

# The Psychological Climate

## Exploring the Impact of Climate Change on Mental Health

**Alvin Subakti** *Data Science (INF)*

**Chuzhou Shao** *Computational Mathematical Finance (MAT)*

**Xu Han** *International and European Politics (SPS)*

**Zihan Ma** *Service Management and Design (EFI)*



# Outline

1. Background
2. Data Exploration and Analysis
3. Policy Overview
4. Recommendations

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# Due to **climate change**, extreme weather events in UK, including **Scotland**, are **increasing in frequency**

Big storms like **Arwen** and **Babet** could pull up trees, causing power cuts, disrupting travel and more

Year	Event	Description	Impact
2015	Storm Desmond	Heavy rainfall and flooding particularly in southern Island	Significant flooding in Dumfries and Galloway, travel disruptions
2016	Storm Frank	Extreme rainfall causing river flooding	Major damage to homes and infrastructure, especially in Aberdeenshire
2018	Beast from the East	Severe cold wave with heavy snowfall	Schools closed, transport disrupted, emergency services stretched
2019	Flooding in Northeast Scotland	Heavy rainfall caused river overflow	Road submerged, homes flooded, evacuations in some areas
2020	Storm Ciara	Strong winds and heavy rainfall	Travel chaos, power outages, localized flooding
2020	Storm Dennis	Back-to-back with Ciara, causing prolonged flooding	Homes and businesses in the Scottish Borders impacted
2021	<b>Storm Arwen</b>	<b>High winds up to 100 mph</b>	<b>Extensive power outages, fallen trees, travel disruption</b>
2022	Heatwave	Record-breaking temperatures exceeding 35°C in some areas	Wildlife risk increased, infrastructure under stress
2023	<b>Storm Babet</b>	<b>Torrential rain and gale-force winds</b>	<b>Major flooding in Angus and Aberdeenshire, loss of life</b>
2024	Storm Isha	One of the most powerful storms recorded in Scotland	Wind speeds over 100 mph, power cuts, travel disruption

# The increase in extreme weather events in Scotland poses a **significant threat to mental health**<sup>3</sup>



Storm Babet in 2023

Image Source: TheScarboroNews

- Increase in extreme events causes **significant damage and displacement**<sup>1</sup>
- Annual rainfall patterns have shifted, leading to more frequent and intense **floodings event**<sup>2</sup>
- Persistent exposure to flood and storm:
  - increased levels of anxiety, depression, and post-traumatic stress disorder (PTSD)<sup>4,5</sup>
  - prolonged distress and uncertainty<sup>6</sup>

Source:

<sup>1</sup>Scottish Government (2023)

<sup>2</sup>Met Office (2022)

<sup>3</sup>Cruz, J., et al. (2020). *Effect of extreme weather events on mental health: a narrative synthesis and meta-analysis for the UK.*

<sup>4</sup>Tapsell & Tunstall (2008). *Flooding and Mental Health: A Review of Literature*

<sup>5</sup>UK Health Security Agency (2022)

<sup>6</sup>Scottish Action for Mental Health Report (2022)

While climate change can impact **multiple vulnerable groups**, much more work still need to be done

