Addressing risks to mental health from climate change: a policy capacity analysis of England

John Turnpenny[1] and Meghan Alexander[2]

[1] School of Politics, University of East Anglia (j.turnpenny@uea.ac.uk)
[2] School of Geography, University of Nottingham (Meghan.alexander@nottingham.ac.uk)

Abstract

Climate change and mental health are inextricably linked crises that demand urgent responses within the health sector and beyond. Mental health challenges associated with climate change are wide-ranging. They include depression, anxiety and post-traumatic stress resulting from increased exposure to extreme weather events, generalised climate anxiety, and indirect impacts. However, there is a significant adaptation gap when it comes to addressing the mental health risks posed by climate change. Lack of capacity is frequently cited as a barrier to adaptation, yet 'capacity' covers many facets. This article examines the capacities of policy systems to design and implement adaptation initiatives for addressing the increasing risks to mental health posed by climate change. Focusing on England (UK) as an illustrative case study, the article deploys a policy capacity framework and draws on semi-structured interviews and policy document analysis. It identifies the ways that analytical, operational and political policy (in)capacities manifest across relevant policy areas, which include health, flood and coastal erosion risk management, spatial planning, natural environment, and emergency management. Our analysis reveals that despite some strengths in analytical and political capacity, strained operational capacity is exacerbating and reinforcing adaptation gaps. We also demonstrate some of the complex interactions between different types of capacities that both enable and hamper adaptation. The article demonstrates the value of analysing policy capacity, and its potential in identifying and designing the necessary interventions to help circumvent a growing mental health crisis under climate change.

Key policy insights:

- In England, efforts to adapt to risks to mental health under climate change are supported through strong *analytical* capacity, involving research and knowledge generation, education and training, particularly in the mental health sector and

---

[1] Corresponding author
[2] Current affiliation: School of Geography, University of Nottingham, University Park, Nottingham, NG7 2RD, UK

Flood and Coastal Erosion Risk Management (FCERM). There is however room for improvement.

- Relatively strong *political* capacity, including advocacy and the role of policy champions, have led to increasing legitimation of the issue and fostered a growing policy landscape. However, some discernible gaps remain.
- There are significant weaknesses in *operational* capacity, restricting coordinated, preventative adaptation. This is partly due to significant resource constraints, and historic and current fragmentation within and between the health sector and others.

3-8 keywords
Climate change adaptation; mental health; policy capacity; England

1. Introduction

A central part of the global climate emergency is its impact on mental health. While the causes of the current global crisis for mental health are multiple (WHO 2022), the Intergovernmental Panel on Climate Change indicates the scale and complexity of the links with climate change: " 'Mental health' includes impacts from extreme weather events, cumulative events, and vicarious or anticipatory events....some mental health challenges are associated with increasing temperatures... trauma from weather and climate extreme events... and loss of livelihoods and culture" (IPCC 2022: 11). The impacts of extreme events are important, for example: "In England, most of the health burden associated with flooding is due to the impacts of flooding on mental health and wellbeing." (UKHSA 2022). However, despite the strong relationship between climate change and mental health, it has been surprisingly under-researched. More worryingly, there is a growing adaptation gap – "the difference between actually implemented adaptation and a societally set goal" (UNEP 2023: vi) – when it comes to adapting and responding to the mental health risks posed by climate change (WHO 2022). This reflects broader trends in climate adaptation in general (UNEP, 2023), attributed to a diverse range of reasons, including the lack of 'capacity' (e.g. Howlett et al 2019). This article makes two particular contributions. First, it examines more closely adaptation gaps specifically in the context of mental health, looking beyond the health sector to include other crucial policy areas, such as flood risk management, and natural and built environment policy. For example, the health benefits of green-blue spaces have been well-documented (e.g. Pouso et al 2021), yet benefits are dependent on access to these spaces. Furthermore, poor building quality can inhibit the regulation of internal temperature, resulting in detrimental impacts for mental health (e.g. Beemer et al 2021). Second, the article responds to the call by Rahman et al (2019) for more analysis of *policy capacity*. Policy capacity can be defined as "the set of skills and resources – or competences and capabilities – necessary to perform policy functions" (Capano et al 2020: 298), i.e. it specifically examines the capacities of policy actors, institutions and processes to do their work. We focus on England, one of the four nations of the UK[3], as an illustrative case study for testing out the policy capacity framework and its utility in identifying and explaining adaptation gaps. This article examines: i) *What policy activities address the increasing risks*

---

[3] England, Scotland, Wales and Northern Ireland each have different health systems, under the umbrella of the National Health Service (NHS). Responsibilities and funding for certain aspects of health policy are further devolved to local authorities and regions in different ways across the UK (Shuttleworth and Nicholson 2020).

to mental health posed by climate change in England? ii) What policy capacities and capacity gaps appear in the context of these activities?

In the following sections, we introduce various bodies of literature related to the intersection between climate change adaptation, mental health and policy capacity. We then summarise our research design, analytical framework, and methods, followed by substantive case analysis, structured around different dimensions of policy capacity. The final section reviews the article's contributions to the understanding of mental health and climate change, and points towards promising lines of future research.

Climate change, mental health and policy capacity

The relationship between climate change and mental health is currently a relatively small sub-field of research and largely dominated by "impact studies, with mitigation and adaptation responses and their co-benefits and co-risks remaining niche topics... [and] major gaps in evidence on climate health research for mental health" (Berrang-Ford et al 2021: e514). However, this sub-field is growing. Mental health and wellbeing are impacted by climate change through a number of direct and indirect 'pathways' spanning differing spatio-temporal scales, from the distress and psychological morbidity associated with extreme weather events (such as depression, anxiety and post-traumatic stress disorder PTSD), through to more generalised climate anxiety and solastalgia (Clayton et al 2017; Hayes et al 2018; Ali et al 2020; Lawrance et al., 2022; Romanello et al., 2021; Corvalan et al 2022). Mental health impacts are influenced by a complex variety of interacting factors, including demographic and personal traits, individual psychology and lifestyle factors, social and community networks, living and working conditions, alongside environmental, socio-economic, political and cultural conditions (Lawrance et al 2022). In addition to the impacts on individuals, and the increased burden this places on health and social care services, the effects of climate change also directly impact key assets and service delivery within the health sector, creating significant disruptions to care provision more widely. Research has drawn attention to health inequalities and demonstrated how impacts often fall most heavily on those already marginalised (Hayes and Poland 2018). However, analysis of mental health impacts encounters several challenges, such as specifying and measuring what the impacts are, and attributing cause and effect (Hayes and Poland 2018). As a result, research has tended to focus on direct and short-term health impacts, with some notable exceptions (e.g. Waite et al 2017). Impacts are also most often assessed on individuals, for example using mental health surveys, rather than on communities or institutions more widely. More broadly, significant gaps exist in the global assessment and monitoring of mental health, which has been attributed to regional and cultural differences in its definition, acknowledgement, stigmatisation and treatment (Romanello et al, 2021).

