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Review Article

Enhancing GP care of mental health disorders post-COVID-19: a scoping review of interventions and outcomes

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Abstract

Objectives: Considerable literature has examined the COVID-19 pandemic's negative mental health sequelae. It is recognised that most people experiencing mental health problems present to primary care and the development of interventions to support GPs in the care of patients with mental health problems is a priority. This review examines interventions to enhance GP care of mental health disorders, with a view to reviewing how mental health needs might be addressed in the post-COVID-19 era.

Methods: Five electronic databases (PubMed, PsycINFO, Cochrane Library, Google Scholar and WHO 'Global Research on COVID-19') were searched from May – July 2021 for papers published in English following Arksey and O'Malley's six-stage scoping review process.

Results: The initial search identified 148 articles and a total of 29 were included in the review. These studies adopted a range of methodologies, most commonly randomised control trials, qualitative interviews and surveys. Results from included studies were divided into themes: Interventions to improve identification of mental health disorders, Interventions to support GPs, Therapeutic interventions, Telemedicine Interventions and Barriers and Facilitators to Intervention Implementation. Outcome measures reported included the Seven-item Generalised Anxiety Disorder Scale (GAD-7), the Nine-item Patient Health Questionnaire (PHQ-9) and the 'The Patient Global Impression of Change Scale'.

Conclusion: With increasing recognition of the mental health sequelae of COVID-19, there is a lack of large scale trials researching the acceptability or effectiveness of general practice interventions. Furthermore there is a lack of research regarding possible biological interventions (psychiatric medications) for mental health problems arising from the pandemic.

Keywords: COVID-19; Pandemic; Mental health; Interventions; General practice

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Introduction

There is now considerable evidence that there has been an increase in prevalence of mental health problems since the COVID-19 pandemic. A systematic review and meta-analysis of observational studies, published from January 1st 2020 to July 11th 2020 and spanning 32 countries, reported global prevalence estimates at 28.0% for depression; 26.9% for anxiety; 24.1% for post-traumatic stress symptoms; 36.5% for stress; 50.0% for psychological distress; and 27.6% for sleep problems (Nochaiwong *et al.* 2021). The findings indicate the prevalence of common mental health disorders is higher during the pandemic compared to pre-COVID-19. A study by Steel et al., based on 174 surveys across 63 countries from 1980 to 2013 estimated lifetime prevalence was 29.1% for all mental disorders, 9.6% for mood disorders, 12.9% for anxiety disorders, and 3.4% for substance use disorders (Steel *et al.* 2014). A prospective online study assessing health anxiety/somatoform disorder, general anxiety disorder, panic disorder, OCD, and depression reported prevalence of any of these disorders was 50.6%, much higher than pre-pandemic (Munk *et al.* 2020). In a cross-sectional study of 15,037 people in Germany, participants reported a significant increase in depression and anxiety symptoms, and distress, while health status deteriorated since the COVID-19 outbreak (Bäuerle *et al.* 2020). These trends indicate the mental health problems which health systems face since the pandemic. Studies of long-term psychiatric morbidities after previous pandemics support this hypothesis. In a retrospective cohort study of SARS survivors, the prevalence of any psychiatric disorder at 30 months post-SARS was 33.3% (Mak *et al.* 2009).

The impact of this phenomenon on population health is further compounded by the extent to which the capacity for health systems to make new diagnoses may have been impacted. In the UK, a retrospective cohort study of data from 47 GPs reported a 50%

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reduction in first diagnoses of anxiety disorders and depression between March 1st and May 31st 2020, and a 39.1% reduction in first prescriptions of SSRI's (Williams *et al.* 2020).

How primary care can address the needs of people experiencing mental health disorders has always been important, but is especially the case now. Internationally, proposed initiatives to enhance primary care of mental health disorders in the post-pandemic era include United Nations policy: 'COVID-19 and the Need for Action on Mental Health', advocating for investment in remote mental health interventions and in mental health reforms to shift care towards community services (United Nations 2020). In Ireland, the policy document 'Psychosocial Response to the COVID-19 Pandemic' proposes a six-layered care framework (HSE 2020), with level four involving primary care providing one-to-one supports to reassure, promote well-being and resilience. 'Population Mental Health Perspective' is a similar initiative, using primary, secondary and tertiary interventions (Boden *et al.* 2021). GPs will require further training in early detection of 'at-risk' individuals, and providing them with rapid interventions (HSE 2020, Boden *et al.* 2021). Early career psychiatrists composed a 'Mental Health Preparedness and Action Framework' modelled on the WHO-Global Influenza Preparedness Plan, to guide development, implementation and evaluation of mental health interventions during and post-pandemic. If this is implemented and suitably resourced, it is postulated to reduce the impact of the mental health epidemic (Ransing *et al.* 2020).

There have been many studies involving interventions to improve the psychological impact of medical pandemics. These interventions include Psychological First Aid (Yue *et al.* 2020), Cognitive Behavioural Therapy (CBT) programmes and mobile-delivered interventions (Soklaridis *et al.* 2020), internet-based self-help interventions (Wei *et al.* 2020) and physical activity and mindfulness meditation (Green *et al.* 2021). These interventions mainly involved COVID-19 positive patients or frontline healthcare workers, but could be adopted in primary care, as will be explored in this paper.

The requirement to physically distance during the COVID-19 pandemic has increased utilisation of tele-healthcare in general practice in Ireland (Homeniuk and Collins 2021) and internationally (Murphy *et al.* 2021, Pierce *et al.* 2021). Increased use of telemedicine can be expected post-COVID-19, in line with Ireland's two strategies promoting technology in healthcare: Sláintecare (HSE 2019) and the 2013 e-Health policy (HSE 2013, Homeniuk and Collins 2021). Studies are included which evaluate the effectiveness of telemedicine as an intervention to enhance care of mental health disorders in primary care.

Essentially there is a need for increased research into interventions which can improve GP care of mental health disorders post-COVID-19. The literature at present mainly focuses on mental health interventions for COVID-19 inpatients, frontline healthcare workers, or those presenting to psychiatry departments. GP interventions are mainly in relation to increased use of telemedicine in general, not specific to mental health. We aim to address this knowledge gap by examining the extant literature on interventions to enhance the care of mental health disorders among patients attending primary care since the COVID-19 pandemic.

Methods

To gain a comprehensive overview of the literature in relation to interventions which may improve the treatment of mental health disorders post-pandemic, a scoping review methodology was chosen. This scoping review was conducted from May to June 2021, using the six-stage framework described by Arksey and O'Malley (2005) to collate existing literature, identify key findings and outline current research gaps in this area.

((intervention*[Title/Abstract]) OR (changes[Title/Abstract]) OR (improvement*[Title/Abstract]))

AND (("general practi*"[Title/Abstract]) OR (GP[Title/Abstract]) OR ("primary care"[Title/Abstract]) OR ("family medicine"[Title/Abstract]))

AND (("mental health*"[Title/Abstract]) OR ("mental illness*"[Title/Abstract]) OR (psycholog*[Title/Abstract]) OR (psychiatr*[Title/Abstract]))

AND ((covid*[Title/Abstract]) OR (coronavirus*[Title/Abstract]) OR (pandemic[Title/Abstract]))

Fig. 1. Search strategy for PUBMED and PsycINFO.

Stage 1: Identifying the research question

The COVID-19 pandemic has led to a reported rise in mental health disorders globally. Due to the important role of general practice as the gateway for treatment of mental health disorders in the community, it is necessary to research interventions which could improve care offered post-pandemic. Therefore, the objective of this scoping review was to examine the literature for effective interventions which could be implemented to enhance GP care of mental health disorders post-COVID-19. We formulated the following research question: 'What interventions may be used to improve GP care of mental health disorders post-COVID-19?'

Stage 2: Identifying relevant studies

A preliminary search of key databases was performed, using multiple search terms to create a reading list. From this, keywords were identified and medical subject heading (MeSH) terms were generated. The electronic databases used in the searches were 'PubMed', the 'Cochrane Library', 'PsycINFO', 'Google Scholar' and the WHO 'Global Research on COVID-19' database. The search terms were grouped, with results requiring reference to one or more search term in each of the following categories: Interventions, General Practice, Mental Health Disorders, COVID-19 (See Fig. 1). We chose not to limit the study search by year as research on interventions implemented during other pandemics would be useful to study. Several additional articles of relevance were identified by 'hand-searching' from references found on databases mentioned above.

Stage 3: Selecting studies

The initial search identified 139 studies with an additional nine studies added from hand-searching references from key literature.

A title and abstract review was then conducted to identify relevant articles, followed by full-text reviews. The 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)' flow diagram below (Fig. 2) outlines the selection process. The literature was included irrespective of study design/methodology, therefore a variety of study types and reviews are included.

