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Testing the potential therapeutic effects of an online creative arts-based intervention for people with anxiety

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ABSTRACT

Background: Creative arts-based interventions are a relatively new addition to the toolkit of psychological treatments for mental afflictions. As such, the therapeutic efficacy of these therapies when conducted remotely via digital media has been under-researched. To address this gap, this study tested the effects of an online creative arts-based intervention to alleviate anxiety.

Method: A repeated measures quasi-experimental design was employed on a sample of British adults ($N = 41$). Data were collected using pre- and post-intervention scores on the General Anxiety Disorder (GAD-7) and Warwick-Edinburgh Mental Wellbeing (WEMWBS) scales.

Results: Inferential analysis procedures consisting of multiple tests for within-subjects effects all showed significantly lower levels of anxiety and higher levels of mental wellbeing post-intervention.

Conclusion: Whilst additional confirmatory and longitudinal research is needed, the results of this exploratory study tentatively indicate that creative arts-based "interventions" delivered through digital media may be effective in substantively reducing common symptoms of anxiety.

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Anxiety; mental wellbeing; creative arts-based interventions; quasi-experiment

Introduction

The use of art therapy and creative arts-based interventions (CABIs) to address various mental health issues has grown in recent decades as humanistic approaches to psychological treatment have become more widely accepted (Clayton & Potter, 2017; Dunphy Baker et al., 2019; Fancourt & Perkins, 2019; Holt, 2020, 2023; Hughes et al., 2019; Sumner et al., 2021). However, it is crucial to note that although they are related and often conflated, CABIs are not necessarily art therapy, since unlike the former, the therapeutic changes induced by art therapy are centred on the production and intrapsychic significance of particular, and typically visual, artwork (Edwards, 2004). Moreover, the efficacy of art therapy is largely dependent on the extent to which it can induce a transformative relationship between the patient and therapist. Indeed, it is essentially an extension of psychotherapy and requires a licensed therapist to help patients to steadily develop

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secure emotional bonds, trust, and purposeful attachments through art (Abbing et al., 2019; Holt, 2023; Malchiodi, 2018).

CABIs, on the other hand, are led by professional or trained artists. Accordingly, the therapeutic emphasis is on the enjoyment of producing art rather than on exploring and expressing deep-seeded emotions. Furthermore, CABIs are suggested to have positive psychological outcomes via the sensory and performative processes of actively engaging in artistic pursuits – and these can entail a wide range of practices including, amongst others, poetry, music, and drama (Dunphy Baker et al., 2019; Morison et al., 2022). Such introspective and creative activities empower patients to more easily express and process anxious and/or depressive thoughts, memories, and emotions, as well as to manage stress. All this then enables them to overcome feelings of fear and hopelessness, improve their self-esteem, and re-examine negative assumptions about themselves and others (Coholic et al., 2018; Martin et al., 2018; Roghanchi et al., 2013). Additionally, although CABIs can take specific forms of therapy, they are considered to be a more general and simpler type of psychological intervention that also encompasses community psychosocial programmes (Morison et al., 2022). This broadness means that CABIs can be delivered by artists who can be, but do not need to be, licensed therapists (see, e.g., Aaron et al., 2011; Buser et al., 2023).

CABIs as a potential treatment for anxiety

Anxiety is a psychological condition characterized by excessive and persistent feelings of fear and worry. Occasional and mild-to-moderate anxious episodes are normal, relatively tolerable, and can serve positive functions such as making us more alert in dangerous environments, or more aware of risks involved in important decisions. However, beyond a certain threshold, anxiety levels are debilitating (Baldwin et al., 2014), as they can induce rash thinking, maladaptive behaviours, and physiological outturns (e.g. dizziness, irregular heartbeat, and shortness of breath). Such anxiety disorders have also been linked to other psychological comorbidities and are seen as precursors to depression (Coholic et al., 2018; N. Williams, 2014). Parenthetically, mental wellbeing refers to is a state "in which the individual realizes their own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to their community" (World Health Organization, 2004, p. XVIII). High mental wellbeing is associated with higher degrees of personal happiness and life satisfactions (Scott, 2012). Conversely, low mental wellbeing is strongly correlated with anxiety and depression (Lagnado et al., 2017; Li et al., 2022).

