Narratives of recovery after floods: Mental health, institutions, and intervention

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Abstract
There is increasing evidence that flood events affect the mental health and well-being of those experiencing them, with recognition that the period of recovery after the event is particularly important to outcomes. Previous research on flooding has argued that there is a recovery gap that occurs during the aftermath of events at the point when the support provision from public authorities and agencies diminishes, and the less well-defined services provided by the private sector, such as insurers, begins. This concept highlights the importance of the support and intervention from authorities and other institutions for recovery processes. To date, little research has focused specifically on temporal dynamics and their consequences for people's wellbeing through recovery. This study examines the processes of individuals' recovery from flood events, focusing on the role of interaction with agencies in the trajectories of health and wellbeing outcomes. It uses an intensive longitudinal approach to examine individuals' well-being through the 'recovery' period, focusing on the evolution of the effects on mental health and the role of institutional action post-flooding. The analysis applies a narrative approach to in-depth repeated interviews carried out over a fifteen-month period with nine individuals whose homes were inundated by floods in south west England in 2013/14. The results suggest strong evidence for institutional support having an important role in how individuals narrate their post-flood mental health recovery journeys. The data reveal strategies to maintain resilience at distinct periods during recovery, and that both institutional actions and the perceived absence of support in specific circumstances affect the mental health burden of flood events.

Keywords

Floods, well-being, narrative approaches, climate change, social networks

1. Introduction

The mental health impacts of extreme weather events are well recognized and are of increasing concern given projected increases in such events with a changing global climate (Haines et al., 2006; Intergovernmental Panel on Climate Change, IPCC, 2014; UK Climate Change Risk Assessment, 2017). While mortality risks from weather related extreme events are stark, in many circumstances the most pervasive health impacts are related to psychological well-being. Evidence for flood impacts, in particular, show a widespread effect on all aspects of individuals' lives and mental health both in the short and long term (e.g. Tunstall et al., 2006; Fernandez et al., 2015). Effects such as psychological morbidity, whereby a person's physical and mental health deteriorates as a result of a psychological condition or trauma, have been repeatedly observed after flood events (Paranjothy et al., 2011; Waite et al., 2017). Many other impacts, such as emotional distress, have also been shown to be prevalent but are often less easily identifiable with conventional psychological measures meaning much goes unreported (Walker-Springett et al., 2017).

Several studies have highlighted that mental health impacts of floods, such as stress and anxiety, arise not only in the duration of the flood but in the longer recovery period (Whittle et al., 2010; Fernandez et al. 2015; Waite et al., 2017). For example, mental health impacts were still observed two years after Hurricane Katrina in New Orleans (Kessler et al., 2008), four years after a major flood in Banbury, UK (Tapsell and Tunstall, 2008), and one and half years following prolonged flooding in Somerset, UK (Walker-Springett et al., 2017). Other studies have shown how the sources of mental health impacts change over time, shifting from concerns about flood waters or being evacuated, to issues of coping with the return to normality amidst the chaos of rebuilding homes (Tempest et al. 2017). Research further shows that different groups have diverse experiences that trigger or affect trauma. For example, elderly populations can have life experience and financial capital that inoculates against some effects, while children have been shown to reflect on traumatic flood experiences in distinctive ways (Norris and Murrell, 2008; Walker et al. 2012; Mort et al. 2018).

The importance of interventions by public agencies and institutions for recovery processes have been highlighted by several studies (e.g. Walker-Springett et al. 2017; Medd et al. 2015). In this context, it has been suggested that a recovery gap, with negative implications for mental health, arises when support from authorities is reduced or withdrawn after an initial period of response (Medd et al., 2015). The institutional challenge is to provide appropriate support for a sufficient period, while also recognizing the specificities of need associated with different people, places, and flood events. However, it has further been shown that it is not just the presence or level of institutional support that affects recovery. Rather, the perceived performance of institutions, perceptions of their fairness in distributing assistance, and the support of agencies for community-led processes, also affect the overall outcome of recovery (Bubeck et al., 2012; Adger et al., 2016; Babcicky and Seebauer 2017).

Throughout the evidence on post-flood recovery, then, there are commonalities that point to the significance of mental health impacts over the long term, and the importance of support from or perceptions of institutions and authorities. There is very little research, however, that has focused specifically on the relationships between agencies and affected publics, and their consequences for people's wellbeing over time. Similarly, the evidence on detailed insight into diverse forms of experience has been assessed as limited, particularly in the context of new person-centred approaches in public health (Fernandez et al., 2015).