Once the initial search was performed, four duplicates were removed. Endnote 20 software was used to track and group studies, manage citations and remove duplicates. Studies were included if

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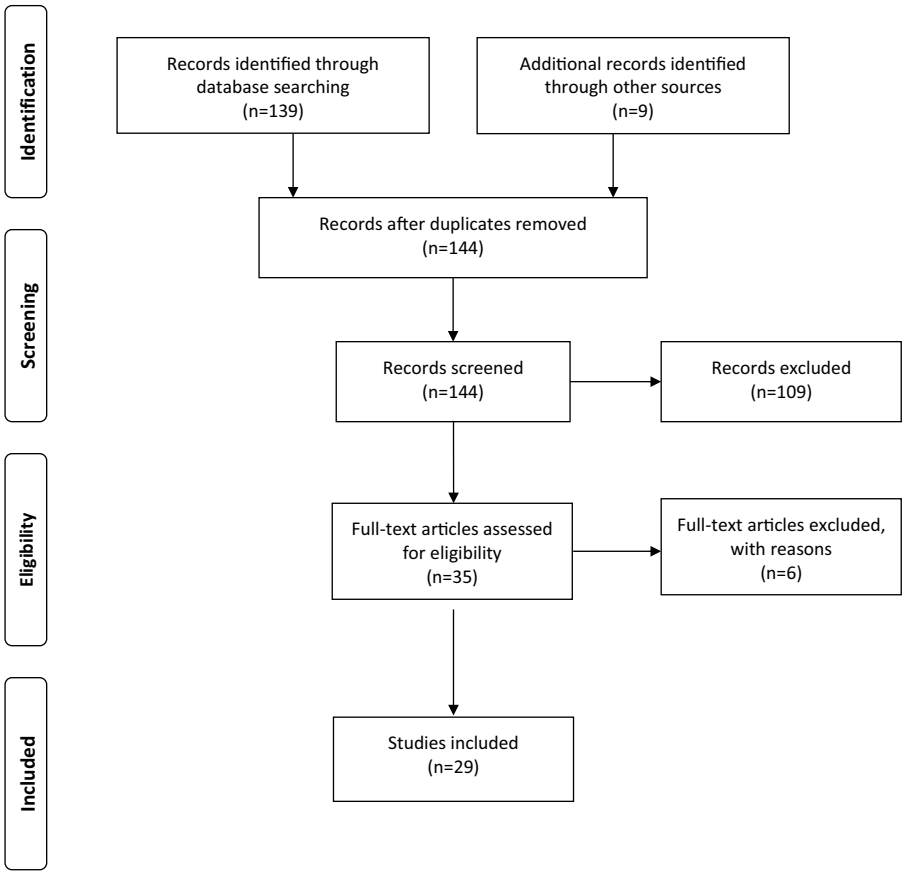

Fig 2. PRISMA flow diagram.

they were considered to examine the research question, if they were published in English and if the full article was available.

Findings were reviewed by a second reviewer, and a finalised list of studies was agreed.

Stage 4: Charting the data

Once all relevant articles were identified ($n = 29$), to facilitate comparison and thematic analysis, the following data was charted from the articles:

- First author, year of publication,
- Study title,
- Study population,
- Journal/publication,
- Study location
- Study aim/topic,
- Intervention,
- Study design,
- Outcome measures,
- Major findings.

Stage 5: Collating, summarising and reporting results

An overview of the literature is detailed in Table 1 below, summarising and charting the results. This will be discussed further in the results section.

Stage 6: Consultation

In line with recommendations by Levac et al., (Levac *et al.* 2010) studies were also included and excluded according to advice received during consultation with experts in the field of mental healthcare and research.

Results

The initial database searches identified 148 records. After four duplicates were removed, reviewers screened the remaining 144 records by title and abstract, during which 109 records were excluded. 35 articles met the inclusion criteria and were selected for full-text review. Following full-text review, six records were excluded due to a lack of relevance or unavailability of the full-text article, leaving 29 records which examined interventions that could be implemented to enhance GP care of mental health disorders post-COVID-19. The search process, as guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), is summarised in Fig. 2. Data were extracted from the final selection consisting of 29 records which met the eligibility criteria for the review.

Description of included studies

A variety of study types are included, with some articles including more than one study type. Six studies used randomised control designs (RCT), five used qualitative interviews and seven used

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Table 1. Interventions to improve care of mental health disorders post-COVID-19

Improving identification of mental health disorders in general practice									
Author, year	Study title	Study population	Journal/publication	Location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Ahmad *et al.* 2020	Interactive mental health assessments for Chinese Canadians: A pilot randomised controlled trial in nurse practitioner-led primary care clinic	Chinese community in Tokyo, 18+ years ($n = 50$)	Asia-Pacific Psychiatry 2020, Pages e12400	Toronto, Canada	Examine feasibility of using an Interactive Computer Assisted Client Assessment Survey (iCCAS) to improve mental health (MH) discussion and symptom detection	Interactive MH pre-consultation assessment: questions on depression, anxiety, PTSD, alcohol abuse and social context. Generates point-of-care reports for patient and clinician	Pilot Randomised Control Trial (RCT) and qualitative in-depth interviews with participant clinicians	Exit survey and chart review for patients. Qualitative interview with clinician	Increased: a) frequency of MH discussions b) detection of symptoms of four assessed MH conditions c) referrals to MH professional Clinicians reported benefits: a) patients gained self-awareness of their MH status b) early identification of MH symptoms in practice c) helped clinicians ask specific questions to assess well-being
Sivan *et al.* 2020	Development of an integrated rehabilitation pathway for individuals recovering from COVID-19 in the community	Patients recovering from COVID-19	Journal of Rehabilitation Medicine Vol. 52 Issue 8	Leeds, UK	Describe development of an integrated rehabilitation pathway using telemedicine to manage sequelae of COVID-19 illness systematically and efficiently.	Integrated rehabilitation pathway using telemedicine approach	Consensus		A rehabilitation pathway spanning the acute hospital & community trust and primary care service within UK NHS was developed based on COVID-19 Yorkshire Rehabilitation Screen (C19-YRS) telephone screening tool, covering symptoms of anxiety, depression and PTSD & other physical health problems
Kaufman-Shriqui *et al.* 2021	Multinational dietary changes and anxiety during the coronavirus	General adult population of Israel ($n = 1895$)	Israel Journal of Health Policy Research 2021	International	Examine associations between changes in diet pattern, body weight, and anxiety		Cross-sectional, international and online study	7-item Generalised Anxiety Disorder score (GAD-7), Israeli	During the COVID pandemic, changes in nutrition quality and habits were associated

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Table 1. (*Continued*)

Improving identification of mental health disorders in general practice									
Author, year	Study title	Study population	Journal/publication	Location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
	pandemic findings from Israel		Vol. 10 Issue 1 Pages 28		during COVID-19 among Israeli respondents to an international online survey.		conducted on a Google Survey platform	Mediterranean Diet Screener (I-MEDAS)	with greater anxiety. Diet quality was inversely associated with anxiety during the pandemic.
Increasing Support for GPs									
Author, year	Study title	Study population	Journal/ publication	Study location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Birch *et al.* 2021	Psychiatric Nurse Practitioners as Leaders in Behavioural Health Integration	Patients enrolled in the Collaborative Care project ($n = 58$)	The Journal for Nurse Practitioners 2021, Vol. 17 Issue 1 Pages 112–115	California, USA	To integrate Behavioural Health into primary care	Partnering psychiatric mental health nurse practitioners with primary care nurse practitioners	Collaborative care integration project	Patient Health Questionnaire (PHQ-9) scores	Within 16 weeks of treatment, 78% patients reported 50% reduction in symptoms, and 37% were in remission (PHQ-9 score <5).
Vanden Bossche *et al.* 2021	Community Health Workers as a Strategy to Tackle Psychosocial Suffering Due to Physical Distancing: Randomised Controlled Trial	Patients of primary healthcare practices ($n = 135$)	International Journal Environmental Research and Public Health 202, Vol. 18 Issue 6	Ghent University Belgium	Test if a primary healthcare (PHC based community health worker (CHW) intervention could alleviate psychosocial suffering due to physical distancing in patients with limited social networks	PHC based CHW provided 8 weeks of tailored psychosocial support to intervention group	Community based, open label, two arm, parallel-group RCT	Patient-Reported Outcomes Measurement Information System (PROMISTM). Patient Global Impression of Change (PGIC) scale	Significant improvement in self-rated change in psychosocial health. Failed to find a significant effect of intervention on prespecified psychosocial health measures
Therapeutic Interventions / Psychological Interventions									
Author, year	Study title	Study population	Journal/ publication	Study location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Soklaridis *et al.* 2020	Mental health interventions and supports during COVID-19 and other medical pandemics: A rapid systematic review of the evidence	Adult and child participants in interventions/ health professionals providing interventions	General Hospital Psychiatry 2020 Vol. 66	Sierra Leone, Italy, China, Singapore, Iran	What works to treat mental health sequelae due to pandemics (psychosocial interventions and the implementation of existing or new training programmes)?	Variety of interventions are assessed	Systematic Review	Include GAD-7, PHQ-9, Hospital Anxiety and Depression Scale (HADS), 17-item Hamilton Depression Scale (17-HAMD), Hamilton Anxiety Scale (HAMA), Post-Traumatic	A variety of psychosocial interventions have proven effective: -Well-being workshops & CBT -Mobile phone interventions -Arts-based therapies - Interventions where patients are involved in