Correspondingly, a growing body of empirical evidence suggests that CABIs can decrease symptoms of anxiety and depression and improve wellbeing (Holt, 2020; 2023; Jensen & Bonde, 2018). Related research on Social Prescribing (SP) and Arts on Prescription (AoP) programmes from the UK and Scandinavia shed further light on the potential mechanisms through which CABIs can induce said positive outcomes. In brief, these programmes involve patients who are referred to community based CABI courses by health care professionals, often as a non-pharmacological means to deal with stress, anxiety, depression, or low mood (Clayton & Potter, 2017; Holt, 2020). Studies pertaining to AoPs and to CABIs more broadly, indicate that the mode through which art activities are delivered strengthen social cohesion and community

connections (Holt, 2020, 2023; Sumner et al., 2021; Van De Venter & Buller, 2015). Specifically, those focused on group activities, facilitate meaningful social interactions and shared enjoyment of common interests (Daykin et al., 2021; Redmond et al., 2019). CABIs can thus improve mental health by fostering feelings of social belonging, connections to a supportive community, and mutually beneficial relationships (Williams et al., 2020; Wakefield et al., 2022). Additionally, other studies suggest that CABIs may also relieve anxiety by providing patients with a dedicated space and time to focus on an artistic endeavour, which in turn, serves as a temporary distraction or escape from their worries (Holt, 2023).

However, whilst the nascent research on the effects of CABIs on anxiety has shown promising results (Morison et al., 2022; Sumner et al., 2021), most of it included interventions that were run by art therapists and/or that measured anxiety as a secondary outcome The few studies on CABIs that were specifically designed to address anxiety, and which were run by artists rather than licensed therapists, also show positive findings, though with limitations in methodology (e.g., Coholic et al., 2018). Additionally, most studies have mainly focused on the effectiveness of CABIs that are held in physical face-to-face settings, with limited exploration of the effects of remote participation through online platforms (Gerber et al., 2018). Parallel research, however, suggests that online CABIs may support mindfulness, self-expression, decrease psychological distress, and increase subjective wellbeing (Malboeuf-Hurtubise et al., 2021; Zubala et al., 2023). Online CABIs, accessible from home and in secure environments, could, therefore, potentially provide a viable and more inclusive treatment option for anxiety disorders and related comorbidities.

The recent global COVID-19 pandemic has intensified psychological, behavioural, and physiological symptoms of anxiety and depression, negatively impacting mental health due to increased social isolation, financial concerns, and movement restrictions (Torales et al., 2020). Coincidentally, the pandemic was a catalyst for the adoption of online arts-based psychological treatments, since traditional in-person treatments were highly restricted by quarantine and social distancing measures. Against this backdrop, in 2021 the charity *Anxiety UK* developed and launched its Art for Anxiety Relief (*AfAR*) online course. This course was designed to reduce anxiety by facilitating communal engagement in creative arts activities via a digital media space. Thus, the purpose of the present exploratory study is to gauge the effectiveness of this online CABI in decreasing anxiety and improving mental wellbeing.

Methods

This study utilised a repeated measures quasi-experimental design along with a convenience sampling method. Participants were administered two psychometric instruments in the form of online questionnaires before the first session of the intervention to get baseline readings of their anxiety and mental wellbeing. These questionnaires were then re-administered 6-weeks later immediately after the last session of the intervention.

Participants

The charity *Anxiety UK* recruited and administered the baseline and post-intervention measures to participants who undertook one of their eight 6-week online courses. These courses were, respectively, run on 19 January 2022; 23 April 2022; 20 July 2022; 23 August 2022; 22 October 2022; 3 November 2022; 12 November 2022; and 17 February 2023.

Privacy protocols, coupled with the exploratory aim of their intervention, prevented *Anxiety UK* from collecting or disclosing more specific demographic or psychiatric information. Correspondingly, there were no set inclusion criteria, as the course was intended to be inclusive and open to the public. However, all the participants in this study's sample reported being diagnosed with generalised anxiety disorder or having symptoms of anxiety, depression, or psychological malaise.

The exclusion criteria for participation encompassed individuals exhibiting acute behavioural agitation, acute psychosis, severe and enduring unstable mental illness, a personality disorder at a severe/complex level, moderate-to-severe impairment of cognitive function (e.g. dementia), or moderate-to-severe impairment due to autistic spectrum problems, learning disabilities, or substance abuse issues at a level likely to considerably interfere with active engagement in the CABI sessions. This study was approved by the Ethics Committee of the University of Birmingham.