This study focuses analysis on the long-term recovery process, specifically related to mental health and institutional responses. It uses qualitative longitudinal data collected with members of the public flooded during the 2013/14 winter floods in Somerset to trace the evolution of mental health throughout the recovery period. The research provides important and novel insights into the dynamics of recovery in post-disaster contexts. Centrally, we argue that multiple different forms of institutional support, intervention, and interaction (far beyond those specifically targeted at mental health or individuals) have important implications for mental health, and that it is not simply a lack of support from authorities that can have negative impacts, but also the form that interventions take.

2. Research Methods and Analysis
Context and design
In the winter of 2013/14, the UK experienced a prolonged wet and stormy winter, resulting in widespread flooding. One of the worst affected areas was Somerset in South West England, which experienced severe prolonged flooding with approximately 280 homes and 65 km^2 of agricultural land being inundated for a period of twelve weeks or more (Environment Agency, 2015). Major land and river management works were undertaken by government authorities, including river dredging and raising roads, as well as the provision of community mental health services, and support for liaison between affected communities and emergency agencies.

To examine the dynamics of the recovery process, the research used an intensive longitudinal design (Saldaña 2003) working in Somerset over a fifteen-month period following the floods. Intensive approaches have precedent in qualitative longitudinal studies (see for example Butler et al., 2014) and retain many of the advantages of more extensive longitudinal studies, for example, providing understanding of perceived changes by individuals. The study collected data using semi-structured qualitative interviews with residents and institutional actors, starting six months after the floods waters receded (September-October 2014) and repeating interviews twelve to fourteen months after (April-May 2015). The temporal period post flood has been highlighted in other longitudinal analyses as a time during which much change occurs (e.g. Medd et al., 2015). As such, the focus of the research on the fifteen-month

period following the floods gave a degree of insight important for advancing understanding of response processes and impacts on wellbeing.

Methodological approach
Qualitative research provides a depth of understanding not achievable with quantitative methods, and longitudinal narrative approaches, in particular, offer potential for accumulation of data that arguably provides a more substantial base for understanding a person's life and the changes over time than a one-off approach (Thomson and Holland 2003). The layering of information gives scope to analyze the data from individual participants to see how personal trajectories shed light on *processes* of change, which otherwise might be difficult to capture. Using interpretive narrative analysis (Reissman 2001, Linde 1993), we tracked changes in the ways that the flood event affected participants' mental health, paying particular attention to the interactions with communities and institutions, both public and private. In this way, we were able to examine the temporality of mental health impacts and their evolution against a backdrop of the established protocols enacted by government institutions in response to flood events.

Data collection, participant recruitment, and ethics
Recruitment of participants was initiated though the delivery of information packs to a random selection of households across differently flood-affected villages within the Somerset area. Participants were self-selected: they expressed interest after initial information dissemination by contacting the research team. In order to capture the range of experiences resulting from the flood, recruitment continued until we had participants who had been affected in different ways. For example, those who had been directly flooded (i.e. with water entering their homes, land or business) and those who had been indirectly affected (e.g. having difficulties getting to work). For the purposes of this paper we focus on those that were flooded within their homes to give insights relevant to this particular group.

The interviews explored views on community; individuals' experiences of the flood and the time afterwards; their perceptions of the response including both formal services and community responses; their wellbeing and feelings about the flood event; and their expectations for the future. The research was subject to ethical review by the University of Exeter ethics committee and ethical challenges concerning, for example, the burden of trauma on participants was considered by the research team throughout the research process. To address such concerns, interview protocols allowed the participant control in the direction of the conversation, and researchers assessed the emotional state of the participant during the interviews, in some cases adapting the protocol to prevent undue emotional trauma. Several participants described the interviews as a cathartic and positive experience.

Socio-demographic data collected from the qualitative interview participants shows that gender was approximately even across the sample. Two thirds of the sample

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were aged 64 or over, and most owned or privately rented their homes. Recordings were transcribed, and the data made anonymous such that the participants could not be identified from the transcripts.