### Low-income groups

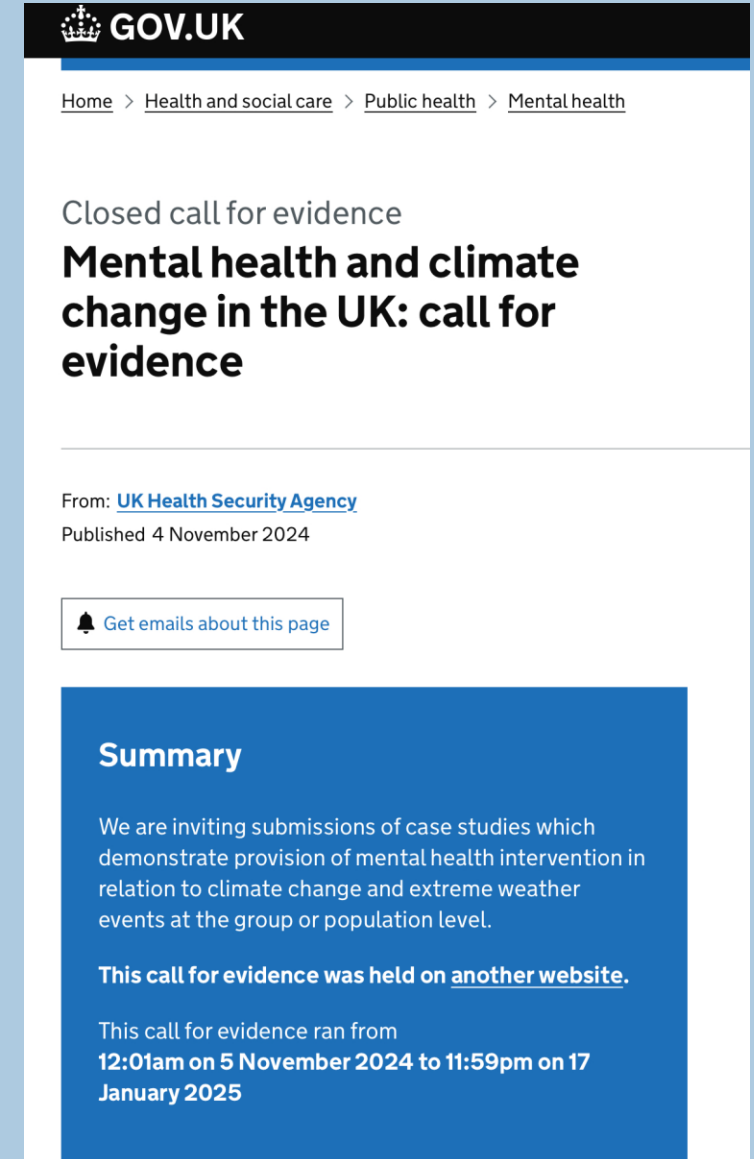
Financial burdens from property damage increase stress levels (Scottish Government, 2023).

### Elderly

More susceptible to mental health deterioration due to displacement and isolation (NHS Scotland, 2021).

### Young People

Rising climate anxiety is observed among Scottish youth, correlating with increased eco-anxiety (Hickman et al., 2021).



The screenshot shows a GOV.UK page with a black header containing the GOV.UK logo. Below the header is a breadcrumb trail: Home > Health and social care > Public health > Mental health. The main heading is 'Closed call for evidence' followed by 'Mental health and climate change in the UK: call for evidence'. Below this, it says 'From: UK Health Security Agency' and 'Published 4 November 2024'. There is a button that says 'Get emails about this page'. A blue box contains a 'Summary' section with the text: 'We are inviting submissions of case studies which demonstrate provision of mental health intervention in relation to climate change and extreme weather events at the group or population level.' It also states: 'This call for evidence was held on another website.' and 'This call for evidence ran from 12:01am on 5 November 2024 to 11:59pm on 17 January 2025'.

GOV.UK

Home > Health and social care > Public health > Mental health

Closed call for evidence

**Mental health and climate change in the UK: call for evidence**

From: [UK Health Security Agency](#)

Published 4 November 2024

[Get emails about this page](#)