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								Stress Checklist-Civilian. (PCL-C)	their own care Implementation of existing /new training programmes can reduce mental health sequelae. When designing and implementing interventions, consider: -Population literacy -Different belief systems re mental health
Yue *et al.* 2020	Mental health services for infectious disease outbreaks including COVID-19: a rapid systematic review	32 articles included, studied general population/ healthcare workers/ psychiatric patients	Psychological Medicine 2020 Vol. 50 Issue 15	International	Synthesise data on mental health services and interventions for infectious disease epidemics, and improve knowledge, quality and effectiveness of the mental health response to COVID-19 and future infectious disease epidemics.		Systematic Review		Reported a number of mental health intervention systems for infectious disease outbreaks, included psychosocial interventions found effective at improving mental health outcomes. There was increased use of telemedicine during COVID-19 in China and Australia Reported strong evidence supporting effectiveness of telephone and web-based interventions to alleviate symptoms of anxiety, depression and PTSD
Cigrang *et al.* 2017	Moving Effective Treatment for Post-traumatic Stress Disorder to Primary Care: A randomised controlled trial with active duty military	Active duty military service members ($n = 67$)	Families, Systems & Health	San Antonio, Texas, USA	To determine if brief CBT delivered using the Primary Care Behavioural Health model would be effective at reducing PTSD and co-occurring symptoms.	A brief CBT termed 'Prolonged Exposure-Primary Care' delivered using the Primary Care Behavioural Health model	RCT: Participants randomised to prolonged exposure for primary care or Minimum Contact Control	PCL, PHQ-9, Behavioural Health Measure, PTSD Symptom Scale, Interview Version (PSS-I)	Prolonged exposure for primary care resulted in greater reduction in PTSD severity and general distress than control. Treatment benefits persisted through 6-month follow-up period
Cheng *et al.* 2021	Digital cognitive behavioural therapy for insomnia (dCBT-I) promotes later health resilience during the coronavirus disease 19 (COVID-19) pandemic	Participants of 2016-17 SPREAD trial ($n = 208$)	Sleep Journal, 2021 Vol. 44 Issue 4	Detroit, USA	To evaluate if participants who received prior dCBT-I experienced more resilience in the sleep and stress systems during the COVID-19 pandemic, compared to controls who received sleep education.	dCBT-I used in the SPREAD trial	Online survey participants of a previous RCT (SPREAD trial)	Survey included: Life Events Checklist, Coronavirus Impact Scale (CIS), Insomnia Severity Index (ISI), Impact of Events Scale (IES), Quick Inventory of Depressive Symptomatology (QIDS-SR)	dCBT-I intervention group had lower symptoms of insomnia, general stress and COVID-related cognitive intrusions, and better global health. Odds of moderate to severe depression in those who received dCBT-I was almost 60% lower than the control

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Table 1. (*Continued*)

Improving identification of mental health disorders in general practice									
Author, year	Study title	Study population	Journal/publication	Location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Kerst *et al.* 2020	Smartphone applications for depression: a systematic literature review and a survey of health care professionals' attitudes towards their use in clinical practice	Users of health treatment apps, healthcare professionals	European Archives of Psychiatry and Clinical Neuroscience (2020) Vol. 270 Issue 2 Pages 139–152	Germany	Examine available evidence on the effectiveness of treatment apps for depression, explore attitudes of healthcare professionals towards using apps in clinical practice	Smartphone app with active treatment components (CBT, acceptance & commitment therapy, behavioural activation, mindfulness-based treatment or behavioural strategies) and target depression	Systemic Literature Review (12 studies included) and 25 question survey	25 question survey, PHQ-9, GAD-7 and Beck Depression Inventory (BDI) scores	Reduction in depressive symptoms. Adherence and user satisfaction were generally high. Most studies included clinician support – difficult to ensure effect is due solely to app. Health professionals lack knowledge and experience related to app use in the treatment of mental disorders Increased familiarity with technology positively influences healthcare professionals attitude towards apps
Maldonado 2021	The effect of an online mental health promotion programme during COVID-19	Individuals 18+ years ($n = 40$)	Andrews University D.N.P. 2021	Texas, USA	To determine if an online mental health promotion intervention would improve GAD-7 scores of participants.	Six week online mental health promotion intervention with 5 main components: exercise, mindfulness, sleep, social connectedness, and nutrition.	Quantitative quasi-experimental pre-test/post-test design from a convenience and snowball sample.	GAD-7 scores	An online educational intervention may make a positive difference in mental health status. Statistically significant increase from the mean pre-test GAD-7 score to post-test score following the intervention, $p = 0.025$.
Wei *et al.* 2020	Efficacy of internet-based integrated intervention on depression and anxiety symptoms in patients with COVID-19	COVID-19 positive patients on isolation ward ($n = 26$)	Journal of Zhejiang University Science B: Biomedicine & Biotechnology 2020 Vol. 21	First Affiliated Hospital, Zhejiang University, China	Evaluate efficacy of internet-based intervention (breath relaxation training, mindfulness (body scan), 'refuge' skills, and butterfly hug method) on depression and anxiety symptoms in patients with COVID-19.	Internet-based intervention – Participants listened to audio instructions and completed interventions daily for 50 minutes for 2 weeks	Prospective, RCT	17-HAMD and HAMA scales	Patients in intervention group showed significantly decreased levels of mild depression and anxiety symptoms in comparison with controls.
Shapira *et al.* 2021	A pilot randomised controlled trial of a group intervention via Zoom to relieve loneliness and depressive symptoms among older persons during the COVID-19 outbreak	Community dwelling adults, 65+ years in Israel ($n = 82$)	Internet Interventions 2021 Vol. 24 Pages 100368	Israel	To assess efficacy of a short-term digital group intervention aimed at providing seniors with tools and skills necessary for improving their coping ability during these stressful times	Short-term digital small group intervention: guided sessions lead by clinical social workers	Pilot RCT	Three-item version of the UCLA Loneliness Scale, PHQ-9	Positive outcomes in terms of both loneliness and depressive symptoms among intervention group, indicating such techniques can be successfully applied in online group settings