Analysis

For this paper, transcripts from individual participants were analysed as complete narratives, looking across the two transcripts and tracing the changes and experiences relevant to each person. Computer Aided Qualitative Data Analysis Software (NVivo) was utilized to code key pieces of data to exemplify issues, but whole person narratives summarizing their experience were also crafted by the researchers. In the following, we offer condensed summaries to give a flavor of each participant's experience before presenting a thematic analysis derived from looking across all of the participants' accounts for commonalities in the issues that affected their mental health. Participant names are pseudonyms.

Participant Narratives

<u>Linda</u>

Linda had moved to the house in which she is currently living 15 years ago, primarily because there was enough space for her, her husband, her mother (who suffers with dementia), and their animals. The house was flooded in December 2013 and Linda and her family moved out temporarily. In the first interview, the impact of the floods on Linda's mental health focused on the stress and anxiety of re-homing livestock, finding suitable accommodation for her family and pets, and the consequences of long-term evacuation from her home. At the time of the second interview, Linda was back in her house, albeit in the annex with repairs continuing in the upstairs of the main house, liaising with builders and insurers involved in the repairs to her home was a cause of continued stress. Linda speaks about being less concerned about the prospect of future floods because of the flood defense work that has been done in the area, and because of the community flood plan that she is helping to write.

<u>Nigel and Deborah</u>

Nigel and Deborah have been living in their home for over 28 years, moving originally for Nigel's job and in the first interview described their community as "excellent", with lots of opportunities to interact with their friends and neighbours. During the flooding, Nigel and Deborah were evacuated from their home, being compelled by emergency services to leave quickly given fears about loss of life. They described the evacuation procedures as fueling their anxiety about the flooding and adding to the stress of the situation. In the first interview, when they were still out of their home, there was frustration at being away from their possessions and not having items to hand as needed. In the second interview, Nigel and Deborah are back in their own home and most of the major repair work has been finished. However, there is some snagging left to deal with, and they continue to be frustrated at how the rebuilding work was conducted. In the second interview having recently returned

from a holiday, they mention "feeling refreshed" and "being able to catch up on sleep" as highlights of their time away.

Mark
Mark and his wife have lived in their home for more than 25 years, and they had never flooded. During the flooding of 2013/14 they did not evacuate despite having water downstairs in their house; they chose to live upstairs. In the first interview, Mark mentions the community spirit and the increase in social invites he received during the flooding. In the second interview, he comments on the community, talking about the bond that has been formed as a consequence of the floods. By the time of the second interview, the rebuilding work is almost complete. Mark mentions the need to 'relearn the geography of his house' after all the rebuilding works. He speaks about the newly built bund which he is very confident will protect them in the event of another flood, and he also used government grant funding that was available to improve his pumping system. Despite this Mark still mentions feeling concerned during periods of heavy rain the winter after the floods.

John and Nikki
John and Nikki and their two children had been in their house less than 2 months when they were flooded, despite being new to the area they had lots of help from the community. The downstairs of the house flooded but they had time before the flood waters entered to move furniture and personal items upstairs. The flooding caused extensive damage to the house, particularly because the receding floodwaters left mud in the house that was perceived to be contaminated and led to the family self-evacuating to nearby rental properties. In the first interview, John and Nikki mention the stress caused by the flooding and reflect on the effects it might have had on their children but maintain a positive outlook. By the second interview, John reports that life is returning to normal for the family despite on-going building work and disputes with insurers. He explains that members of the community who had evacuated and disappeared are back and that they are getting involved in 'normal' community activities. At the same time, he reflects on how the flood enabled them to become part of the community much quicker than they might have otherwise expected.

Caroline
Caroline, a keen gardener, and her husband were evacuated from the home that they had lived in for 26 years. During the first interview Caroline and her husband were still out of their home and the interview begins with Caroline announcing that for them "2014 is going to be ignored because it was such a bad year". Their expectation was that the water would be in and out quickly, and would only be a few inches deep, but it soon became apparent that the flood event was going to last much longer. Caroline discusses high levels of stress, anxiety, and emotional distress caused by both the flooding and the experience of enforced evacuation. She became heavily involved in community support and coordination processes during the recovery period that she felt were lacking from institutions, and has concerns that, at a community

level, the flooding irrevocably fractured relationships. The second interview was much more positive than the first and sees Caroline back in her own home. Caroline recounts increased feelings of positivity across the community particularly because the 2014/15 winter was dry. On a personal level, the PTSD course that Caroline attended has contributed to her positive perspective on the future, as well as the village flood plan that Caroline is helping to write.