Research on *adaptive responses* to climate change impacts on mental health, and critical analysis of those responses, covers a range of different angles. Overall, several key points emerge (Clayton et al 2017; Hayes et al 2018; Palinkas et al 2020; Lawrance et al 2022). The causes of mental health problems are historically contingent on socio-economic factors, with climate change and societal responses layered on top of these (Hayes et al 2019); "climate change acts as a risk amplifier by disrupting the conditions known to support good mental health, including socioeconomic, cultural and environmental conditions, and living and working conditions." (Lawrance et al 2022: 443). For instance, pre-existing "mental

health symptoms, including those associated with prior disaster exposure, may influence preparedness for future disasters." (James et al 2020: 343). Furthermore, mental and physical health problems are closely inter-related (Ali et al 2020), often limiting peoples' ability to respond. Similarly, pre-existing weaknesses in health systems can be exacerbated by climate change, and addressing these weaknesses more broadly is crucial for adaptive responses.

The World Health Organization's operational framework for building climate-resilient health systems explicitly recognises some of the complexity challenges, including: the importance of integrating local knowledge and contexts; coherence across a range of policy areas such as planning, water, food, and energy; and "reducing existing health system vulnerabilities" (WHO 2015: 5). Corvalan et al (2022) demonstrate the importance of both integrating climate change into mental health policies, and vice versa. Adaptation responses for addressing mental health risks (see for example Hayes et al 2019; Corvalan et al 2022; IPCC 2022: p1972) include:

- Therapies, including counselling and nature therapy (e.g. 'green prescribing')
- Education and training for health and other professionals (e.g. emergency responders)
- Public education on climate change impacts and responses
- Disaster preparation and recovery
- Community building, including community involvement in planning and support
- Research and networks to support education, knowledge exchange and policy-making
- Resources to improve mental health care generally
- Cross-sectoral collaboration

Relational and community elements are particularly notable. While addressing mental health symptoms is important, building community cohesion, for example, can help improve preparedness for all sorts of disasters, making the relationship between climate change and mental health more multi-directional (see e.g. James et al 2020). However, decisions are often made without the input of the most vulnerable (Orru et al 2018).

Strategies for adapting to health impacts sometimes refer explicitly to building capacity. For example, the WHO's framework aims "to enhance the capacity of health systems to protect and improve population health in an unstable and changing climate" (WHO 2015: 5). Key components include leadership, information systems, tools such as vulnerability, capacity and adaptation assessments (see also Hayes and Poland 2018), risk monitoring, and designing health operations to be climate-resilient. It has long been recognised that it is crucial to understand peoples' and communities' capacity to adapt to how they experience climate change and its impacts (e.g. Adger 2010), adaptation actions at multiple levels and their interactions, including challenges to wider systems as well as individuals (Adger 2016).

An important question is how these adaptation responses fare when attempts are made to implement them. Hayes et al (2019) set out several factors that influence the capacity at multiple levels to adapt to the mental health consequences of a changing climate. These include: social capital; access to resources; healthy community preparedness sensitive to multiple needs; healthy governance and collaboration between a wide range of actors

including mental health professionals, climate scientists, public health, NGOs. Where these factors are low or absent, such as with weak coordination or sporadic funding, adaptive capacity is correspondingly diminished (Hayes and Poland, 2018).

As part of this, in order to better understand struggles to effectively adapt to climate change, it is important to examine explicitly the capacity of *policy systems* to design and implement adaptation initiatives (Austin et al, 2019; Rahman et al, 2019; Pirkle et al 2022). Such analysis must capture the political nature of policy-making. Rather than assuming adaptation initiatives are functionalist responses to solving a clear problem, we must examine "the various interests and capacities of policy managers, policy designers, formulators, decision-makers and others involved in the policy process" (Howlett et al 2019: 51). Avoiding policy failures depends on the ability to exercise three types of skills or competences: Analytical, Operational, Political, each involving resources or capabilities at three different levels: Individual, Organizational, and Systemic (Wu et al 2015). The resulting nine types of capacity provide an overarching framework for assessing policy subsystems, and build up a picture of "the set of skills and resources – or competences and capabilities – necessary to perform policy functions" (Capano et al 2020: 298). Such analyses can enrich and deepen understanding of where strengths and weaknesses lie across a wide range of policy actors and activities (Capano and Howlett 2020).

Health systems generally have been a popular field for policy capacity analyses in recent years, for example the cases of New Zealand (Dickinson et al 2022; Tenbensel and Silwal 2022), Australia (Hughes et al 2015; Dickinson et al 2022), China (Husain et al, 2021), Canada (Denis et al, 2022), and India (Bali and Ramesh 2021). Capano and Lippi (2021) examined policy capacities in Italian regional responses to Covid-19, finding that responses to emergencies often reproduce strengths and weaknesses in current systems. However, the complexities of analysing health policy capacity (Hughes et al 2015; Bali and Ramesh 2021) are many, including: the need to look across sectors such as employment, education, transport; the presence of multiple actors in planning, financing and service delivery; different actors' interests and incentives (such as patients, professionals, drug companies, governments, and (tax)payers); financial constraints; inequality between causes and impacts of problems, needs, and willingness/ability to pay; and information asymmetries (e.g. between drug companies and patients). Orru et al (2018) examined factors influencing the effectiveness of health systems in response to climate change, deploying the WHO operational framework (WHO 2015) to examine capacities related to analytical, institutional and inter-ministry coordination, albeit without explicitly using Wu et al's (2015) policy capacity framework.