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Weiskittle *et al.* 2021	Feasibility of a COVID-19 Rapid Response Telehealth Group Addressing Older Adult Worry and Social Isolation	Geriatric mental health clinicians, veterans in integrated geriatric healthcare settings ($n = 18$)	Clinical Gerontologist 2021 Pages 1–15	USA	Assess clinician response to implementation of 'Telehealth Support Group for Socially Isolated Older Adults during the COVID-19 Pandemic'	Implementation of rapid response support group for socially isolated older adults: manual includes 8 sessions using various approaches including Acceptance and Commitment Therapy, Problem-Solving Therapy and CBT	Web-based feedback survey	Clinician feedback survey - Clinicians rate effectiveness of session structure & topics via Likert scares. Themes generated based on open - ended questions.	Group teletherapy intervention was feasible and acceptable when treating Veterans in integrated geriatric healthcare settings. Clinicians found it effective with their patients and useful and adaptable beyond the early pandemic period
Mindfulness and Physical Interventions									
Author, year	Study title	Study population	Journal/ publication	Study location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Green *et al.* 2021	The Effect of Meditation and Physical Activity on the Mental Health Impact of COVID-19-related Stress and Attention to News among Mobile App Users in the United States: Cross-sectional Survey	US adult paying subscribers to the Calm app ($n = 8392$)	Journal of Medical Internet Research (JMIR) Mental Health	USA	Estimate associations between mental health, COVID-19–related worry, and health behaviour engagement and research the mediating effect of health behaviours on mental health during COVID-19	Health behaviour engagement: mindfulness meditation using the Calm app, and physical activity	Cross-sectional survey as part of a descriptive, national longitudinal study, using non-random convenience sample	Validated survey using Self-Report Habit Index (SRHI), Perceived Stress Scale (PSS), IES & HADS	Continued participation in health behaviours including physical activity and meditation reduce mental health deterioration due to COVID-19.
Zhu *et al.* 2021	Mindfulness practice for protecting mental health during the COVID-19 pandemic	Meditation practitioners ($n = 445$) Non-practitioners ($n = 1150$)	Translational Psychiatry 2021 Vol. 11 Issue 1 Pages 329	China	To investigate the influence of mindfulness training on mental health during the COVID-19 outbreak in China.	Observational study, 2 online questionnaires at a 3 week interval, assessing pandemic-related distress, depression anxiety, and stress	Mindfulness practice under lockdown conditions during the COVID-19 pandemic	Online questionnaires including the IES revised questionnaire, GAD-7, 20-item Centre for Epidemiologic Studies Depression Scale (CES-D)	Mindfulness practitioners had lower levels of pandemic - related distress. On 3 week follow-up, pandemic-related distress had decreased in younger practitioners but no significant differences in anxiety or stress were found.
Liu *et al.* 2020	Effects of Progressive Muscle Relaxation (PMR) on anxiety and sleep quality in patients with COVID-19	Hospitalised COVID-positive patients between Jan 1st – Feb 16th 2020 ($n = 51$)	Complementary therapies in clinical practice 2020 Vol. 39	Hainan General Hospital, China	Investigate effect of progressive muscle relaxation on anxiety and sleep quality of COVID-19 patients	Researchers instructed intervention group how to relax using Jacobson's relaxation techniques. Patients performed this for 20–30 min each day, training for 5 days	RCT.	Spielberger State-Trait Anxiety Scale (STAI) & Sleep State Self-Rating Scale (SRSS)	The average anxiety and sleep quality scores of the two groups were not statistically significant before the intervention, but were statistically significant after (both $p < 0.001$).
Barriers/facilitators to intervention implementation									
Author, year	Study title	Study population	Journal/ publication	Study location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Pollock *et al.* 2020	Interventions to support the resilience and mental health of frontline health and	Frontline Health and social care professionals during infectious	Cochrane Database of Systematic	International	To assess effects of interventions aimed at supporting the resilience and mental		Systematic Review		Barriers to interventions: -Frontline workers, / organisations not being

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Table 1. (*Continued*)

Improving identification of mental health disorders in general practice									
Author, year	Study title	Study population	Journal/publication	Location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
	social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review	disease outbreaks	Reviews 2020 Issue 11		health of frontline health and social care professionals during and after a disease outbreak/ epidemic / pandemic, and identify barriers and facilitators to implementation of these interventions				fully aware of what they needed to support their mental well-being -Lack of resources Facilitators: - Adaptable interventions -Effective communication -Positive learning environments Knowledge +/ beliefs can act as either barriers or facilitators
Telemedicine interventions									
Author, year	Study title	Study population	Journal/ publication	Study location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Atherly *et al.* 2020	Consumer Reported Care Deferrals Due to the COVID-19 Pandemic, and the Role and Potential of Telemedicine: Cross-Sectional Analysis	Primary care patients ($n = 1694$)	JMIR Public Health Surveillance 2020 Vol. 6 Issue 3 Pages e21607	Vermont USA	Understand which health services were being deferred during the COVID-19 pandemic, the role of telemedicine to close care gaps, and examine changes in attitudes toward telemedicine.	Telemedicine in primary care	Cross-sectional survey	Patient survey with questions on deferred care and telemedicine use	48% respondents deferred care, mainly for preventative services, and most had relatively low concerns. Telemedicine is viewed more positively than pre-pandemic, and is considered a viable option to deliver deferred care.
Atmore and Stokes 2020	Turning on a dime-Pre- and post-COVID-19 consultation patterns in an urban general practice	General practice patients ($n = 2528$)	New Zealand Medical Journal 2020 Vol. 133 Issue 1523 Pages 65–75	Dunedin, New Zealand	Investigate changes in general practice consultation patterns in response to reduced face-to-face patient contact during the COVID-19 pandemic	Telemedicine in general practice	Single practice retrospective, before and after case notes review study		Shift to telemedicine: During a 2019 2-week period, 30% patient contacts were virtual, vs 79% during 2-week period during Covid-19. Decreased investigations ordered and referrals to other health services during Covid-19 vs pre-pandemic.
Frank *et al.* 2021	Mental health services in primary care: Evidence for the feasibility of telehealth during the COVID-19 pandemic	Primary care patients whose presenting problems are depression and anxiety ($n = 173$)	Journal of Affective Disorders Reports 2021, Vol. 5 Pages 100146	North-East USA	To examine if transition to telehealth affected attendance rates, the provision of evidence based interventions (EBIs), and clinical outcomes among patients	Using telehealth for mental health visits	Chart review of mental health visits at an integrated primary care practice	Patient chart review gathered information on appointment attendance and EBI use. Clinicians completed the Clinical Global Impressions Scale (CGI)	Telehealth improved accessibility for low-income, racial/ethnic minority adults and children. There was continued delivery of EBI during the telehealth time period.

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Murphy *et al*. 2021	Implementation of remote consulting in UK primary care following the COVID-19 pandemic: a mixed methods longitudinal study	Quantitative study: General practice patients ($n = 350, 966$) Qualitative study: 21 GPs, 11 practice managers, nine senior nurses	British Journal of General Practice	Bristol, North Somerset & South Gloucestershire, UK	Assess changes in the volume, type of consultations & communications with patients during April – July 2020 compared to same period in 2019; Examine changes in consultations across patient groups; Assess reaction of primary care staff to rapid implementation of remote consulting.	Telemedicine in general practice	Mixed methods longitudinal study: Longitudinal observational quantitative analysis, and Qualitative data via 87 longitudinal interviews with practice staff in four rounds	Longitudinal interviews with practice staff, themes identified	Quantitative findings: Shift to telemedicine: April 2020 89% of GP consults were by telephone vs 31% in April 2019. GP in-person consultations dropped to 16% of the previous year. Qualitative findings: Consensus on need for remote consulting. Initial interviews revealed sense of achievement at implementing telemedicine efficiently. Later GP's reported current levels of telemedicine were unsustainable, highlighting challenges with telemedicine use.
Pierce *et al*. 2021	The COVID-19 telepsychology revolution: A national study of pandemic-based changes in U.S. mental health care delivery	Licensed currently practising psychologists ($n = 2,619$)	American Psychologist 2021 Vol. 76 Issue 1	USA	Examine use of telemedicine by psychologists before and during COVID-19, and anticipated use after the pandemic, and to investigate the predictors of these changes	Telepsychology	Cross-sectional, national online design: recruitment via email, participants completed online survey	Researcher-generated telepsychology questions	Shift to Telemedicine: Psychologists use of telepsychology increased 12-fold to 85.53% during the pandemic. 67.32% psychologists conducted all clinical work with telepsychology. Psychologists project performing 35% of clinical work via telepsychology post-pandemic. Individual and practice characteristics affected psychologists' ability to adopt telepsychology
Ramaswamy *et al*. 2020	Patient Satisfaction With Telemedicine During the COVID-19 Pandemic: Retrospective Cohort Study	Patients 18 + attending an academic medical centre in New York City ($n = 38,609$ patient visits)	Journal of Medical Internet Research 2020 Vol. 22 Issue 9	New York City, USA	Assess increased use of telemedicine during the COVID-19 pandemic, and determine if patient satisfaction differs between in-person and video consultations	Telemedicine: use of video consultations	Retrospective Observational Cohort Study: Analysed 38,609 Press Ganey patient satisfaction survey outcomes	Customised version of the Press Ganey Outpatient Medical Practice Survey: 31 items assessed on 5-point Likert scale	8729% increase in video visit utilisation during COVID-19 compared to same period in 2019. Patient satisfaction is not a barrier to increased use of telemedicine: Video visit Press Ganey scores were significantly higher than in-person visits (94.9% vs 92.5%; $p < 0.001$).