<u>Roger</u>
Roger had only just moved back into his house in Somerset after moving away to a different part of England, but the house had not flooded since Roger had originally bought it 25 years ago. Roger was able to evacuate to his previous home that he had not yet sold so reports less stress and anxiety related to being away from his possessions. However, he also discusses how he was under pressure because he had taken on the role of project manager to reduce the cost of the repairs to his home, which was exacerbated by not living locally during this time. At the time of the second interview, Roger was still not back in his home. His expectation was that it would be several more months before all the work was finished. In the second interview, he refers to the interview process as therapy – this time his partner is present, and they mention the mental health impacts of the floods on them. However, it is only in subsequent communications outside of the interview context that Roger opens up more fully about the severity of the mental health impacts he has experienced. Roger sought help from a GP but did not find this provided a route to the kind of support he needed. He explains he found it difficult to attribute his depression directly to the flooding so had not highlighted this in his consultation. He also talks about the changes that had occurred in the community, and the trust he places in the flood protection works undertaken in area.

<u>Herbert</u>
Herbert has lived in the area for over 20 years and plays a central role in his community. His home and business were first flooded in 2012. In 2013/14 his home and business flooded for a second time and he self-evacuated to his son's house who lives close by. During the first interview, Herbert reflects on the increased sense of community spirit during the flooding and recovery periods, of everyone "all being in it together", and this is continued during the second interview as well. Herbert also expresses the desire for that sense of community to continue long past the end of the recovery period. At the beginning of the second interview, Herbert starts by saying that he is 'full of resolve and resilience' and this is partially because of local flood resilience and resistance work being undertaken in his area.

3. Analysis: Mental health and flood recovery
The narratives from the nine participants who were flooded in their homes show strong evidence for the role of institutions in the mental health journeys that are recounted. The analysis discussed in this section documents the transitions that occur through the process of recovery and identifies opportunities for support, as well as

actions or inaction that impact participants' mental health and well-being. The discussion is concentrated around four themes: Theme 1 focuses on the ways that institutional response and action can have implications for mental health as much as inaction. Theme 2 discusses community-based responses, their limitations for supporting recovery and mental health, and the importance of institutional action. Theme 3 focuses on issues of identity as a factor in influencing recovery journeys and the potential for or limitations of institutional intervention. Finally, theme 4 examines the role of institutions in supporting positive perceptions of the future as an important aspect of recovery for longer term mental health.

Theme 1: Institutional actions and inactions
The recovery gap thesis suggests that after the emergency response phase, institutional support is reduced leaving residents less supported during the recovery period (Medd et al. 2015). However, from our participants' accounts of their experiences, it was evident that action, as well as inaction, on the part of institutions had important implications for individual recovery journeys.

A key example of the potentially negative impacts of institutional action from this research concerns evacuations undertaken by emergency services. In some cases, these processes had negative impacts on perceived well-being, related not to *what* was done but *how* the institutional intervention was undertaken. For instance, the types of information provided, and the particular form evacuation took had important implications for the effects of this process in terms of stress and anxiety.

Where residents had no pre-existing experience of their own and little information on which to base their actions, they were left unprepared for the realities of evacuation. This meant, for example, that some packed for days rather than the weeks and months that they would be out of their homes and were unaware of support that was available, such as evacuation centres, resulting in them feeling as though they had fallen 'out of the system' and been left to cope on their own.

"we took a suitcase of stuff each that he'd packed already, we just literally just left everything where it was because we didn't expect the water to come in and if it did come in, we expected it only to be a few inches deep . . . .we never got evacuated properly . . . if we'd gone to the evacuation centre, they were finding places for people to stay and things. **Caroline**

Evacuation therefore represents an example where institutional actions, as opposed to inaction, can be detrimental to peoples' recovery and particularly their mental health. Indeed, previous research has highlighted how evacuation can detrimental to mental health, leading to higher odds of anxiety and depression after normalizing for flood impact (Munro et al. 2017).

The ability of those evacuated to access support from their community as they become geographically dispersed, appears to be a further mechanism through which evacuation can be detrimental to mental health outcomes. Responses from the research participants suggest that those who were evacuated put significant effort and energy into maintaining levels of community connection to mitigate these negative implications. For example, Nigel and Deborah were integral to the formation of a Keep-In-Touch group to maintain contact with friends and neighbours that had also been evacuated. The research highlights that this could have been better supported and facilitated by relevant institutions.