Overall, policy capacity analyses can provide "a useful diagnostic tool to assess strengths and weaknesses in health policy capabilities" (Bali and Ramesh 2021: 289), to reveal nuances that better understand observed adaptation gaps. Indeed, "sophisticated health policy designs, even when backed by broad political support, may be undermined during implementation due to capacity gaps." (Bali and Ramesh 2021: 289). Therefore, this article asks: i) *What policy activities address the increasing risks to mental health posed by climate change in England?* ii) *What policy capacities and capacity gaps appear in the context of these activities?*

Our framework is inspired by that presented by Wu et al (2015), and further interpretations by Howlett and Ramesh (2016: 304-5), Rahman et al (2019), Bali and Ramesh (2021), and Capano and Lippi (2021). Our primary focus is on the Systemic level (Table 1):

TABLE 1 HERE

2. Methods

Informed by the above literature review, we looked beyond the mental health sector to explore (in)direct ways in which mental health under climate change may be related to other policy areas: flood and coastal erosion risk management (FCERM), emergency management, the natural environment and spatial planning. Data were gathered as part of a larger cross-national and cross-sector research project on climate change adaptation (see acknowledgements). Data were drawn first from analysis of legislation, policy documents, reports, guidance, position statements and organisational websites. Documents were selected through purposive and snowball sampling, starting with key national strategies and legislation identified through the websites of the government departments and public bodies responsible for the above policy areas, alongside the legislation.gov.uk database. While the focus was on analysing the current policy landscape (between January 2021 and July 2022), prior policies were also examined to provide relevant contextual background. This analysis was accompanied by 30 semi-structured interviews across the above policy areas in 2021 and 2022. Interviewees were identified via purposive and snowballing sampling, including of national government departments, non-departmental public bodies, advisory bodies, professional bodies, medical practitioners, third sector organisations and academic and other expertise (see Table 2).

TABLE 2 HERE

Table 2 indicates the expertise and affiliations of some interviewees covered more than one policy area and institution. In all, eight interviewees were classified under 'Health', ten under FCERM, ten under natural environment, and two across sectors. Interviewees were at the senior manager and leadership level. Interviews were carried out following approval from the ** author's institution** Research Ethics Committee, with participants' informed consent. Interviews were semi-structured, so detailed questions and topics of discussion were tailored to each interviewee's areas of expertise, within a framework of general topics: observed adaptation gaps, perceived reasons for these, general strengths and weaknesses within policy systems, and barriers and opportunities for change. Interviews typically lasted around an hour, were conducted via MSTeams and were recorded, and transcribed verbatim. Documents and interviews were analysed thematically; themes were developed inductively within a more deductive analysis based on the different dimensions of policy capacity (analytical, operational and political) and systemic-level characteristics outlined in Table 1.

3. Analysis

Climate Change and Mental Health: the English policy context

Relevant policies, programmes and interventions cover combinations of physical and mental health, sustainability, climate change mitigation and adaptation. Many of these consider mental health and climate change adaptation to varying extents. The UK's Net Zero commitment is embedded, via statutory guidance (NHS 2022), in the Health and Care Act 2022, including the "Greener NHS" programme (NHS 2022: 46). Although mitigation is at the forefront, adaptation is acknowledged in this agenda and the two priorities are framed as 'often mutually strengthening' (NHS 2022: 47), and pursued in projects such as the NHSForest[4] (NHS 2022: 37). In other policy areas, there is increased recognition and emphasis on the mental health benefits of green space (HM Government 2023a; UKHSA 2023), and green/blue social prescribing (HM Government 2023a). This indirectly supported through spatial planning policies that support green infrastructure (MHCLG 2021) and potential for increased access to nature through for example a legal requirement under the Environment Act 2021 for biodiversity net gain alongside new developments.

The overlapping priorities on health and climate adaptation (NHS 2021), adverse weather and health (UKHSA 2023), and in particular public mental health and flooding (UKHSA 2022) share certain elements. These include: an emphasis on research; data collection on impacts; mapping of risk, including socio-economic factors; service continuity in the event of climate disruption; emergency responses that give appropriate attention to vulnerable people, including mental health needs; education and training in impacts and responses; the importance of adjacent policy areas such as urban design; physical, practical and therapy support; and involving community groups and building community resilience. At first sight, comparisons with types of climate adaptation responses (Hayes et al 2019) appear favourable, and supported by a strong policy landscape. However, our analysis highlights the varying extents to which this is the case and reveals the presence of key adaptation gaps and underlying policy incapacities.

Policy capacities and capacity gaps

Analytical (in)capacities
There are several long-standing work programmes and key institutions which support mental health under climate change, through research and knowledge generation, education and training. These activities help bolster analytical capacities to inform policy design and implementation.

Within the environment sector, Natural England - an executive non-departmental public body, sponsored by the UK Department for Environment, Food and Rural Affairs (Defra) - administer the *People and Nature Survey for England[5]*, which "gathers evidence and trend data...relating to people's enjoyment, access, understanding of and attitudes to the natural environment, and its contributions to wellbeing", with data publicly accessible online. These data help inform Defra policy and natural capital accounting, as well as supporting several outcome indicators for monitoring the effectiveness of the 25 Year Environment Plan (Defra, 2019; HM Government 2023a); [IV-29]. FCERM, including emergency management, policy

---

[4] https://nhsforest.org/
[5] https://www.gov.uk/government/collections/people-and-nature-survey-for-england

has also been supported by research into mental health impacts of flooding, extending back at least a decade (Defra 2014). For example, the WHO-Europe and Public Health England (PHE)'s 2009–2011 project investigated the health effects of flooding (Menne and Murray 2013). Subsequently, PHE established the *English National Study of Flooding and Health*[6] to investigate the medium and longer-term mental health impacts of floods and inform preventative and recovery strategies to reduce future harm. In turn, research assessing the mental health costs of flooding (Viavattene and Priest 2020) now influences the allocation of public FCERM Grant-in-Aid funding for flood mitigation schemes[7]. However, gaps remain and research is continuing around other mental health issues beyond anxiety, depression and PTSD, and the mental health impacts on children.