Creative arts-based intervention description

The AfAR intervention was developed by anxiety management professionals in consultation with artists and individuals who suffered from anxiety. This CABI was a 6-week online course comprised of six 1-hour sessions that were held over Zoom and led by artists who specialised in different creative arts techniques such as watercolour, mandala, illustration, and crochet. Prior to the start of this CABI, the AfAR artists received training and were supported by *Anxiety UK* staff.

Hence, whilst the specific artistic activity and artist differed across the eight CABI courses that participants in this study were drawn from, each course followed the same delivery procedure and counselling protocol, which went as follows. The day before each AfAR session began, participants were emailed details about what that session would entail. These included a list of the required art materials, along with a reminder of the group's ground rules. The latter included being respectful of others, being mindful of the language and terms used, respecting confidentiality, and giving everyone space to talk and participate. Each session then started with an artist introducing the artistic activity and techniques, followed by a friendly reminder of the ground rules. As a warmup activity, participants were asked how they felt and if there was anything they would like to share with the group. This was followed by a specific arts-based activity organised around an artistic style or genre. During the activity, the artist moved the camera to focus on demonstrating the corresponding art technique and verbally guided the participants through the process of creating their own artwork. At the end of the session, participants engaged in a closing self-reflection exercise.

Outcome measures

Anxiety was measured using the Generalised Anxiety Disorder (GAD-7) scale. This instrument has been used to gauge the effectiveness of art therapies that are similar to the present study's CABI (see, e.g., Beerse et al., 2020; Kim et al., 2022; Van Lith et al., 2021). Moreover, the GAD-7 is estimated to be 89% more sensitive than competing diagnostic inventories and is known to provide a high degree of reliability (Williams, 2014). Accordingly, participants were asked to respond to seven Likert-type items using a response option from 0 to 3 where (0 = not at all, 1 = several days, 2 = more than half the days, 3 = nearly every day). Examples of these items include the following: "Becoming easily annoyed or irritable", "Feeling afraid something awful might happen", and "Feeling nervous, anxious or on edge". Scores for these measures were averaged to create pre-intervention and post-intervention composite variables, with lower scores indicating lesser anxiety.

Mental Wellbeing was measured using the Warwick-Edinburgh Mental Wellbeing (WEMWBS) scale. This well-established instrument measures several key aspects of healthy psychological functioning such as optimism, autonomy, agency, curiosity, and clarity of thought (Tennant et al., 2007). More specifically, participants were asked to respond to 14 Likert-type items using a response option from 1 to 5 where (1 = none of the time, 2 = rarely, 3 = some of the time, 4 = often, 5 = all of the time). Examples of these items include the following:"I've been feeling optimistic about the future", "I've been feeling relaxed", and "I've been feeling confident". Scores were averaged to create pre-intervention and post-intervention composite variables, with higher scores indicating greater mental wellbeing.

Analysis

Due to the typical high attrition rates that come with longitudinal studies as well as the more uncontrollable nature of non-laboratory research settings, not all sample participants completed all six sessions of the intervention course nor answered both the GAD-7 and WEMWBS outcome measures. As such, a battery of inferential analysis procedures consisting of paired samples t-tests and repeated measures analysis of variance and covariance tests were run on several relevant subgroupings to comprehensively determine and confirm the efficacy of the CABI. These procedures are discussed in the section below.

Results

To reiterate, participants included in the analyses undertook one of the eight CABI/online courses. In total, 41 British adults (ages 18 and over) who participated in one of these eight courses were included in the analysis. The course started in January 2022 and was successively re-run seven more times up until February 2023. Relatedly, anxiety and depression in Northern European countries have been shown to vary by month and be particularly high in the winter months (Palmu et al., 2022; Wirz-Justice, 2019). Therefore, before the main analysis, we conducted a repeated measures analysis of variance (ANOVA), to see if the effect of the intervention on the outcome measures was affected