(*Continued*)

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Table 1. (*Continued*)

Improving identification of mental health disorders in general practice									
Author, year	Study title	Study population	Journal/publication	Location	Study aim/ topic	Intervention	Study design	Outcome measures	Major findings
Rowen *et al.* 2021	Effective and accessible telephone-based psychotherapy and supervision	Adult, outpatient psychotherapy clients, ($n = 33$) Student clinicians ($n = 14$)	Journal of Psychotherapy Integration 2021	Chicago, USA	Examine effectiveness of psychotherapy treatment and clinical supervision, via telephone delivery from March to July 2020 in a university training clinic primarily serving a low-income community	Telephone delivered psychotherapy	Retrospective examination of data on the effectiveness of audio-only telehealth service delivery system and remote supervision via telephone	Measures of symptoms distress and functioning, BDI/ PHQ-9/ Multidimensional Anxiety Questionnaire (MAQ)/ GAD-7 or Beck Anxiety Inventory (BAI) Progress indicators included objective and subjective clinician observations, self-reported client changes	Four main themes emerged: (a) audio-only psychotherapy deliver psychotherapy successfully under certain conditions, (b) regardless of modality, some clients decompensate and require higher levels of care, (c) Higher risk of drop out from audio-only psychotherapy if rapport is not clearly established first (d) remote supervision was comparable to in-person supervision.
Verhoeven *et al.* 2020	Impact of the COVID-19 pandemic on the core functions of primary care: will the cure be worse than the disease? A qualitative interview study in Flemish GPs	GPs ($n = 132$)	BMJ open 2020 Vol. 10 Issue 6 Pages e039674–e039674	Flanders, Belgium	Gain qualitative insights into the impact of COVID-19 on the core competencies of general practice, as experienced by GPs in the field	Telemedicine in general practice	Descriptive study using qualitative semi-structured interviews	Interview guide based on six core competencies of GPs	Major switch towards telephone triage and consults GPs stated telephone consultations make communication difficult due to lack of non-verbal language GP's believe acute care is compromised, and fear the consequences of postponement of chronic care post-pandemic
Weineland *et al.* 2020	Transitioning from face-to-face treatment to iCBT for youths in primary care – therapists' attitudes and experiences	Primary care therapists ($n = 14$)	Internet Interventions 2020 Vol. 22 Pages 100356	Gothenburg, Sweden	Explore transition from face-to-face treatment to iCBT for youths suffering from anxiety treated in primary care.	Internet delivered CBT for youths	Qualitative study using semi-structured interviews	Revised Children's Anxiety and Depression Scale at pre-, mid- and post-treatment & questions re anxiety, life quality and homework assignments asked each week	Participants generally had positive attitudes to iCBT for youths regarding it as a valuable alternative. Challenges identified included patient selection, motivation and maintaining therapeutic relationships.

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Wright *et al*. 2020	Health Care Providers' Perceptions of Quality, Acceptance, and Satisfaction With Telebehavioural Health Services During the COVID-19 Pandemic: Survey-Based Study	Interprofessional Behavioural Health Providers ($n = 170$)	JMIR Mental Health 2020 Vol. 7 Issue 12 Pages e23245	Florida, USA	To determine initial perceptions and experiences of interprofessional behavioural health providers about shifting from face-to-face care to virtual technologies during the COVID-19 pandemic.	Telemedicine (televideo and telephonic visits) for behavioural health problems	Survey-based study	23-item survey comprised questions addressing health care providers' perceptions about telemedicine	Health care providers valued televideo visits equally or preferred them more than telephonic visits in the domains of quality of care, technology performance, satisfaction of technology, and user acceptance.
Wynn 2020	E-Health in Norway Before and During the Initial Phase of the Covid-19 Pandemic	Empirical studies from March and April 2020 presenting data on e-health use in Norway during Covid-19	Studies in Health Technology and Informatics 2020 Vol. 272 Pages 912	Norway	To examine changes in e-health use that have occurred in Norway due to the pandemic	e-Health services	Narrative Review		Marked shift to e-health in Norway, with extreme increase in video consultations, especially in primary care and in the mental health field. The app 'Smittestopp' ('Stop the infection') was developed by the Norwegian Institute of Public Health and Simula to aid in limiting transmission of COVID-19

surveys, some of which were cross-sectional, online or by telephone. Others include systematic reviews ($n = 4$), observational studies ($n = 3$), retrospective case/chart notes review ($n = 2$), a quantitative quasi-experimental pre-test/ post-test design ($n = 1$), consensus study ($n = 1$), a quality improvement project ($n = 1$) and narrative review ($n = 1$).

The majority of studies were conducted in the USA ($n = 12$), Europe ($n = 6$) and China ($n = 5$). Four systematic reviews were included providing international data. Single studies from Israel and New Zealand were included. The sample sizes of studies ranged from 14 to 350,966 participants. Most studies examined adult participants.

Study populations and settings

Specific study populations varied between studies, with most including members of the public ($n = 13$), healthcare professionals ($n = 9$), individuals with pre-existing mental health conditions ($n = 4$), COVID-19 positive patients ($n = 3$), older adults ($n = 2$) and other specific groups ($n = 2$; including an ethnic minority and military service members). The majority of interventions took place in community or primary health care settings ($n = 23$). Others took place in COVID-19 hospital wards ($n = 2$). Interventions reported in systematic and narrative reviews covered each of these settings ($n = 4$). One study focused on policy development.

Improving identification of mental health disorders in general practice

Interventions in general practice to improve identification of mental health disorders arising from the pandemic are essential, and have been reported in three included studies (Ahmad *et al.* 2020, Kaufman-Shriqui *et al.* 2021, Sivan *et al.* 2020). A RCT reported the effectiveness of an interactive pre-consultation health risk assessment tool for common mental health disorders (Ahmad *et al.* 2020). The C19-Yorkshire Rehabilitation Screen (C19-YRS) tool was developed with referral criteria to determine management of individuals with sequelae of COVID-19, including mental health disorders, and can be completed over the phone with a GP. (Sivan *et al.* 2020). It has been recommended that GPs should adopt specific interventions to improve identification of and support for individuals at increased risk of anxiety and declining nutrition status post-pandemic. (Kaufman-Shriqui *et al.* 2021). Interventions recommended include provision of appropriate diagnostic instruments, staff training and raising awareness. (Kaufman-Shriqui *et al.* 2021).

Interventions to increase support for GPs treating mental health issues

Many primary care professionals are overburdened at present, and cannot adequately meet increased psychosocial needs of vulnerable patients, therefore a 'task shift' approach may be taken. A study involving a new integrated primary care team, with the primary care physician collaborating with a behavioural health care manager and a psychiatric consultant to treat patients with mental health disorders had positive results (Birch *et al.* 2021). In a RCT Community Healthcare Workers (CHW) provided psychosocial support, resulting in significant improvement in participants self-rated psychosocial health, and high participant satisfaction (Vanden Bossche *et al.* 2021). This shows the added value of CHW to alleviate mental healthcare burden in primary care settings .

Therapeutic interventions

In systematic reviews (Soklaridis *et al.* 2020, Yue *et al.* 2020), psychosocial interventions implemented during medical pandemics were assessed. A study involving well-being workshops and CBT programmes improved well-being, anxiety and depression among Ebola clinic staff (Soklaridis *et al.* 2020). A RCT of arts-based therapies for children suffering from trauma due to the Ebola crisis resulted in significant stress reduction (Soklaridis *et al.* 2020). It is projected there will be increased population incidence of PTSD (post-traumatic stress disorder) following COVID-19 (Wells *et al.* 2020), as has been reported after other medical pandemics (Mak *et al.* 2009). Interventions to improve PTSD primary care treatment include a brief CBT termed 'Prolonged Exposure for Primary Care' (Cigrang *et al.* 2017). Video teleconferencing can be used to effectively deliver prolonged exposure for primary care remotely (Wells *et al.* 2020). Therefore this intervention could be adopted to the current telemedicine revolution.

Studies have found that engaging in meditation and physical activities can buffer against negative mental health impacts of COVID-19 (Green et al., Zhu et al., Liu et al.). A survey of CALM app users found decreases in physical activity and meditation habits were linked with increased stress and worry about COVID-19 (Green *et al.* 2021). An observational study found lower levels of pandemic-related distress in mindfulness practitioners (Zhu *et al.* 2021). Progressive muscle relaxation was found to improve mental health outcomes in COVID-19 patients, lowering anxiety and improving sleep quality (Liu *et al.* 2020). This intervention could be tested in general practice patients who present with anxiety and disturbed sleep post-COVID-19 (Liu *et al.* 2020).

Telemedicine

The COVID-19 pandemic has made obvious the need for effective digital mental health care interventions (Weineland *et al.* 2020). Several studies report increased use of telemedicine internationally during COVID-19 (Atmore and Stokes 2020, Murphy *et al.* 2021, Ramaswamy *et al.* 2020, Verhoeven *et al.* 2020, Wynn 2020). Telemedicine can be used for a broad range of consultation types, and its use has particularly increased in mental health service provision (Pierce *et al.* 2021, Wynn 2020, Atherly *et al.* 2020). Quality of care can be maintained when providing mental health care via telemedicine (Frank *et al.* 2021). Telephone triage has become common in general practice, making necessary face-to face time more 'focused and productive' (Murphy *et al.* 2021). This is an intervention GPs are eager to continue post-pandemic (Murphy *et al.* 2021, Verhoeven *et al.* 2020).