Within the health sector, the Centre for Sustainable Healthcare (CSH)[8], a registered charity, 'offers strategic input and consultancy on sustainable healthcare research and practice to national and local programmes'. CSH has a Green Space for Health programme (including projects such as the NHS Forest), and also develops educational resources, training events, networks and analytical tools to support the NHS and other healthcare providers, for example in implementing the Green Plans required of NHS Trusts. Furthermore, CSH offers a Sustainable Specialty Fellowship programme, to develop research and leadership capacity among clinicians. Specifically related to climate change, there are resources to allow members of the public to support themselves, and signposting to further help. Furthermore, the Royal College of Psychiatrists has an established Sustainability and Planetary Health Committee[9] which supports knowledge exchange in addition to resources and guidance around sustainable mental health – see for example the EcoCAMHS Network on child and adolescent mental health, and materials on eco distress for children and young people[10].

While the above examples indicate rich analytical capacity, this is hindered by several challenges. Key analytical capacity gaps remain as a result of the complex causal mechanisms that influence mental health outcomes, the difficulty in specifying appropriate indicators, and lack of data [IV-1]. Where data do exist they are collected and held by a vast array of different organisations with their own protocols, formats and confidentiality constraints [IV-2]. Focussing data gathering on more tangible physical impacts can be more tractable, for example climate change adaptation data gathered at present mainly about overheating within NHS estates [IV-3]. Notwithstanding the wide range of education initiatives within the health sector [IVs-1,3,4,5] and for other professionals [IV-1], there is still some way to go in improving awareness among health professionals of climate change and its potential impacts on mental health:

---

[6] https://www.gov.uk/guidance/flooding-and-health-national-study

[7] https://www.gov.uk/government/publications/mental-health-costs-of-flooding-and-erosion

[8] https://sustainablehealthcare.org.uk/

[9] https://www.rcpsych.ac.uk/improving-care/working-sustainably

[10] https://www.rcpsych.ac.uk/improving-care/sustainability-and-mental-health/the-eco-crisis-and-camhs

"It was only a year or two ago I couldn't say to my colleagues, 'I'm interested in the impact of climate change on mental health,' and most people would say, 'Well, there's not really any direct impacts are there?' " [IV-6]

More widely, established norms about what constitutes evidence and scientific rigour affect the assessment of activities such as green prescribing, which are not easily subjected to randomised control trials (RCTs). Quantitative evidence can be given primacy, especially within the health sector:

"the numbers get used in such a way that they're effectively kind of weaponised" [IV-4]

and qualitative approaches seen as less rigorous, partly because it is much harder to be clear when and where benefits of prevention appear [IV-2]:

"people say, 'Well what's the evidence?' … I think we've become quite narrow in what we accept as scientific evidence" [IV-6]

The relative absence of conventional quantitative evidence has consequences, including for investment [IV-9]. Social prescribing for example is much less likely to be funded by industry, relying instead on research charities [IV-5]. And the incentive for social prescribing may actually be low because of systems of resource allocation:

"the hospital gets what you would class as a revenue stream from treating people. So actually if less people attend it could have a counter effect if less people need operations" [IV-2]

Operational (in)capacities

NHS funding is fundamental to operational capacity: "The NHS Long Term Plan (LTP) makes a renewed commitment that mental health services will grow faster than the overall NHS budget with a ringfenced investment worth at least £2.3 billion a year for mental health services by 2023/24." (NHS 2019: 5). However, distribution of funding and resources towards mental health is considerably lower than primary and secondary care. In 2019/20, 14% of the total Clinical Commissioning Groups' funding allocations were committed to mental health, learning disability and dementia services (Baker, 2020). In spite of increased funding, systems are strained already [IV-6]. Even the most basic sustainability considerations – for example in health equipment procurement - have to be done in addition to regular tasks [IV-2], making it very difficult to find space to even add something to current systems let alone re-think direction and large-scale aims:

"how do you make space for that sort of intervention [green prescribing] *in a service that's straining at the seams?"* [IV-6].

Resource constraints and skills gaps beyond the health sector have an impact too. For example, capacity gaps within local planning authorities constrain the requirement for biodiversity net gain within new developments, with impacts on health:

"the majority of people will access nature less than 2 kilometres from their home ...If they don't have a local park, they don't access this green space so they don't get the health benefits." [IV-20]

To address historic fragmentation and poor coordination within the NHS, statutory Integrated Care Systems (ICSs) have been established under the Health and Care Act 2022, including partnership between NHS and local authorities. Coordination is also occurring via Greener NHS and some of the bodies mentioned above. There is evidence of increased policy alignment – see for example NHS (2019), UKHSA (2022), HM Government (2023a) - and attempts to join up the work of different policy actors and institutions and agencies, organisations, and policy areas, in for example emergency management. Mechanisms such as the Climate Change Risk Assessment (CCRA; Betts et al 2021) and National Adaptation Programme (NAP; HM Government 2023b) are ways to enable discussion across government departments [IV-3]. However, there is arguably still a tendency towards siloed working, and the challenge is formidable. This is partly because work is needed across disciplines, and across organisations and policy areas [IVs-1, 3]:

"it has been very siloed, the funding as well so I think that lack of infrastructure, that funding infrastructure has held back the research which has then held back everything else" [IV-1]

Piecemeal initiatives from different parts of government and others [IV-7] face challenges where they clash with other policy areas. Devolution of responsibilities and funding for health policy can exacerbate such clashes. For example, national policy encouraging exercise in open spaces faces challenges when local authority expenditure on sport, play and parks has fallen by 33%, and on open spaces by 19%, since 2010[11]. Additionally, the sheer multitude of institutions involved are hard to keep track of, let alone agree positive changes with: mental health trusts, community trust, General Practitioners, ICS and thousands of sub-contracted bodies [IV-2] - while public health sits within local authorities [IV-5], all at strained capacity [IV-6], with potentially contradictory legal requirements and frequent changes of structure, remit and governance complicating the picture:

"over the last 15 years it's gone from Health Protection Agency, Public Health England and now it's changed again... there's a massive churn every time they re-brand and re-orientate" [IV-5]

The Operational capacity gaps were seen by some interviewees as much more intractable than Analytical ones – "*we don't need more research. Like it's super simple. Like we all know what we need to do*" [IV-4]. Climate change, and associated new or exacerbated mental health risks, cutting across several policy areas, are not necessarily seen as belonging within the remit, or capacity, of any one sector. This makes it easy to shift responsibility and difficult to make progress. There is evidence of passing responsibility for mental health around different bodies [IV-7; IV-19], partly to avoid the demands that would bring. Partly also because questions of who pays and who benefits, for example from developing urban

---

[11] Mean for all English authorities, adjusted to 2022-23 prices. Source: Local Government Association https://vfm.lginform.local.gov.uk/

green space [IV-1], and the associated power relations, require detailed negotiation between many bodies including different tiers of government:

"There's quite a lot of tension about whose job is it anyway, to sort [mental health] out. In the eyes of a lot of bits of the system, people will look to the NHS and think, 'Well the NHS is very well-resourced, so why can't it just divert some of its resources to mental health, rather than us having to stump up for it?' " [IV-7]

This kind of problem is well-documented around climate change and health: see for example Workman et al's (2018) review of barriers to integrating health co-benefits into climate mitigation policy.