by the months/dates of the year that participants were exposed to the CABI. Said months/dates were coded ascendingly as (1 = 21 January 2022; 2 = 23 April 2022; 3 = 20 July 2022; etc.) and entered as a between-subjects factor since they effectively serve as a grouping category. The results indicate that months/dates in which the courses were run had no effect on the observed mean differences between the pre- and post-intervention GAD-7 scores $F(1, 27) = .45$, $p = .74$. Pairwise comparisons further showed that these mean differences did not differ between any of the months/dates. Additionally, the months/dates had no effect on the mean differences between the pre- and post-intervention WEMBS scores $F(1, 39) = 1.50$, $p = .20$, and these mean differences did not significantly differ between any of the months/dates. Thus, although we were not able to control for pertinent demographic variables, these results raise confidence that any observed significant effects of the intervention on the outcome measures are less likely to result from skewed sampling distributions or annual seasonal variations. They also indicate that such potential effects are less likely to be due to differences in the composition of artists who led each course or the specific artistic activity that was presented in each course.

Intervention effects on anxiety

A paired-samples t-test was conducted to test the mean differences between the pre- and post-intervention GAD-7 scores. The results showed that the participants self-reported significantly less anxiety in the post-intervention measure ($M = 5.4$, $SD = 2.8$) than in the pre-intervention measure ($M = 10.4$, $SD = 4.3$; $t(26) = 5.34$, $p < .001$). The *Cohen's* d ($d = 1.27$) indicated that the effect size for the decrease in anxiety was very large. A follow-up repeated measures analysis of covariance (ANCOVA) showed that these effects were not moderated by the number of sessions that participants took per course $F(1, 27) = .012$, $p = .91$. Next, the research team ran a final paired-samples t-test on just the number of participants who completed all six sessions of a CABI ($N = 14$). The results were largely the same as the first ($M_{\text{pre-intervention}} = 10.5$, $SD = 4.0$; $M_{\text{post-}}$intervention = 5.2; $SD = 3.2$), and again indicate that the intervention had a pronounced effect $t(13) = 4.11$, $p < .001$, $d = 1.4$.

Intervention effects on mental wellbeing

The same procedure noted above was conducted to test the mean differences between the pre- and post-intervention WEMWBS scores. The results showed that the participants self-reported significantly higher levels of mental well-being in the post-intervention measure ($M = 3.4$, $SD = .55$) than in the pre-intervention measure ($M = 2.9$, $SD = .61$; $t(40) = -7.18$, $p < .001$). Further, the Cohen's d ($d = .77$) suggests that the effect size for this increase was moderate-to-large. A subsequent repeated measures ANCOVA further confirmed that these effects were not moderated by the number of sessions that participants took and completed per course $F(1, 41) = .486$, $p = .49$. Finally, a paired samples t-test was conducted on just the number of participants who completed all six sessions of the CABI ($N = 16$). The results were mostly the same as the first ($M_{\text{pre-intervention}} = 3.0$, $SD = .48$; $M_{\text{post-intervention}} = 3.5$, $SD = .52$), and indicate that the intervention had a large effect in increasing feelings of mental well-being: $t(15) = -7.32$, $p < .001$, $d = 1.01$.

Discussion

This study examined the effectiveness of an online CABI for the treatment of psychological and emotional afflictions related to high anxiety and low mental wellbeing. Analysis of participants' pre- and post-intervention GAD-7 and WEMWBS scores showed significantly lower levels of anxiety and higher levels of mental wellbeing post-intervention. Moreover, the corresponding and consistently large effect sizes suggest that the intervention induced substantive therapeutic effects. Additionally, these results both align with the findings from previous studies that employed CABIs in traditional face-to-face settings (e.g. Coholic et al., 2018) and in remote settings (e.g. Holt, 2023), and provide empirical evidence that CABIs in the form of online courses may be effective in reducing symptoms of anxiety and depression.

Due to the exploratory nature and design of this study, the specific causal mechanisms that generated the CABI's positive results cannot be determined. However, one possible explanation is that the present CABI provided a safe and relaxed environment to both share experiences of anxiety with fellow travellers whilst engaging in a focused creative endeavour. The social interactions and sense of community engendered by the former practice, and concentration and effort required for the latter practice, could, therefore, potentially help people to get distracted from and ultimately to better control their anxiety. This could also help to explain why there were no significant differences between the different months/dates of the year that the CABI course was delivered on either of the outcome measures. Therefore, we conjecture that the CABI's general group delivery procedure and counselling protocol are what likely induced the observed therapeutic effects, rather than the particular artistic activity or genre presented by each of the CABI courses that we sampled from.