**Summary**

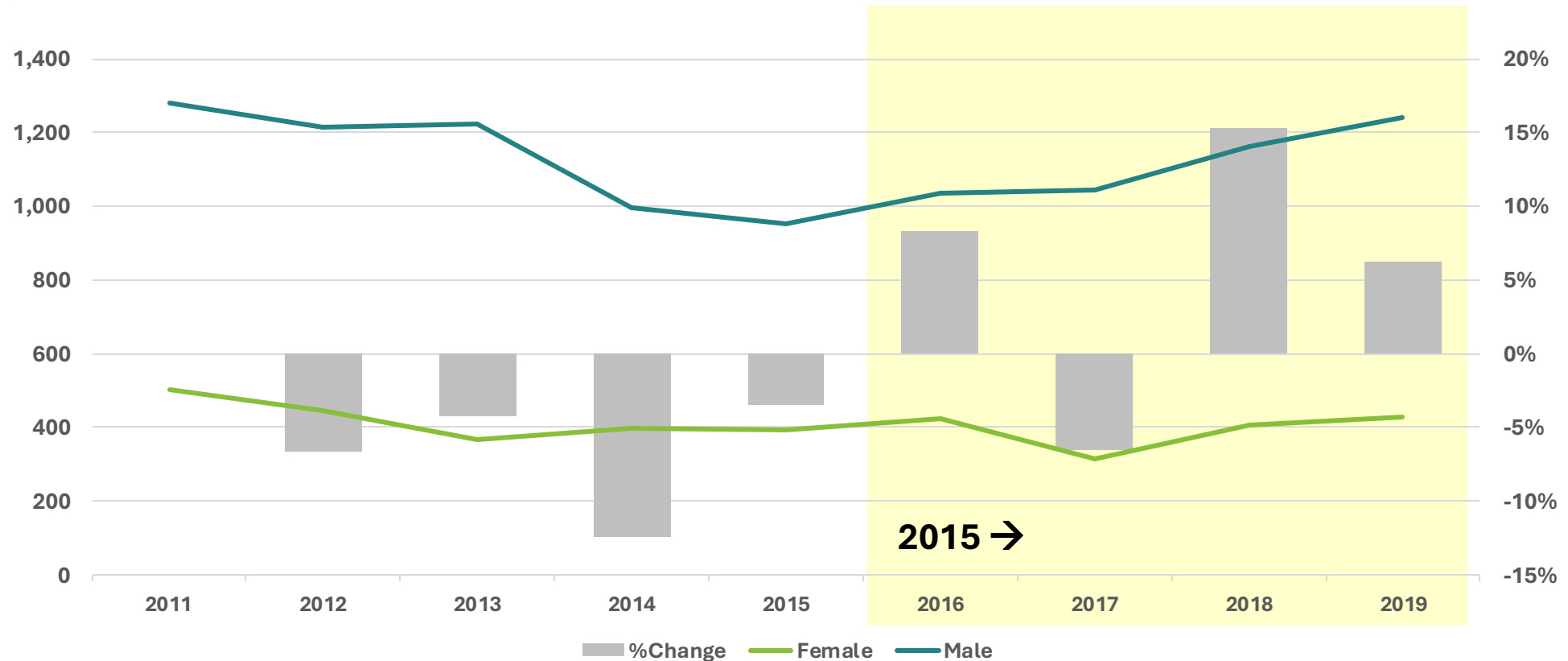
We are inviting submissions of case studies which demonstrate provision of mental health intervention in relation to climate change and extreme weather events at the group or population level.

**This call for evidence was held on another website.**

This call for evidence ran from  
**12:01am on 5 November 2024 to 11:59pm on 17 January 2025**

While the probable suicide trend has been **decreasing** until 2015, it has shown sign of **increasing** again

*Highlights the severity of this issue*



Yearly probable suicide case by gender, and overall %change YoY

Interestingly, while it is higher in some groups, all **age groups are at risk**

- Probable suicide rate of **productive age** is the highest than the rest of the group
- Probable suicide rate of **male** is higher (~2.1x) than female,



Probable suicide case/100k population (2011 – 2021)

Probable suicide Count and population demographics

Age Group	Suicide Case		Population	
	Female	Male	Female	Male
Age <25	390	684	725,379	748,353
Age 25-44	1648	3516	704,291	670,664
Age 45-64	1773	3200	772,494	728,055
Age 65+	508	1093	595,180	495,423



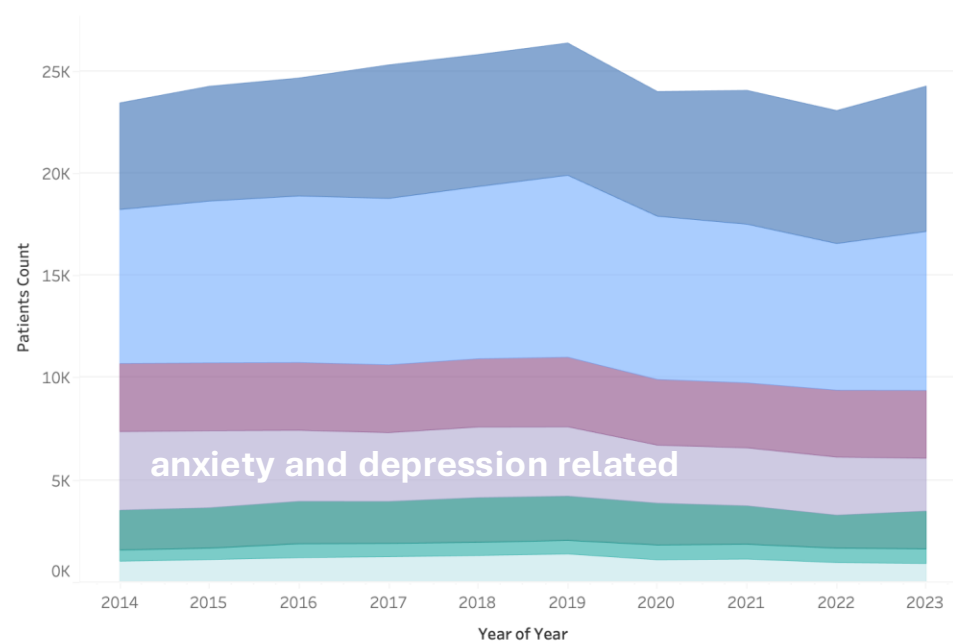
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# the general trend of **anxiety and depression** related diagnosis is **declining** in Scotland