Political (in)capacities

The UK has historically had strong political and societal support for the NHS generally. However, satisfaction with the NHS had by 2022 fallen to a historic low, driven by long waiting times, staff shortages and perception of underfunding (Morris et al 2023). At the same time, a May 2021 survey from the Royal College of Psychiatrists found "more than four-fifths (84%) of the UK public think the climate and ecological emergencies will affect mental health in a decade at least as much as unemployment (83%)"[12]. More generally, there is evidence of shifting taboos around mental health in British society – see for example, the significant increases in positive attitudes and their relationship to the Time to Change campaign (2009-2021) (Evans-Lacko et al 2014).

The presence of policy entrepreneurs or 'champions' within the health, environment and flood risk management sectors [IV-29], and increased investment in mental health generally [IV-7], are complemented by institutional advocates. Advocacy around health and climate more generally is central to the work of the UK Health Alliance on Climate Change[13], a network of 37 UK health organisations, and the Academy of Medical Royal Colleges – see for example their 2020 statement on climate change[14]. The Royal College of Psychiatrists also acts as an advocate and publicly declared a climate and ecological emergency in 2021. There are also instances of policy actors mobilising opportunities to influence policy change, for example, severe flood events in 2014 were a catalyst for the *English National Study of Flooding and Health* (see above).

In spite of the above developments [IVs-4, 5, 7], a wider public awareness of climate change [IV-5] and of the relationship between climate change and health [IV-7], there has been overall a lack of coherent adaptation actions around climate change and mental health [IV-1]. There appear to be several reasons. First, climate mitigation within the health sector has taken priority to date, for example in the Greener NHS programme [IV-4, and NHS Green Plans [IV-5], partly because of the scale of change required for effective adaptation:

---

[12] https://www.rcpsych.ac.uk/news-and-features/latest-news/detail/2021/05/05/rcpsych-declares-a-climate-and-ecological-emergency?searchTerms=sustainability

[13] http://www.ukhealthalliance.org/

[14] https://www.aomrc.org.uk/wp-content/uploads/2020/07/200707_climate_change_statement.pdf

"adaptation is just, I mean, that's like just a byword for 'system overhaul' " [IV-4]. Second, even if the environment generally may be rising up the political agenda [IV-20], alongside shifting taboos around mental health, concern about the effects of climate change can also be undermined and belittled through the media [IV-6]. And cultural stigmas associated with 'connecting with nature' can be persistent [IV-4]. Third, environmental gains often conflict with other political priorities and interests [IVs-9, 20, 24, 30]. In particular, housing and economic growth agendas continue to be politically prioritised over environmental gains, with impacts on health:

"it probably comes down to a political interest in business and finance which sits in [UK government Department for Business] *versus the environment, which sits in Defra but Defra historically has always been quite a weak department in that sense, that it's forever chasing its own tail trying to resource things but also it doesn't have a lot of influence across government."* [IV-9]

The effects of relatively small amounts of resources for mental health [IVs-2, 5] can be seen particularly within work on climate change. Low political capacity is indicated by the generally very small teams responsible for large and diverse remits covered by NHS Trust Green Plans [IV-2]. Also, reliance on a small number of committed individuals across health sector organisations, whether as 'champions' [IV-4] or as those who lead by example and offer their time and energy [IV-2], makes activities vulnerable to individuals leaving their posts, or indeed having enough time.

Several interviewees commented on a fundamental political capacity issue: whilst adaptive responses to climate change impacts on mental health need to be embedded in a public health preventative model, the predominant model in the UK is focussed around reactive treatment rather than prevention [IVs-2, 6, 8]:

"The NHS is set up as a kind of repair shop to react to disease and illness when it happens" [IV-2]

Interviewees stressed the importance of challenging this model [IV-4] and the value of alternative approaches, such as prescribing exercise rather than drugs. Interviewees recognised that attempts to shift to a prevention model must engage with a wide range of capacity gaps that make it politically difficult. These factors range from the individual behavioural scale [IV-8] through to the societal scale [IV-4]:

"Nobody wants to do anything as boring as change their diet or go up a hill every day. That's hard work. A pill is easy." [IV-8]

Any discussion of prevention and public health highlights wider challenges and risk-enhancing factors such as limited employment opportunities [IVs-4, 5, 7], poverty [IVs-5, 7], childhood trauma [IV-5], poor housing [IVs-4, 7], impact of racism [IV-7], the design and operation of the welfare-benefits system [IV-7], lack of healthy communities more widely [IV-4]- and the need for long-term adaptive planning rather than reactive emergency planning [IV-3]. All generate heated political debate. The impacts of climate change often enhance existing inequalities, impacting the most vulnerable most significantly [IVs-1, 4].

Anxiety about climate change, for example, often occurs alongside and compounds other anxieties [IV-5]. And work to support other climate-related mental health problems can be particularly challenging, requiring specialist support alongside low ability to create effective interest groups and succeed in making political changes:

"people with major mental illness, who are a smaller amount of the population but have very little voice actually and very little advocacy ability" [IV-5]

4. Discussion

Given a need "to dramatically accelerate" efforts to address climate change impacts on mental health (Corvalan et al 2022: 8), the ability to identify policy capacities and capacity gaps, is paramount. In our case study, although there is room for improvement, commitments to research, knowledge generation, education and training through a variety of work programmes and key institutions, serve to bolster *analytical capacity*. Moreover, public belief in the importance of addressing mental health and climate change, and the strong (at least historically) support for the NHS, underpins *political capacity* to some extent. However, the political difficulties of shifting to a more public health model, with the many socio-economic factors influencing public health, along with the complexity of climate adaptation responses, make translating this general political capacity into effective action difficult. Despite general public support for addressing mental health problems, the advocacy power of those particularly vulnerable is low. And while the efforts of policy champions are increasing the legitimation of the issue, some discernible gaps remain.