Whilst speculative, our proposed plausible explanation tracks with Holt's (2023) theorising on the numerous ways that communal arts-activities can benefit mental health. These include, for instance, facilitating meaningful connections with fellow participants from a given art group. Such connections not only help to combat feelings of loneliness and alienation but may also lead to supportive and potentially lasting friendships that patients can draw on during bouts of high anxiety or depression. Additionally, Holt (2023) notes that the process of becoming engrossed in an art project can distract and allow patients to temporarily forget about their psychological health issues. This can then possibly induce a level of relaxation that could, in turn, significantly ease anxious thoughts and feelings and prevent them from becoming more debilitating. That said, more research is needed to identify the exact causal mechanisms and processes through which CABIs can potentially improve symptoms of anxiety and enhance mental wellbeing.

Limitations

Despite the consistent positive results outlined, this study relied on a small sample. The design did not include a control condition, and pertinent demographic characteristics of the recruited sample could not be statistically controlled for. It is, therefore, possible that the results could be due to unaccounted for confounder variables, and/or would be insignificant if they had been generated by a representative random sample. Hence,

these results cannot be generalised to the broader population, and should only be interpreted as offering preliminary evidence.

Additionally, although the CABI courses followed the same delivery procedure and counselling protocol, they nonetheless presented different artistic activities. Future research with larger samples, consistent groupings, and additional follow-up measures is needed to better determine whether different artistic activities and genres offer stronger therapeutic effects. Such research would also benefit from the inclusion of a CABI delivered in a traditional face-to-face setting. Comparing the outcomes of online and offline CABIs would help to ascertain and evaluate the differential impacts from different methods of delivery.

Conclusion

The observed therapeutic effects of the CABI under study were in line with past research and indicated a continuation of these effects in online settings (Gerber et al., 2018; Holt, 2020; Zubala et al., 2023). Furthermore, it is plausible to suggest, in line with other studies, that the present CABI offered a mechanism for social interactions and communal activity. This, in turn, reduced social isolation and encouraged productive self-reflection (Morison et al., 2022; Dunphy Baker et al., 2019; Holt, 2023; Redmond et al., 2018). Therefore, this study provides speculative and plausible evidence that the supportive group counselling setting coupled with the physical and cognitive process of creating art, rather than the type of art itself, were the key drivers for the observed positive changes in anxiety and mental wellbeing levels. In any case, this research provides initial evidence that CABIs can retain their efficacy in online settings. As such, if future research corroborates our results, then due to their cost-effectiveness and ease of access, online CABIs could potentially be made more readily available, and in doing, so offer an initial bridge to help underserved or marginalised groups and people.

Disclosure statement

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Faye Sayer is an Assistant Professor in Heritage and History at the University of Birmingham, UK. Her research specialism is in the value and impact of heritage to the public and community, specifically the social values of participation in heritage and its impact on wellbeing. Dr Sayer has worked for some of the UK's most significant heritage organisations, including English Heritage, The Portable Antiquities Scheme, and Museum of London. She has developed and evaluated public heritage projects, including museum programmes around the world.

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Nicky Lidbetter is CEO of Anxiety UK. Her research focuses on the treatment of anxiety disorders and depression with psychological therapies, and in particular, via digital modes of delivery – eTherapy. She has also published in the field of peer support and multi-modal practice in the management of common mental health difficulties.

Dave Smithson is the Operations Director at Anxiety UK, responsible for overseeing all operational aspects of service delivery for the user-led charity which provides access to therapy services for people with a range of anxiety, stress, and anxiety-based depression conditions. His role includes overseeing the clinical governance and quality assurance of all therapy provisions, monitoring evaluation outcomes, reviewing feedback from clients on their user experience, managing commercial and charity partnerships, and delivering workplace training and online webinars.

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Dissemination to participants and related public communities

The results of the overall evaluation of the Art for Anxiety Relief courses have been made available to attendees, members, and the public via Anxiety UK's website.

Data Sharing

We do not have participant permission to share raw data.

Transparency statement

The lead author (the manuscript's guarantor) affirms that the manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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The Katharine and Harold Fisher Anxiety Research Fund provided financial support for conducting this research. The researchers were independent from funders; the Fund did not have any involvement in the study design or in the collection, analysis, or interpretation of data. All authors had full access to all of the data in the study and took responsibility for the integrity of the data and the accuracy of the data analysis.

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