Despite these examples of negative consequences for stress and anxiety from institutional actions, the research also found instances where actions enhanced mental health and facilitated other forms of support within communities. Local support workers in the form of village agents were one such example. This scheme involves community members acting in paid support roles and providing amongst other things a mechanism for information to be communicated between public institutions and residents. During the floods village agents working in the case site area were a positive mechanism, able to both signpost residents to resources, and alert agencies to those who had specific needs.

Overall, then, the research points to a need to be attentive to both the positive and negative implications that processes of institutional response can have for individuals' recovery. It highlights that it is not only *what* support and intervention authorities deliver but *how* such support is enacted that ultimately affects mental health outcomes for better or worse.

Theme 2: Limitations to community support in recovery processes
The role of community was highlighted as important across the accounts of those flooded. In particular, it was discussed as having had particular relevance for people's ability to cope with the event. The community provided residents with support, both emotionally through the recounting of shared experiences, and practically, for example, through offers of dinner to those whose homes had flooded. Often the single positive aspect recalled from the flood event was the community spirit as indicated in Herbert's narrative above.

John and Nikki, householders that were relatively new to the area, discuss how the floods helped them get to know their neighbours. They explained how despite being new to the area they had lots of help from the community, including things like advice on where to move their car, organising temporary accommodation for them, and providing transport during the flooding. Similarly, Mark comments that his friends and neighbours gave him *"breaks of comedy in the nightmare"*. What became clear from the research is that the community is able to provide support in ways that would be difficult for institutions to replicate.

Despite the clear relevance of community support for supporting and mitigating mental health impacts, however, the research highlights how it is not an answer in and of itself to issues surrounding recovery from flood events. Amid increasing interest in 'community resilience' as a solution to issues associated with recovery processes, it is important to be cognisant of the limitations. Not all communities have the capacity to respond in the ways evidenced in our research, which can be attributed to factors such as pre-existing networks and connections within the community, or the existence of skills and knowledge that give a community capacity to respond. Community support, whilst valuable, cannot replace institutional support, and by its very nature is not consistent across different geographical and temporal scales.

Across the participant narratives, accounts suggested a waning in the role of community over time. Participants describe how high levels of community engagement diminished as individuals began to look inwards and concentrate on rebuilding their homes and returning to normality. This is indicative of a limit to community support, articulated by Roger who speaks about the ephemeral nature of the connections forged between people during the floods.

"So, Guy and Evie and Sebastian and Emily are different sorts of people, different backgrounds, they're never going to be best buddies. During the floods they were good buddies because they had a shared problem, but once that had gone then they'll be moving apart again". **Roger**

Supporting these arguments further, we also found examples of community tensions that arose as a result of differing experiences during the floods and subsequent recovery periods, putting pressure on people's friendships with knock on effects for mental health.

"I know there are friendships that used to be really strong, where you've got people who have been either side of one of the many divides, either insured/not insured, flooded/not flooded and something has driven a wedge between them and they're not actually the best of friends anymore because they can't cope with the change in circumstances that they've had to suffer". **Caroline**

Such findings are suggestive of more corrosive implications for community dynamics in post-flood contexts and demonstrate how tensions within communities can exacerbate an already challenging situation with implications for mental health and well-being. These possibilities for negative impacts from community relations form an important consideration in understanding the limitations of community support as an antidote to institutional gaps.

Theme 3: Recovery, institutional responses, and identity
Where the recovery gap concept focused on the service delivery provided by public institutions, this research opens up further insight into issues related to varying access

and uptake of support services that are available. The analysis shows how existing support structures offered are often not accessed by those in acute need, particularly in the case of mental health issues. Participant narratives highlight how emotional resilience and mental health intersect with community and institutional support, and personal identity.

Identity was seen to play a role in how much support individuals accessed from and gave back to the community and institutions. While some found groups provided a sense of pride and self-esteem through membership and participation (Tajfel and Turner 1979), others, who described themselves as "self-sufficient", indicated their reticence in seeking help (Mark). This is demonstrated in the evacuation story of Linda, who described herself as 'self-reliant', and self-evacuated finding alternative accommodation in office premises. With no kitchen facilities and little space, and the need to care for an elderly parent, she suffered high levels of stress, anxiety, and lack of sleep, and yet did not feel that she needed help. Moreover, through informal communications with the research team, participants revealed the extent of their mental health trauma yet were reticent about seeking help, in part, because they perceived themselves to be self-reliant.