At the heart of the problem, we observe how adaptation efforts are hindered by significant weaknesses in systemic *operational capacity*. Two particular capacity gaps appear well-entrenched. First, the diversity of initiatives, policy areas, actors - and their complex histories, interests and aims - make coordinated action particularly complicated and resource-intensive. Stronger policy alignment requires considerable work. This is exacerbated by a second operational capacity gap: the strains and weaknesses already present, particularly within the health care system. Indeed, adaptive responses are sometimes expected to be done 'in addition to' existing work with no additional resource for a system already stretched beyond capacity. Both operational capacity gaps are significant: healthy governance and collaboration between sectors and actors, and appropriate resources of various sorts, are crucial factors in enabling adaptation efforts (Hayes et al 2019; Corvalan et al 2022).

It is important to examine the "dynamics and feedback loops between operational, political, and analytical policy capacity" (Tenbensel and Silwal 2022: 1), and the presence of 'virtuous' (or conversely 'vicious') circles as one type of policy capacity enhances or diminishes the others. Understanding such dynamics is crucial for informing strategies for bolstering or dissolving (un)desirable feedbacks. While climate change is itself a risk amplifier (Lawrance et al 2022), adaptive responses both reflect and reinforce prior capacities and incapacities. In this regard, we observe several key interactions. First, analytical and political capacities can be mutually supportive. For instance, the same organisations (e.g. Royal College of Psychiatrists) can both produce analytical resources and act as advocates. More generally,

analytical capacity plays an important role in garnering political resources and raising the political profile of the issue. Likewise, political capacity can steer efforts to bolster analytical capacity. This is evident in the efforts to understand and include mental health impacts of flooding within FCERM, which has filtered into the operational arrangements for administering funding. As political capacity is enhanced through opportunities to respond to 'catalyst' climate change impacts, analytical capacity in understanding those impacts and informing potential responses can be deployed at opportune moments. This dynamic further strengthens analytical capacity, and can enhance operational capacity in the form of resources.

Second, however, we observe how analytical capacity can be hindered by lack of political capacity. For instance, despite growing awareness of the mental health impacts of climate change and value of alternative forms of preventative care, this has yet to be mainstreamed in the health sector and comes into conflict with other political priorities. While there is no shortage of ideas around climate change and mental health, these run into established norms about what constitutes acceptable evidence, with consequent prioritising of certain types of responses both politically and operationally.

Third, adaptation efforts can be constrained by the intersection between political and operational capacity. Efforts to strengthen alignment across policy areas are challenged by their siloed histories. A lack of political capacity to overcome fragmentation, and to fully resource and respond to the needs of an over-stretched health sector, reinforces operational incapacity and makes it even harder to respond adequately to the additional burdens created by climate change. For example, a reliance on committed 'champions' to lead policy and programmes can lead to vulnerability of systems and resourcing. The less-than-robust operational capacity this implies also indicates gaps in political capacity.

Fourth, attempts to overcome fragmentation may be evident in efforts to build analytical capacity, but constrained through imbalances in political capacity: see a degree of reluctance by some actors to adopt joint responsibility for adaptation actions, or to readiness to shift responsibility to other actors. The presence of these additional ideas and agendas put further strain on operational capacity.

5. Conclusions and Policy Recommendations

This article provides an empirical case study to support emerging interest in mental health and climate change. It further demonstrates the analytical value and applicability of the policy capacity framework for understanding current adaptation gaps at the systemic scale. A strength of the framework is its attention to different dimensions of policy capacity and explicit consideration of the political aspects of climate adaptation actions. In the case of England, we propose several policy recommendations which may help close the adaptation gap. First, there is a need to build on current strengths in analytical capacity to raise the political profile of mental health and climate change; in turn, this can secure further resources to strengthen operational capacity. Second, while it may be difficult to boost political capacity directly, it is important to strengthen the advocacy power of those particularly vulnerable to ensure socially just adaptation. Third, clearer oversight of adaptive responses are needed, including power to resolve differing interests and manage

responsibility shifting. This could come through stronger leadership at the national scale, and through Integrated Care Systems at the local scale. Fourth, mental health must be resourced for the scale of the challenges: not simply funding, but also structures such as teams and processes that reduce reliance on champions, and direct funding towards integrated solutions that maximise gains.

For future research, there is considerable scope for comparative analysis across other countries and governance settings. Systemic-level analysis can guide detailed case research into specific dimensions of policy capacity, such as where weaknesses appear to be present, or towards organisational and individual levels. Similarly, policy capacity analysis of specific interventions (e.g. green social prescribing programmes), organisations, or cases of how policy or guidance was implemented (e.g. on flooding and mental health) at national or sub-national levels may prove fruitful. Further, while this article has discussed several types of mental health problems, anxiety was a strong theme. This aligns with Pirkle et al's (2022) analysis of UK Parliamentary speeches, which found anxiety has been far more commonly mentioned than, for example, grief and PTSD. It would be useful to further investigate reasons for different responses to different types of mental health problems. This would enhance understanding of dynamics and feedback loops between policy capacities, and inform recommendations for enhancing capacities in varied contexts, as well as design and implementation of interventions. Closing this particular adaptation gap demands commitment to bolster all facets of policy capacity, within the health sector and beyond.

Acknowledgements

Author contributions
JT led the conceptual framing, literature review and writing of the article. MA led the data collection and analysis, and contributed to the article writing.

Declaration of interest statement
The authors report there are no competing interests to declare.