General Trend for Mental Health Diagnosis, grouped by ICD codes

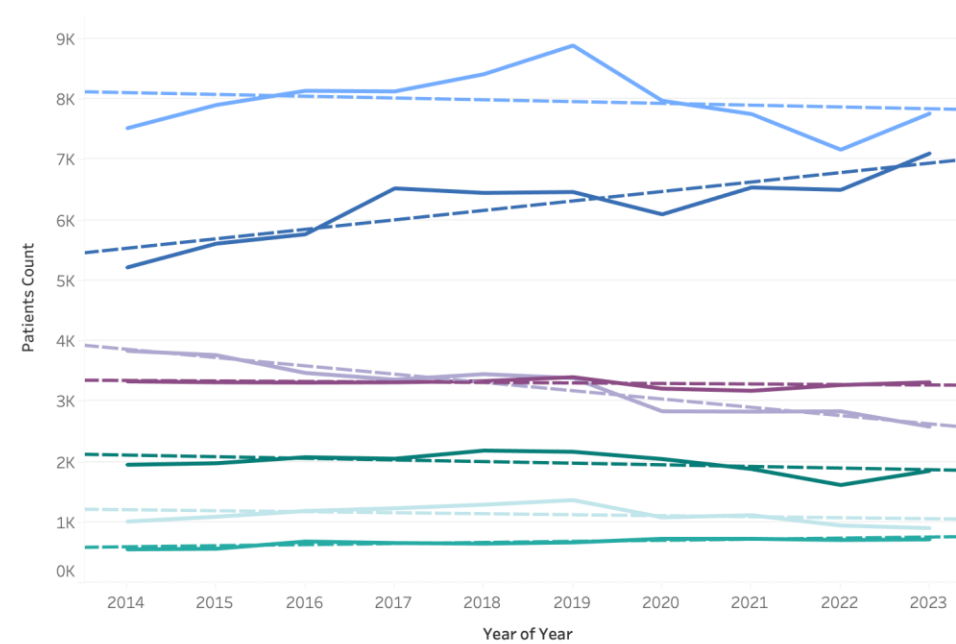
Stack Map for Mental Health Patient Count in Scotland 1997-2023



## ICD10Codes

- F01-F09 Mental disorders due to known physiological conditions
- F10-F19 Mental and behavioral disorders due to psychoactive substance use
- F20-F29 Schizophrenia, schizotypal, delusional, and other non-mood psychotic disorders
- F30-F39 Mood [affective] disorders
- F40-F49 Anxiety, dissociative, stress-related, somatoform and other nonpsychotic mental disorders
- F50-F59 Behavioral syndromes associated with physiological disturbances and physical factors
- F60-F69 Disorders of adult personality and behavior