Digital interventions

Several included studies pointed to digital interventions that could be adapted to improve care of mental health disorders in general practice (Cheng *et al.* 2021, Kerst *et al.* 2020, Maldonado 2021, Shapira *et al.* 2021, Soklaridis *et al.* 2020, Wei *et al.* 2020, Weiskittle *et al.* 2021, Wells *et al.* 2020). Digital CBT for insomnia (dCBT-I) has been shown to offer long-lasting protection across multiple health domains, increasing health resilience and lowering

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risk of depression during COVID-19 in adults with a history of insomnia and ongoing mental health symptoms (Cheng *et al.* 2021). Mobile phone interventions could be encouraged by GPs to promote mental health. All studies in a systemic review of smartphone treatment applications for depression reported decline in symptoms after the intervention (Kerst *et al.* 2020). A music therapy intervention delivered by mobile for hospital staff during COVID-19 reduced participant levels of sadness, fear, worry and tiredness (Soklaridis *et al.* 2020), and a study of supportive individual phone consultations between patients and nurses improved mood (Soklaridis *et al.* 2020).

Two studies reported the success of online mental health self-help interventions (Wei *et al.* 2020, Maldonado 2021). These results indicate internet-based interventions show rapid improvement in mood disturbance and should be considered in patients whose mental health has been negatively impacted by COVID-19 (Wei *et al.* 2020). Group interventions via telephone/video to relieve loneliness and worry among older adults during COVID-19 have had positive results, enabling participants to practice coping techniques and providing opportunities for social interaction (Shapira *et al.* 2021). 55.6% of clinicians surveyed about their experiences implementing a 'Telehealth Support Group for Socially Isolated Older Adults during the COVID-19 Pandemic' described it very/ extremely effective in addressing social isolation and COVID-related worry. All respondents reported interest in a modified version post-COVID. (Weiskittle *et al.* 2021). Group interventions for older people are relatively simple measures that could be implemented in the community. Other successful digital mental health interventions during COVID-19 include the Canadian 'Text4Mood' service and Germany's 'Coping with Corona: Extended Psychosomatic care in Essen' (Yue *et al.* 2020).

Telemedicine improves accessibility

Telemedicine may improve accessibility of mental health services. One study reported use of telehealth significantly improved attendance rates ($p = 0.002$) and reduced cancellations ($p < 0.001$) (Frank *et al.* 2021). Telemedicine use overcomes barriers to care for families with limited resources, including inconvenient appointment times and securing childcare and transport (Frank *et al.* 2021). Some practitioners believed internet-delivered interventions may be more accessible to young patients who have social phobia or feel stigmatised. 'When it is easily accessible and without closed doors, I think it is not so shameful . . . , you don't have to feel that it is something strange and stigmatising . . .' (Weineland *et al.* 2020).

Patient and practitioner satisfaction with telemedicine

Patient satisfaction has been cited as the most important factor in the success of telemedicine initiatives (Ramaswamy *et al.* 2020). A study of primary care patients revealed 79% were more likely to use telemedicine now than pre-pandemic (Atherly *et al.* 2020). Another study reported patient satisfaction with video visits was significantly higher than in-person visits ($p < 0.001$), through pre-COVID and COVID-19 periods studied (Ramaswamy *et al.* 2020). Many studies have reported practitioner satisfaction with telemedicine (Weinland et al, Murphy et al, Pierce et al). Practitioners appreciated the variety telemedicine brought to their schedules, finding it a relief from challenges of face-to-face psychotherapy (Weineland *et al.* 2020). GPs report telemedicine gives them greater control of their working day (Murphy *et al.* 2021). In a study of psychologists, 89.19% anticipated using telepsychology in their clinical practice, in contrast to 45.70% reporting they had never used telepsychology pre-pandemic. This indicates long-lasting changes in the use of telepsychology are likely post-COVID-19 (Pierce *et al.* 2021). There was greater use of telepsychology by clinicians who reported more telepsychology training and supportive policies (Pierce *et al.* 2021).

Barriers and facilitators to intervention implementation

Barriers to intervention implementation have been reported to include healthcare workers/ organisations lacking awareness of what is required to support their mental well-being, lack of equipment or time, and inadequate skills (Pollock *et al.* 2020). GPs have voiced concerns about telemedicine. Some consider continuing remote consulting at such high levels unsustainable (Murphy *et al.* 2021). They reported lack of clarity regarding thresholds for face-to-face consultations, and that telephone consulting at high volumes was more mentally intense and less satisfying, removing '. . . the most enjoyable part of their job – talking and touching and sensing patients in the room . . .' (Murphy *et al.* 2021). Intercultural communication and language difficulties pose problems due to lack of non-verbal cues. (Verhoeven *et al.* 2020, Weineland *et al.* 2020). Other telemedicine concerns include that it would lead to 'double doing' and enforce already existing health inequalities by increasing access only for those with IT skills (Murphy *et al.* 2021).

Effective communication and having a positive, safe learning environment were facilitators to implementation. Personal knowledge or beliefs regarding the intervention can act as either barriers or facilitators to implementation (Pollock *et al.* 2020). A systematic review highlighted the importance of establishing an open entry system at primary care level for detection and intervention of mental health problems (Yue *et al.* 2020). Two qualitative studies reported telemedicine was more effective when the therapeutic relationship had already been established between clinician and patient (Rowen *et al.* 2021, Verhoeven *et al.* 2020). Patient motivation and careful patient selection is critical, especially for specific interventions such as iCBT (Weineland *et al.* 2020). Practitioners need more training to implement telemedicine effectively in practice to treat mental health disorders, and seamless technology is essential (Murphy *et al.* 2021, Pierce *et al.* 2021).

Outcomes to measure acceptability and/or feasibility

The majority of included studies utilised surveys or questionnaires which participants completed before and after completing an intervention, to measure the acceptability and/or feasibility of interventions. Many of these surveys incorporated validated scales including the 'Seven-item Generalised Anxiety Disorder Scale' (Kaufman-Shriqui *et al.* 2021, Kerst *et al.* 2020, Maldonado 2021, Rowen *et al.* 2021, Soklaridis *et al.* 2020, Zhu *et al.* 2021), the 'Nine-item Patient Health Questionnaire' (Birch *et al.* 2021, Cigrang *et al.* 2017, Kerst *et al.* 2020, Rowen *et al.* 2021, Shapira *et al.* 2021, Soklaridis *et al.* 2020), the 'Post-Traumatic Stress Checklist-Civilian Score' (Cigrang *et al.* 2017, Soklaridis *et al.* 2020) and the 'Revised Children's Anxiety and Depression Scale' (Weineland *et al.* 2020). The success of the intervention was interpreted from the score difference before and after the intervention. Another study used the 'Patient-Reported Outcomes Measurement Information System' and 'The Patient Global Impression of Change Scale' (Vanden Bossche *et al.* 2021). The 'Self-Report Habit Index' (SRHI) was used along with

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the 'Perceived Stress Scale', 'Impact of Events Scale' (IES) and 'Hospital Anxiety and Depression Scale' to assess the link between strength of physical activity and meditation habits and mental health (Green *et al.* 2021). Similarly in another study, a questionnaire assessing frequency of mindfulness practice was completed together with GAD-7 and IES questionnaires (Zhu *et al.* 2021). The SRHI or similar scales used alongside measures of mental well-being is useful to highlight health promoting behaviours.

Many studies included qualitative interviews with participants. Common interview themes were identified, and used to assess the feasibility/ accessibility of the intervention (Murphy *et al.* 2021, Soklaridis *et al.* 2020, Weiskittle *et al.* 2021). Chart Reviews were also used, to assess clinician symptom detection (Ahmad *et al.* 2020), investigate if appointment attendance differed with telemedicine use, and to check if EBI's continued to be provided using telemedicine (Frank *et al.* 2021). The 'Working Alliance Inventory Scale' was used to evaluate therapeutic alliance during a telemedicine intervention (Rowen *et al.* 2021).

Discussion

Key findings

As COVID-19 infections continue to rise globally, it is anticipated that many interventions to address its mental health sequelae are ongoing and will continue to be evaluated in the months and years ahead. Research to date has predominantly focused on interventions to improve identification of mental health disorders, new or existing psychological therapies to treat these disorders, and the use of telemedicine to enhance the care GPs offer to this cohort of patients. Interventions studied that required active involvement of patients in their own care had positive results, and thus should be considered for patients with declining mental health stemming from the pandemic (Soklaridis *et al.* 2020).