References
Adger, W.N., 2010. Climate Change, Human Well-Being and Insecurity. *New Political Economy*, 15(2): 275-292

Adger, W.N., 2016. Editorial: Place, well-being, and fairness shape priorities for adaptation to climate change. *Global Environmental Change*, 38: A1-A3

Ali, S., Williams, O., Chang, O., Shidhaye, R., Hunter, E., Charlson, F. (2020) Mental health in the Pacific: Urgency and opportunity. Asia Pacific Viewpoint 61(3), 537-550

Austin, S. E., Ford, J.D., Berrang-Ford, L., Biesbroek, R., Ross, N.A. (2019) Enabling local public health adaptation to climate change. *Social Science & Medicine*, 220, 236-244

Baker, C. (2020) *Mental health statistics for England: prevalence, services and funding*. House of Commons Library, Briefing Paper Number 6988, 23 January 2020

Bali, A.S., Ramesh, M. (2021) Governing healthcare in India: A policy capacity perspective. *International Journal of Administrative Sciences* 87(2), pp. 275-93

Beemer, C.J., Stearns-Yoder, K.A., Schuldt, S.J., Kinney, K.A., Lowry, C.A., Postolache, T.T., Brenner, L.A., Hoisington, A.J. (2021) A brief review on the mental health for select elements of the built environment. *Indoor and Built Environment* 30(2), 152–165

Berrang-Ford, L. et al. (2021) Systematic mapping of global research on climate and health: a machine learning review. *The Lancet Planetary Health*, 5, e514–e525

Betts, R.A., Haward, A.B., Pearson, K.V. (eds) (2021) *The Third UK Climate Change Risk Assessment Technical Report*. Prepared for the Climate Change Committee, London

Capano, G., Howlett, M. (2020). The knowns and unknowns of policy instrument analysis: Policy tools and the current research agenda on policy mixes. *SAGE Open*, 10 (Jan-Mar 2020) https://doi. org/10.1177/2158244019900568

Capano, G., Howlett, M., Jarvis, D. S. L., Ramesh, M., Goyal, N. (2020). Mobilizing policy (in)capacity to fight COVID-19: Understanding variations in state responses. *Policy & Society*, 39(3), 285–308

Capano, G., Lippi, A. (2021) Decentralization, policy capacities, and varieties of first health response to the COVID-19 outbreak: evidence from three regions in Italy, *Journal of European Public Policy*, 28:8, 1197-1218

Clayton, S., Manning, C. M., Krygsman, K., Speiser, M. (2017) *Mental Health and Our Changing Climate: Impacts, Implications, and Guidance*. Washington, D.C.: American Psychological Association, and ecoAmerica

Corvalan, C., Gray, B., Villalobos Prats, E., Sena, A., Hanna, F., Campbell-Lendrum, D. (2022) Mental health and the global climate crisis. *Epidemiology and Psychiatric Sciences* 31, e86, 1–10. https://doi.org/10.1017/S2045796022000361

Defra [Department for Environment, Food and Rural Affairs] (2014) *The National Flood Emergency Framework for England*

Defra [Department for Environment, Food and Rural Affairs] (2019) *Measuring environmental change: outcome indicator framework for the 25 Year Environment Plan.*

Denis, J-L., Usher, S., Préval, J. (2022) Health reforms and policy capacity: the Canadian experience. *Policy and Society. DOI: https://doi.org/10.1093/polsoc/puac010*

Dickinson, H., Smith, C., Carey, N., Carey, G. (2022) "We're Still Struggling a Bit to Actually Figure Out What That Means for Government": An Exploration of the Policy Capacity Required to Oversee Robot Technologies in Australia and New Zealand Care Services. *International Journal of Environmental Research and Public Health*, 19, 4696

Evans-Lacko, S. et al (2014) Effect of the Time to Change anti-stigma campaign on trends in mental-illness-related public stigma among the English population in 2003–13: an analysis of survey data. *Lancet Psychiatry* 1, 121–28

Hayes, K., Poland, B. (2018) Addressing Mental Health in a Changing Climate: Incorporating Mental Health Indicators into Climate Change and Health Vulnerability and Adaptation Assessments. *International Journal of Environmental Research and Public Health*, 15, 1806

Hayes, K., Blashki, G., Wiseman, J., Burke, S., Reifels, L. (2018) Climate change and mental health: risks, impacts and priority actions*. International Journal of Mental Health Systems*, 12: 28.

Hayes, K., Berry, P. Ebi, K.L. (2019) Factors Influencing the Mental Health Consequences of Climate Change in Canada. *International Journal of Environmental Research and Public Health*, 16, 1583

HM Government (2023a) *Environmental Improvement Plan 2023*. First revision of the 25 Year Environment Plan

HM Government (2023b) *The Third National Adaptation Programme (NAP3) and the Fourth Strategy for Climate Adaptation Reporting*. House of Commons HC1649, 18 July 2023

Howlett, M., Ramesh, M. (2016) Achilles' heels of governance: Critical capacity deficits and their role in governance failures. *Regulation and Governance* 10, 301-313

Howlett, M., Mukherjee, I., Fritzen, S.A. (2019) Challenges associated with implementing climate adaptation policy. In: Keskitalo, E.C.H., Preston, B.L. [eds] *Research Handbook on Climate Change Adaptation Policy*. Edward Elgar. Chapter 2, pp. 50-68

Hughes, A., Gleeson, D., Legge, D., Lin, V. (2015) Governance and policy capacity in health development and implementation in Australia. *Policy and Society* 34, 229-245

Husain, L., Bloom, G., Xiao, Y. (2021) Building policy capacity for managing rapid, complex change in China's health system. *Policy and Society*. https://doi.org/10.1080/14494035.2021.1933336

IPCC (2022) *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp

James L.E., Welton-Mitchell, C., Noel, J.R., James, A.S. (2020) Integrating mental health and disaster preparedness in intervention: a randomized controlled trial with earthquake and flood-affected communities in Haiti. *Psychological Medicine* 50, 342–352.