Mental Health Patient Count Trend in Scotland 1997-2023

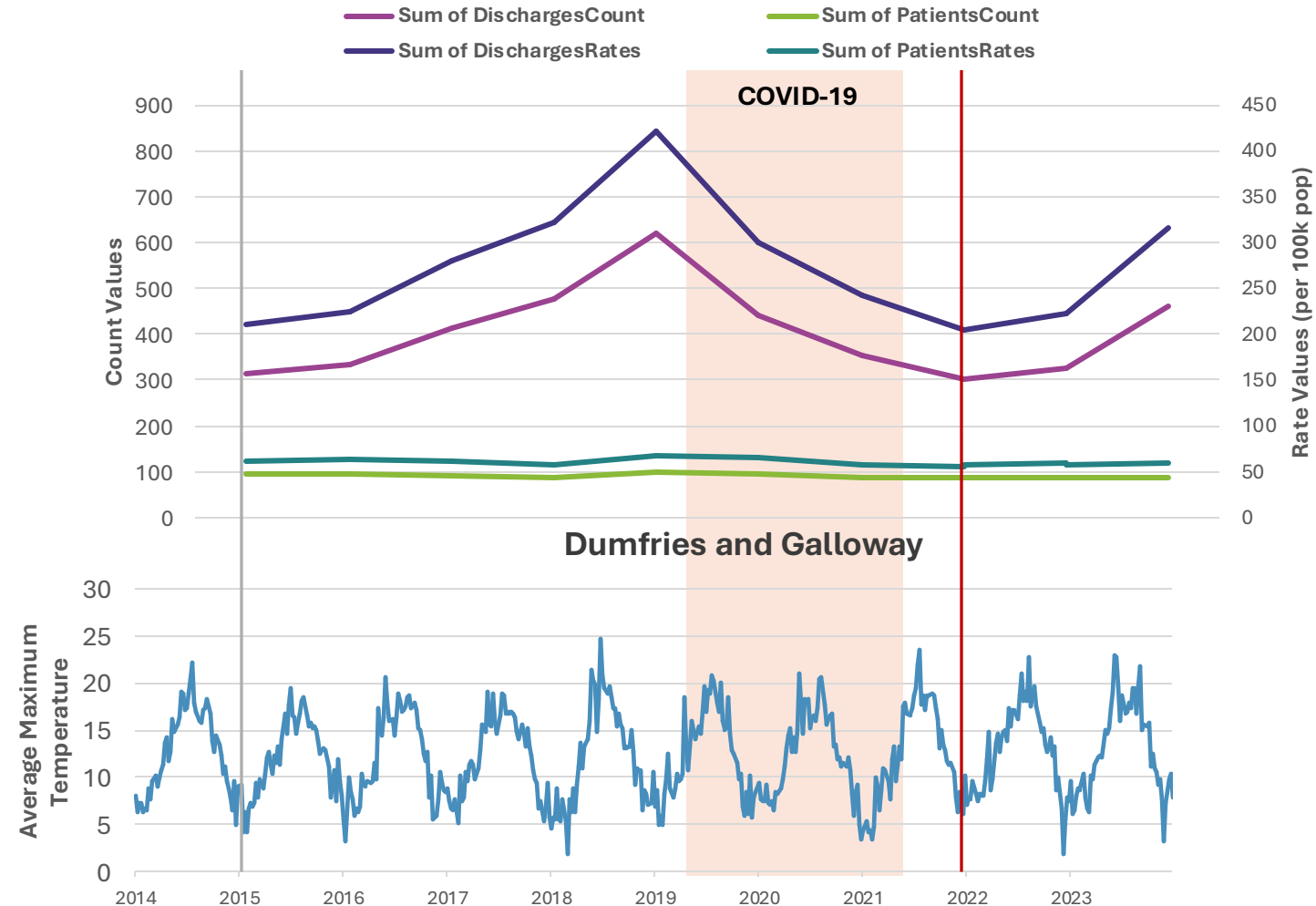


**anxiety and  
depression related**

# Digging deeper, some regions experienced **increment**

There are **different patterns** on each health board (HB)

- HBs like **Dumfries and Galloway** has an apparent increment
- No apparent relation between being in the same NHS region (South, East, North, West) and trend of diagnosis
- The number of diagnosis decreases in 2019-2021 likely due to pandemic