A key theme identified was the usefulness of digital mental health interventions. The surge of interest in and acceptance of digital tools among clinicians and patients precipitated by the global pandemic has offered an opportunity to explore their potential to enhance mental health care. Many studies documented success of online programmes, mobile applications and zoom group meetings to improve mental health. GPs should become familiar with these interventions and encourage patients to engage with them as an aspect of their care. In particular, small group meetings of older adults over video/phone have shown to improve mental health during the pandemic. This intervention should be considered not just in the immediate post-pandemic period but into the future, as loneliness and social isolation among older people were problems long before COVID-19.

Based on the findings from this review, it is recommended that encouraging participation in health behaviours including physical activity and meditation should be an important public health objective, and should be promoted by GPs. Interventions proven to be accessible and that reduce stigma are important. Delivering mental healthcare in primary care settings can reduce the stigma often found in speciality settings (Cigrang *et al.* 2017). Using telemedicine allows the patient to interact with their clinician from their own home, improving accessibility.

Comparison with existing literature

Previous research has indicated that digital interventions are important in the COVID-19 era. A scoping review reported that technology-based interventions have been designed and implemented for mental health prevention and promotion during COVID-19, and highlighted the shift to telemedicine to provide mental health care (Safieh *et al.* 2021). This paper also supported our finding that physical activity is associated with improved mental health outcomes (Safieh *et al.* 2021). Sharing the Vision Ireland's Mental Health Policy (2020) states that all service elements should include access to talk therapies as a first-line treatment option for most people who experience mental health difficulties (Department of Health 2020). As such, it is important that GPs have direct and increased access for their patients to trained providers of these services. Other practical strategies suggested to enhance provision of mental health services include clinic-based telehealth, linking patients with helplines and virtual medication management visits (Kopelovich *et al.* 2021).

Methodological considerations

Adopting Arksey and O'Malley's framework was beneficial, as it facilitated greater rigour and transparency in the research process. Our early literature review allowed a comprehensive set of search terms to be compiled. Further, we feel the decision to not limit our literature search by year was justified as it facilitated the potential inclusion of studies during other medical pandemics. However, the scoping review methodology itself gives rise to some limitations. We did not evaluate the study quality of the included literature, as scoping reviews do not include an assessment of study quality – the focus is on covering the range of work that informs the topic rather than limiting the work to studies that meet particular standards of scientific rigour. We also only included literature published in English, which may have excluded relevant studies in other languages. Furthermore, we acknowledge using the PRISMA extension for scoping reviews (PRISMA-ScR) (Colquhoun *et al.* 2014) rather than the standard PRISMA guidelines may have added to the quality of the manuscript.

Future directions

While literature continues to be published on the mental health sequelae of COVID-19, literature reporting interventions to combat these issues remains lacking. More large scale primary research is needed in the general practice setting, to evaluate feasibility of mental health interventions. In our research, all studies reporting primary care therapeutic interventions have focused on psychological treatments. There is a lack of studies focusing on primary care biological treatments (psychiatric medications) as an intervention to enhance mental health post-COVID-19. This area needs to be explored going forward. As the pandemic is still ongoing, there is no concrete research conducted post-pandemic – we can only draw on interventions proven successful in people presenting with disorders arising during the pandemic, or from studies conducted after previous pandemics. When COVID-19 ends, there may be further negative mental health consequences as people struggle to return to normality. Research in this area must be continued over the coming months and years as we emerge from the pandemic, to gain a comprehensive view of interventions which can improve mental health post-COVID-19. Further research is additionally required to outline the impact of mental health primary care interventions post-COVID-19 in specialist populations such as in prisons and people with intellectual disabilities as these populations were disproportionately affected by the restrictions imposed by the pandemic (Gulati *et al.* 2020, Gulati *et al.* 2021). The challenge now posed to practitioners worldwide is facing up to the surge in mental health problems by keeping up to

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date with relevant research, and actively implementing interventions in their practice which can improve the mental health care they offer to their patients.

Conclusion

The mental health impacts of COVID-19 are only just beginning to manifest, and will have implications for healthcare systems for years to come. This review outlines studied interventions which could be implemented in general practice to enhance care of mental health disorders post-COVID-19. Studies highlighted the feasibility and effectiveness of digital mental health interventions and suggested that their use is likely to persist after the current pandemic. However it is important that digital mental health interventions are supported by requisite standards of evidence, funding, and data protection legislation. This review also established priority areas for future research, particularly in the area of biological treatments (psychiatric medications) for mental health sequelae of COVID-19. Further research is needed in the Irish general practice setting to determine which interventions are most effective in this setting.

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Conflict of interest. All authors have no conflicts of interest to disclose.

Ethical standards. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008. The authors assert that ethical approval for publication of this review paper was not required by their local Ethics Committee.

References

Ahmad F, Wang J, Wong B, Fung WLA (2020). Interactive mental health assessments for Chinese Canadians: a pilot randomized controlled trial in nurse practitioner-led primary care clinic. *Asia-Pacific Psychiatry* **14**, e12400.

Arksey H, O'Malley L (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology* **8**, 19–32.

Atherly A, Van den Broek-Altenburg E, Hart V, Gleason K, Carney J (2020). Consumer reported care deferrals due to the COVID-19 pandemic, and the role and potential of telemedicine: cross-sectional analysis. *JMIR Public Health Surveill* **6**, e21607.

Atmore C, Stokes T (2020). Turning on a dime-pre- and post-COVID-19 consultation patterns in an urban general practice. *The New Zealand Medical Journal* **133**, 65–75.

Bäuerle A, Steinbach J, Schweda A, Beckord J, Hetkamp M, Weismüller B, Kohler H, Musche V, Dörrie N, Teufel M (2020). Mental health burden of the COVID-19 outbreak in Germany: predictors of mental health impairment. *Journal of Primary Care & Community Health* **11**, 2150132720953682.

Birch K, Ling A, Phoenix B (2021). Psychiatric nurse practitioners as leaders in behavioral health integration. *The Journal for Nurse Practitioners* **17**, 112–115.

Boden M, Zimmerman L, Azevedo KJ, Ruzek JI, Gala S, Abdel Magid HS, Cohen N, Walser R, Mahtani ND, Hoggatt KJ, Mclean CP (2021). Addressing the mental health impact of COVID-19 through population health. *Clinical Psychology Review* **85**, 102006.

Cheng P, Casement MD, Kalmbach DA, Castelan AC, Drake CL (2021). Digital cognitive behavioral therapy for insomnia promotes later health resilience during the coronavirus disease 19 (COVID-19) pandemic. *Sleep* **44**, e0241990.

Cigrang JA, Rauch SA, Mintz J, Brundige AR, Mitchell JA, Najera E, Litz BT, Young-McCaughan S, Roache JD, Hembree EA, Goodie JL, Sonnek SM, Peterson AL (2017). Moving effective treatment for posttraumatic stress disorder to primary care: a randomized controlled trial with active duty military. *Families, Systems, & Health* **35**, 450–462.

Colquhoun HL, Levac D, O'Brien KK, Straus S, Tricco AC, Perrier L, Kastner M, Moher D (2014). Scoping reviews: time for clarity in definition, methods, and reporting. *Journal of Clinical Epidemiology* **67**, 1291–1294.

Department of Health (2019). Sláintecare Action Plan. Available at https://www.gov.ie/en/publication/109e2b-slaintecare-action-plan-2019/.

Department of Health. (2020). Sharing the vision: a mental health policy for everyone.

Frank HE, Grumbach NM, Conrad SM, Wheeler J, Wolff J (2021). Mental health services in primary care: evidence for the feasibility of telehealth during the COVID-19 pandemic. *The Journal of Affective Disorders Reports* **5**, 100146.

Green J, Huberty J, Puzia M, Stecher C (2021). The effect of meditation and physical activity on the mental health impact of COVID-19-related stress and attention to news among mobile app users in the United States: cross-sectional survey. *JMIR Mental Health* **8**, e28479.

Gulati G, Dunne CP, Kelly BD (2020). Prisons and the COVID-19 pandemic. *Irish Journal of Psychological Medicine* **38**, 232–233.

Gulati G, Fistein E, Dunne CP, Kelly BD, Murphy VE (2021). People with intellectual disabilities and the COVID-19 pandemic. *Irish Journal of Psychological Medicine* **38**, 158–159.

Homeniuk R, Collins C (2021). How COVID-19 has affected general practice consultations and income: general practitioner cross-sectional population survey evidence from Ireland. *BMJ Open* **11**, e044685.

HSE (2013). *eHealth Strategy for Ireland*. HSE: Ireland.

