical consultation in individuals with bipolar disorder and anxiety disorders (Farrell et al., 2022; Milosevic et al., 2022; Komariah et al., 2022). However, concerns such as the development of therapeutic rapport and the attainment of full informed consent to maintain patients' privacy have also been expressed (Romo 2022).

There are a number of limitations with this study, the most significant of which being the modest sample size. However, 70% (n = 21) of the original cohort engaged in the third phase of this longitudinal study and there was no difference in clinical or socio-economic factors between those who did and did not participate. A power analysis undertaken prior to study commencement indicated that to detect a clinically significant change in the HARS (score change of 7 points), 21 participants would be required for a desired power of 0.80 and allowing for a type 1 error of 0.05. Likert scales utilised were not validated for this study but have been widely used in previous studies and are identical to those utilised in the first two time-points of this study. Additionally, caution is required in interpretation of findings between different anxiety disorders given the relatively low sample size, and further studies might potentially be better powered to compare the impact of COVID-19 between individuals with different anxiety related disorders. This study was undertaken within one community mental health team, and thus it is possible that the findings may not be generalisable to other services with differential resources or co-morbid disorders. As previously described (Plunkett et al., 2021; Hennigan et al., 2021), separating individuals with anxiety disorders into 'trigger' and 'non-trigger' groups is not currently a recognised categorisation. Finally, the third time-point did not occur at a time of mandated social restrictions (unlike time-points 1 and 2) despite ongoing high COVID-19 rates, and this may have potentially impacted certain psychometric measures including the GAF.

Conclusion

This longitudinal study examining the impact of the COVID-19 pandemic and its restrictions on individuals with pre-existing anxiety disorders at three time-points over a 2-year period demonstrated no significant overall change in symptomatology or functioning over time, with optimism expressed by many individuals for the future. Variability was however demonstrated, with some individuals describing ongoing anxiety, and concerns that restrictions were being removed too quickly, with a re-emergence of

social anxiety for some participants. Thus, despite COVID-19 having a minimal impact on many individuals with pre-existing anxiety disorders; identifying those with ongoing symptoms or distress remains important, particularly for those with anxiety associated with societal restrictions being removed. Moreover, ongoing provision of multidisciplinary tailored interventions is required, with tele-psychiatry a potential option to consider.

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