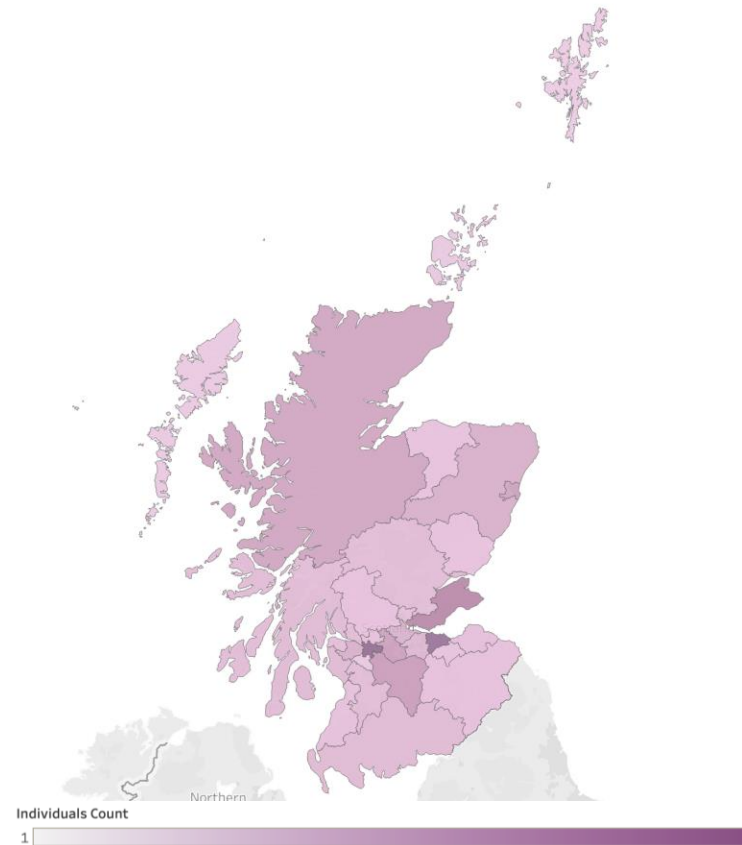


# Looking at another angle, the number of probable suicides might be **related** to the temperature in some cases

**Higher number of cases** (darker in left) can be seen in **colder areas** (darker in right)

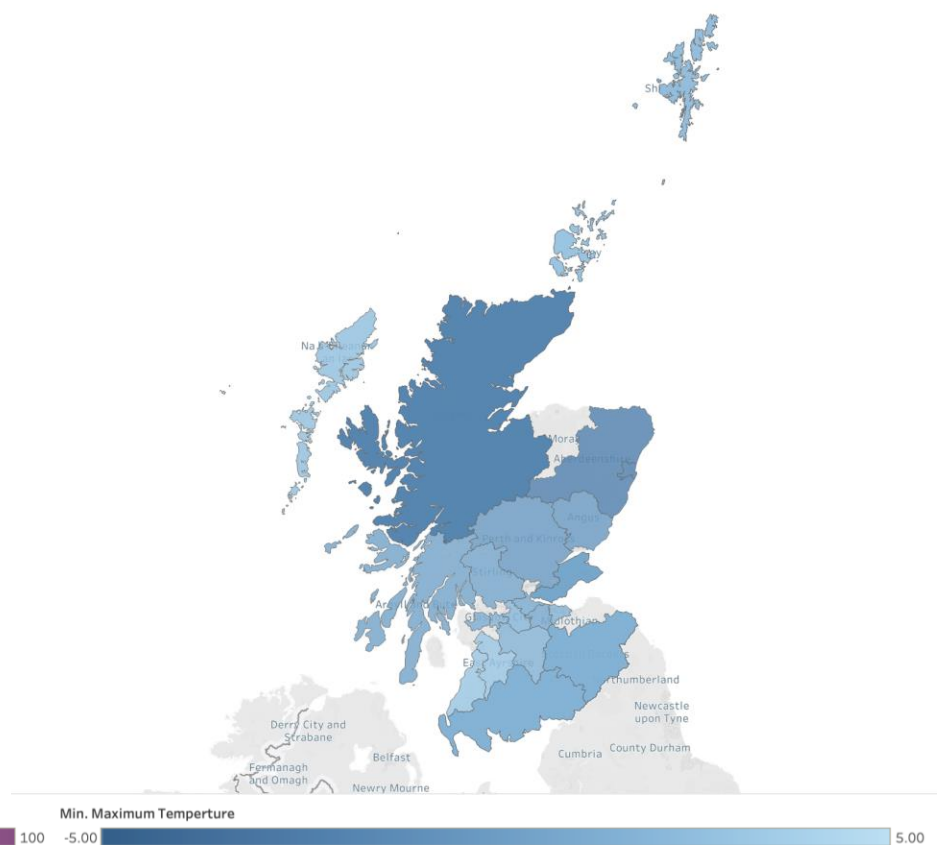
Probable Suicides Count in 2014~2019 across Scotland