"We're not that type of [people that ask for support] . . . there are people with post-traumatic stress, there are people who have a reactive depression. I'm lucky in a way, [my husband] was in intensive care a couple of years ago and that was awful, this is okay, it's a house, it will get put together again and you've got to be fairly philosophical about that." **Linda**

Personal and community identities are challenged by the disruption to daily lives that the floods presented, but also show adaptation and ongoing work to re-establish a sense of self (cf Tuohy and Stevens, 2012).

"Local communities have shown that they can, not quite look after themselves but they can do a great deal for themselves" **Roger**

I firmly believe that the best person to help you is yourself and your neighbours and your community and by helping each other, we do help ourselves, it makes me feel better to feel that we have got a plan, being a helpless victim, just makes it worse, it disempowers you from being able to do anything and you then become more stressed and more dismal than ever. It's bad enough being flooded but to be a helpless victim makes it 100 times worse". **Caroline**

One the one hand, the research suggests that enabling individuals and communities to take action and be able to support themselves in times of crisis can act to increase resilience, alleviate some of the mental health burden, and potentially facilitate better outcomes. On the other hand, however, there are clear issues related to people being willing and able to access services and institutional support even where this is

available. This highlights a further set of complications in addressing issues associated with a 'recovery gap'.

Theme 4: Institutional support and perceptions of the future
Beyond the practical experience and emotional burden of recovery activities, the recovery period is not just a process of rebuilding homes, but of coming to terms with the prospect of future flood events and perceiving positive futures. This process of 'coming to terms' is one of utmost importance for longer term mental health and wellbeing. Participants articulated that their construction of perceived futures involves external input. In other words, the engagement of local authorities and a range of organizations affects perceptions of future risk. Participants articulated that recovery and re-building is not solely the responsibility of the householder, but, local and national institutions; for example, government authorities and agencies with respect to large scale flood defense works; insurers promoting repair of flooded properties with flood resistant options; and more locally, institutions promoting place attachment and enhancing perceptions of community through provision of community halls, support for local groups, and so forth.

In the first interviews, many of the participants were still undergoing the process of recovering materially from the flood events; completing their homes rebuild was the focus and there was little discussion about the future. In terms of day-to-day living, the reference point was the past and much effort was concentrated on returning to their pre-flood lives. As an example, Caroline recounted that a significant birthday that occurred during the period that she was evacuated was not celebrated, and several participants talk about the period during the floods and the subsequent recovery period as 'missing time', or 'a lost year', and of 'lives being put on hold', as if there was no forward motion during that time frame and they were all trying to get back to the time before the floods occurred.

In her later interviews Caroline reflects on her experiences and explains how a support role she took on during the floods, in part, enabled her to shift her focus from the overwhelmingly negative experience of being flooded. In the second interview Caroline was able to see the floods in a more positive light, in terms of new opportunities stemming from her work and new role within the community.

Interviewer: *So it's been quite profound really, in some ways, the change …?*
Caroline: *For me, yes, personally it's been an enormous, in a funny sort of way, it's been a big development for me because I'm fast approaching retirement age and I could be thinking about pipe and slippers and world cruises but instead, I'm thinking about a whole new career.*

The data also show that institutional led resistance and resilience facilitated feelings of safety and security that allowed people to see a future living in the region distinct from the threat of more flooding. Participants spoke about feeling reassured with the

structural work being undertaken, for example dredging, but also new developments such as bunds, and raised roads.

"that, that [the dredging] will reduce the chance of flooding down to 5%, what it is at the moment. So that's really good news". **Nigel.**

"I mustn't forget, the Environment Agency and the Internal Drainage Board have been down here putting a bund in, absolutely fantastic job. I went down there and there was a feeling welling up, "Yes, this is going to work". Relief, yes, absolute relief" **Herbert**

"[the raised road], major pieces of work and our bund and the bund down there . . . I think this whole area will be actually enhanced by that flood, it will be a very good place to live. I don't think this place, unless something extraordinary happens, I don't think we'll get a flood into this property again." ***Mark***

The research also suggests that the type of support from institutions evolves over time. A transition can be seen from the emergency response of the immediate period following a flood event, where the emphasis is on risk to life, to different forms of support provided over the longer term, such as talking therapies and programmes for treating post-traumatic stress. These types of longer term response and support for mental health are important components of recovery and resilience, ensuring that areas at flood risk continue to thrive. The research provides evidence that support of this kind led or facilitated by institutions can be important for mental health over the longer-term. However, this type of support is not available in all post-flood contexts, and the issues associated with identity discussed above may also have implications for the success of this type of service.