Lawrance, E.L., Thompson, R., Newberry Le Vay, J., Page, L., Jennings, N. (2022) The Impact of Climate Change on Mental Health and Emotional Wellbeing: A Narrative Review of Current Evidence, and its Implications. *International Review of Psychiatry* 34:5, 443-498, DOI: 10.1080/09540261.2022.2128725

MHCLG [Ministry of Housing, Communities and Local Government] (2021) *National Planning Policy Framework*

Menne, B., Murray V. [eds] (2013) *Floods in the WHO European Region: health effects and their prevention.* WHO Europe & Public Health England

Morris, J. et al (2023) *Public satisfaction with the NHS and social care in 2022: Results from the British Social Attitudes survey.* The King's Fund and Nuffield Trust

NHS (2019) *NHS Mental Health Implementation Plan 2019/20 – 2023/24.* NHS England and NHS Improvement

NHS (2021) *Third Health and Care Adaptation Report.* NHS and UK Health Security Agency. December

NHS (2022) *Delivering a 'Net Zero' National Health Service.* NHS England and NHS Improvement, London

Orru, K., Tillmann, M., Ebi, K.L., Orru, H. (2018) Making administrative systems adaptive to emerging climate change-related health effects: Case of Estonia. *Atmosphere*, 9, 221

Palinkas, L.A., O'Donnell, M.L., Lau, W., Wong, M. (2020) Strategies for Delivering Mental Health Services in Response to Global Climate Change: A Narrative Review. *International Journal of Environmental Research and Public Health* 17, 8562

Pirkle, L.T., Jennings, N., Vercammen, A., Lawrance, E.L. (2022) Current understanding of the impact of climate change on mental health within UK parliament. *Front. Public Health* 10:913857.doi: 10.3389/fpubh.2022.913857

Pouso, S., Borja, A., Fleming, L.E., Gómez-Baggethun, E., White, M.P., Uyarra, M.C. (2021) Contact with blue-green spaces during the COVID-19 pandemic lockdown beneficial for mental health. *Science of The Total Environment* 756: 143984

Rahman, M., Wellstead, A., Howlett, M. (2019) From adaptive capacity to policy capacity adaptation assessments: insights from the policy sciences. In: Keskitalo, E.C.H., Preston, B.L. [eds] *Research Handbook on Climate Change Adaptation Policy*. Edward Elgar. Chapter 14, pp. 291-309

Romanello, M. et al. (2021) The 2021 report of the *Lancet* Countdown on health and climate change: code red for a healthy future. *Lancet* 398, 1619–62 https://doi.org/10.1016/S0140-6736(21)01787-6

Shuttleworth, K., Nicholson, E. (2020) *Devolution and the NHS.* Institute for Government Explainer: https://www.instituteforgovernment.org.uk/explainer/devolution-and-nhs

Tenbensel, T., Silwal, P.R. (2022) Cultivating health policy capacity through network governance in New Zealand: learning from divergent stories of policy implementation. *Policy and Society. DOI: https://doi.org/10.1093/polsoc/puab020*

UKHSA [UK Health Security Agency] (2022) *Flooding and health: assessment and management of public mental health.* https://www.gov.uk/government/publications/flooding-and-public-mental-health-assessment-and-management/flooding-and-health-assessment-and-management-of-public-mental-health

UKHSA [UK Health Security Agency] (2023) *Adverse Weather and Health Plan Protecting health from weather related harm 2023-2024 + Supporting Evidence*

UNEP [United Nations Environment Programme] (2023) *Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed. Adaptation Gap Report 2023*. United Nations Environment Programme, Nairobi, Kenya

Viavattene, C., Priest, S. (2020) *A method for monetising the mental health costs of flooding.* Environment Agency. Project SC150007

Waite, T.D., Chaintarli, K., Beck, C.R., Bone, A., Amlôt, R., Kovats, S., Reacher, M., Armstrong, B., Leonardi, G., Rubin, G.J., Oliver, I. (2017) The English national cohort study of flooding and health: cross-sectional analysis of mental health outcomes at year one. *BMC Public Health* 17: 129

WHO [World Health Organization] (2015) *Operational framework for building climate resilient health systems*. Geneva: WHO

WHO [World Health Organization] (2022) *World mental health report: transforming mental health for all.* Geneva: WHO

Workman, A., Blashki, G., Bowen, K.J., Karoly, D.J., Wiseman, J. (2018) The Political Economy of Health Co-Benefits: Embedding Health in the Climate Change Agenda. *Int. J. Environ. Res. Public Health*, 15, 674; doi:10.3390/ijerph15040674

Wu, X., Ramesh, M., Howlett, M. (2015) Policy capacity: A conceptual framework for understanding policy competences and capabilities. *Policy and Society*, 34:3-4, 165-171

Table 1: Systemic-level characteristics of different dimensions of policy capacity for responding to the mental health impacts of climate change

Systemic-level Competences	Characteristics
Analytical	- A range of accessible and useful institutions and resources for system-wide data collection and sharing; creating and mobilising ideas, expertise on policies, their design and selection, and support (e.g. advisory and training bodies) - Flexibility in what analytical expertise is required, and when - Good general level of skills, education and training in mental health and climate change – the problems, causes, impacts - and of policies to address risks
Operational	- Clear and effective engagement between actors (e.g. coordination across health sector and beyond) - Clarity in the roles and responsibilities of different organizations in policy design and implementation - High level of interorganizational trust to complete actual operational processes - Adequate resources to fund policy design and implementation
Political	- Mental health and climate change as a priority in public or other wider support – presence of policy and powerful champions - Clear and effective ways of involving a variety of voices, and ability to challenge established interests and ideas - Action enabled through adequate resourcing - High level of public trust in actors to carry out actions - Key actors have political capital to canvass support, build coalitions, overcome opposition, navigate political and legislative processes and exploit opportunities

Table 2: Anonymised summary of interviews [NE = Natural Environment; TSO = Third Sector Organisation; NDPB = Non-Departmental Public Body]

Interview ID	Policy area	Type of interview
1	Health	Academic expert
2	Health	NHS Trust
3	Health	NHS Leadership
4	Health	Medical Practitioner/Professional body
5	Health	Medical Practitioner/Professional body
6	Health	Medical Practitioner /Professional body
7	Health	TSO
8	Health / NE	Medical Practitioner/Partnership organisation
9	Cross-sector	Advisory body
10	FCERM	Consultant expert
11	FCERM	Academic expert
12	FCERM	TSO
13	FCERM	National government department
14	FCERM	Academic expert
15	FCERM	National government department
16	FCERM	Academic expert
17	FCERM	National government department
18	FCERM	Partnership organisation
19	FCERM	NDPB
20	NE	NDPB
21	NE	TSO
22	NE	National government department
23	NE	Representation organisation
24	NE	TSO
25	NE	TSO
26	NE	TSO
27	NE	Academic expert
28	NE	Academic expert
29	NE	NDPB
30	Cross-sector	Consultant expert