HSE (2020). *HSE Psychosocial Response to the Covid-19 Pandemic*. HSE: Ireland..

Kaufman-Shriqui V, Navarro DA, Raz O, Boaz M (2021). Multinational dietary changes and anxiety during the coronavirus pandemic-findings from Israel. *The Israel Journal of Health Policy Research* **10**, 28.

Kerst A, Zielasek J, Gaebel W (2020). Smartphone applications for depression: a systematic literature review and a survey of health care professionals' attitudes towards their use in clinical practice. *European Archives of Psychiatry and Clinical Neuroscience* **270**, 139–152.

Kopelovich SL, Monroe-Devita M, Buck BE, Brenner C, Moser L, Fredrik JL, Harker S, Chwastiak LA (2021). Community mental health care delivery during the COVID-19 pandemic: practical strategies for improving care for people with serious mental illness. *Community Mental Health Journal* **57**, 405–415.

Levac D, Colquhoun H, O'Brien KK (2010). Scoping studies: advancing the methodology. *Implementation Science* **5**, 69.

Liu K, Chen Y, Wu D, Lin R, Wang Z, Pan L (2020). Effects of progressive muscle relaxation on anxiety and sleep quality in patients with COVID-19. *Complementary Therapies in Clinical Practice* **39**, 101132–101132.

Mak IWC, Chu CM, Pan PC, Yiu MGC, Chan VL (2009). Long-term psychiatric morbidities among SARS survivors. *General Hospital Psychiatry* **31**, 318–326.

Maldonado J (2021). *The effect of an online mental health promotion program during COVID-19*. D.N.P., Andrews University.

Munk AJL, Schmidt NM, Alexander N, Henkel K, Hennig J (2020). Covid-19—beyond virology: potentials for maintaining mental health during lockdown. *PLoS ONE* **15**, 13.

Murphy M, Scott LJ, Salisbury C, Turner A, Scott A, Denholm R, Lewis R, Iyer G, Macleod J, Horwood J (2021). Implementation of remote consulting in UK primary care following the COVID-19 pandemic: a mixed-methods longitudinal study. *British Journal of General Practice* **71**, e166–e177.

Nochaiwong S, Ruengorn C, Thavorn K, Hutton B, Awiphan R, Phosuya C, Ruanta Y, Wongpakaran N, Wongpakaran T (2021). Global prevalence of mental health issues among the general population during the coronavirus disease-2019 pandemic: a systematic review and meta-analysis. *Scientific Reports* **11**, 10173–10173.

Pierce BS, Perrin PB, Tyler CM, McKee GB, Watson JD (2021). The COVID-19 telepsychology revolution: a national study of pandemic-based changes in U.S. mental health care delivery. *American Psychologist* **76**, 14–25.

Pollock A, Campbell P, Cheyne J, Cowie J, Davis B, McCallum J, McGill K, Elders A, Hagen S, McClurg D, Torrens C, Maxwell M (2020).

Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review. *Cochrane Database of Systematic Reviews* **11**, CD013779.

Ramaswamy A, M. YU, Drangsholt S, E. NG, Culligan PJ, Schlegel PN, Hu JC (2020). Patient satisfaction with telemedicine during the COVID-19 pandemic: retrospective cohort study. *Journal of Medical Internet Research* **22**, e20786–e20786.

Ransing R, Adiukwu F, Pereira-Sanchez V, Ramalho R, Orsolini L, Teixeira ALS, Gonzalez-Diaz JM, Pinto da Costa M, Soler-Vidal J, Bytyçi DG, El Hayek S, Larnaout A, Shalbafan M, Syarif Z, Nofal M, Kundadak GK (2020). Mental health interventions during the COVID-19 pandemic: a conceptual framework by early career psychiatrists. *Asian Journal of Psychiatry* **51**, 102085–102085.

Rowen J, Giedgowd G, Baran D (2021). Effective and accessible telephone-based psychotherapy and supervision. *Journal of Psychotherapy Integration* **32**(1), 3–18.

Safieh J, Broughan J, McCombe G, McCarthy N, Frawley T, Guerandel A, Lambert JS, Cullen W (2021). Interventions to optimise mental health outcomes during the COVID-19 pandemic: a scoping review. *International Journal of Mental Health and Addiction*, 1–22.

Shapira S, Yeshua-Katz D, Cohn-Schwartz E, Aharonson-Daniel L, Sarid O, Clarfield AM (2021). A pilot randomized controlled trial of a group intervention via Zoom to relieve loneliness and depressive symptoms among older persons during the COVID-19 outbreak. *Internet Interventions* **24**, 100368.

Sivan M, Halpin S, Hollingworth L, Snook N, Hickman K, Clifton IJ (2020). Development of an integrated rehabilitation pathway for individuals recovering from COVID-19 in the community. *Journal of Rehabilitation Medicine* **52**, jrm00089.

Soklaridis S, Lin E, Lalani Y, Rodak T, Sockalingam S (2020). Mental health interventions and supports during COVID- 19 and other medical pandemics: a rapid systematic review of the evidence. *General Hospital Psychiatry* **66**, 133–146.

Steel Z, Marnane C, Iranpour C, Chey T, Jackson JW, Patel V, Silove D (2014). The global prevalence of common mental disorders: a systematic review and meta-analysis 1980-2013. *International Journal of Epidemiology* **43**, 476–493.

United Nations (2020). *Policy Brief: COVID-19 and the Need for Action on Mental Health*. United Nations.

Vanden Bossche D, Lagaert S, Willems S, Decat P (2021). Community health workers as a strategy to tackle psychosocial suffering due to physical distancing: a randomized controlled trial. *International Journal of Environmental Research and Public Health* **18**, 3097.

Verhoeven V, Tsakitzidis G, Philips H, Van Royen P (2020). Impact of the COVID-19 pandemic on the core functions of primary care: will the cure be worse than the disease? A qualitative interview study in flemish GPs. *BMJ Open* **10**, e039674–e039674.

Wei N, Huang BC, Lu SJ, Hu JB, Zhou XY, Hu CC, Chen JK, Huang JW, Li SG, Wang Z, Wang DD, Xu Y, Hu SH (2020). Efficacy of internet-based integrated intervention on depression and anxiety symptoms in patients with COVID-19. *Journal of Zhejiang University-SCIENCE B* **21**, 400–404.

Weineland S, Ribbegårdh R, Kivi M, Bygdell A, Larsson A, Vernmark K, Lilja JL (2020). Transitioning from face-to-face treatment to iCBT for youths in primary care - therapists' attitudes and experiences. *Internet Interventions* **22**, 100356.

Weiskittle R, Tsang W, Schwabenbauer A, Andrew N, Mlinac M (2022). Feasibility of a COVID-19 rapid response telehealth group addressing older adult worry and social isolation. *Clinical Gerontologist* **45**(1), 129–143.

Wells SY, Morland LA, Wilhite ER, Grubbs KM, Rauch SAM, Acierno R, McLean CP (2020). Delivering prolonged exposure therapy via videoconferencing during the COVID-19 pandemic: an overview of the research and special considerations for providers. *Journal of Traumatic Stress* **33**, 380–390.

Williams R, Jenkins DA, Ashcroft DM, Brown B, Campbell S, Carr MJ, Cheraghi-Sohi S, Kapur N, Thomas O, Webb RT, Peek N (2020). Diagnosis of physical and mental health conditions in primary care during the COVID-19 pandemic: a retrospective cohort study. *Lancet Public Health* **5**, e543–e550.

Wright J, Dewan S, Hilty D, Dewan NA (2020). Health care providers' perceptions of quality, acceptance, and satisfaction with telebehavioral health services during the COVID-19 pandemic: survey-based study. *JMIR Mental Health* **7**, e23245.

Wynn R (2020). E-Health in Norway before and during the initial phase of the Covid-19 pandemic. *Studies in Health Technology and Informatics* **272**, 9–12.

Yue JL, Yan W, Sun YK, Yuan K, Su SZ, Han Y, Ravindran AV, Kosten T, Everall I, Davey CG, Bullmore E, Kawakami N, Barbui C, Thornicroft G, Lund C, Lin X, Liu L, Shi L, Shi J, Ran MS, Bao YP, Lu L (2020). Mental health services for infectious disease outbreaks including COVID-19: a rapid systematic review. *Psychological Medicine* **50**, 2498–2513.

Zhu JL, Schülke R, Vatansever D, Xi D, Yan J, Zhao H, Xie X, Feng J, Chen MY, Sahakian BJ, Wang S (2021). Mindfulness practice for protecting mental health during the COVID-19 pandemic. *Translational Psychiatry* **11**, 329.

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