4 Discussion and conclusion
The detrimental impacts to mental health from climate change are widely recognized (Fritze et al., 2008) and with flood events predicted to happen more frequently in the UK (UK Climate Change Risk Assessment, 2017), there is an imperative for action to improve experiences of recovery and to incorporate such impacts systematically in risk assessments of a changing climate (Berry et al., 2018). Given that political and financial constraints often mean that relocation is not an option, the importance of institutions finding ways to recognize and respond to long term impacts throughout the recovery period, particularly for mental health, is brought to the fore.

It is well established that flood recovery processes while difficult can be supported by both public and private institutions. Research has highlighted the importance of institutional support and the problems that withdrawal of such services can create after the initial response by authorities (Medd et al. 2015). Less attention has been given, however, to the specific impacts on mental health or to how interactions with authorities (and the lack thereof) are experienced over time after a flood. This

research highlights several key findings that contribute to better understanding of these issues within recovery processes. First, it is not only inaction but the particular nature of the *actions* of institutions that have important consequences for mental health. This is true of the initial response phase where there is a great deal of institutional support (for example through evacuation procedures), as well as later stages, where institutions begin to interact more with bottom up community responses.

Second, while community resilience can be better supported by institutions, it has limitations and some aspects of community relations can ultimately be detrimental to mental health. This means that community support processes alone are unlikely to be enough to fill any gaps in support that affect people's mental health. Third, the provision of support alone is not likely to be enough to address mental health issues arising after floods as self-identity, perceptions of stigma, and difficulties in processing the mental health impacts the flood has had, affect the extent to which people will seek help. This means that even where authorities and communities offer support, there are likely to be people who do not or are not able to seek out such services.

Fourth, and finally, the research shows how the indirect actions of authorities and institutions (i.e. those not pertaining to recovery or mental health *per se*) can have positive (or negative) implications for mental health. In this case, major developments in terms of flood defense and attenuation for the area had an important positive impact on people's ability to see a future for themselves and their area with knock on consequences for mental health over the longer term. We can infer that the lack of such intervention may have equally negative implications for people's mental health.

Taken together these findings point to a recovery process wherein the forms of institutional interaction change, rather than disappear, through different points in the post-flood period and the impacts on mental health can be both positive and negative. The interactions that people have with institutions both directly and indirectly, reinforce and indeed potentially change individuals' views about themselves and their ability to recover and hence affect their overall mental state and health. A specific time at which formal support from institutions ceased is not identifiable in the same way in this study as in previous work (e.g. Medd et al. 2015). Flood defense works continued for a considerable period after the waters receded and emergency services and engineering works on rivers and roads were present in the area for many months. Whilst this was not specific support for individuals, it contributed to restoring feelings of safety and security for many.

Institutional support for mental health and wellbeing at the individual level, household and community level also continued for a prolonged period after the initial flood, with specialized flood support and mental health workers being appointed, alongside community support. Additionally, while institutional interventions were

evident at multiple different points and in different guises throughout the post-flood period, not all of these interactions have positive implications for mental health. This highlights how it is not only the presence or absence of institutional support processes that makes a difference but the form they take that is important.

The study here has used a narrative approach to analyze the importance of institutional action and inaction for the evolution of mental health in the months following a traumatic flood event. The findings and conclusions have important implications for thinking about the enactment of responses to floods more widely. The research shows that visibility of institutions and interventions far beyond those specifically aimed at mental health (such as flood defence work) can contribute to reducing mental health impacts, and in the long term to helping residents re-imagine futures for themselves in areas with continuing flood risk. This means that further work to ensure interventions are visible to those affected are likely to improve mental health outcomes. Crucially, however, the research suggests that there is no straightforward solution to questions of a recovery gap since it is not only the presence or absence of support or services following floods that is important for mental health and recovery, but the nature of the interventions. This means that greater focus on how different processes are undertaken with far greater sensitivity to the longer-term consequences for recovery and mental health are likely to be needed.

5 References

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