2014 Probable Suicide Count

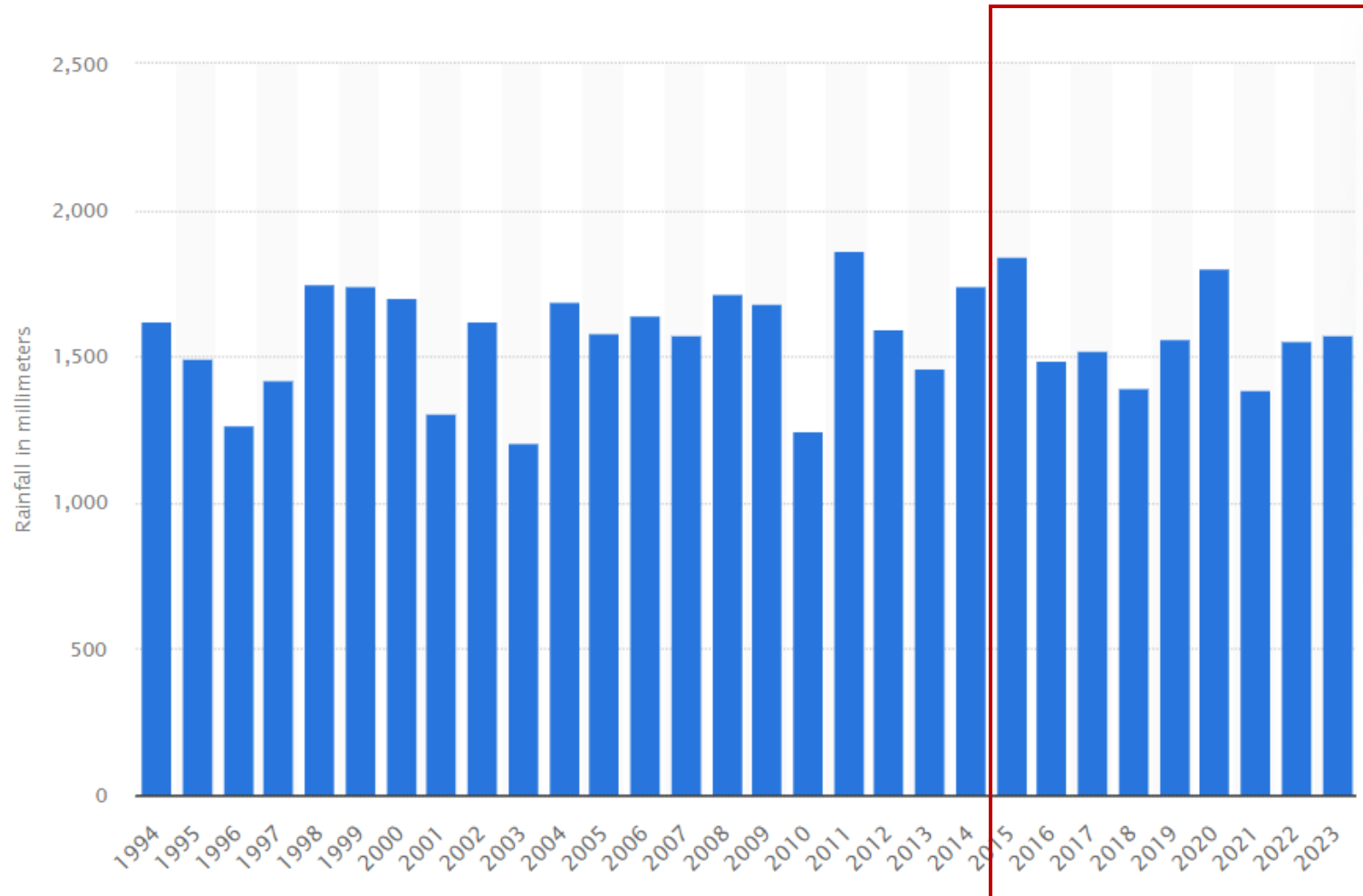


Lowest Maximum Temperature Trend during 2014~2019 across Scotland

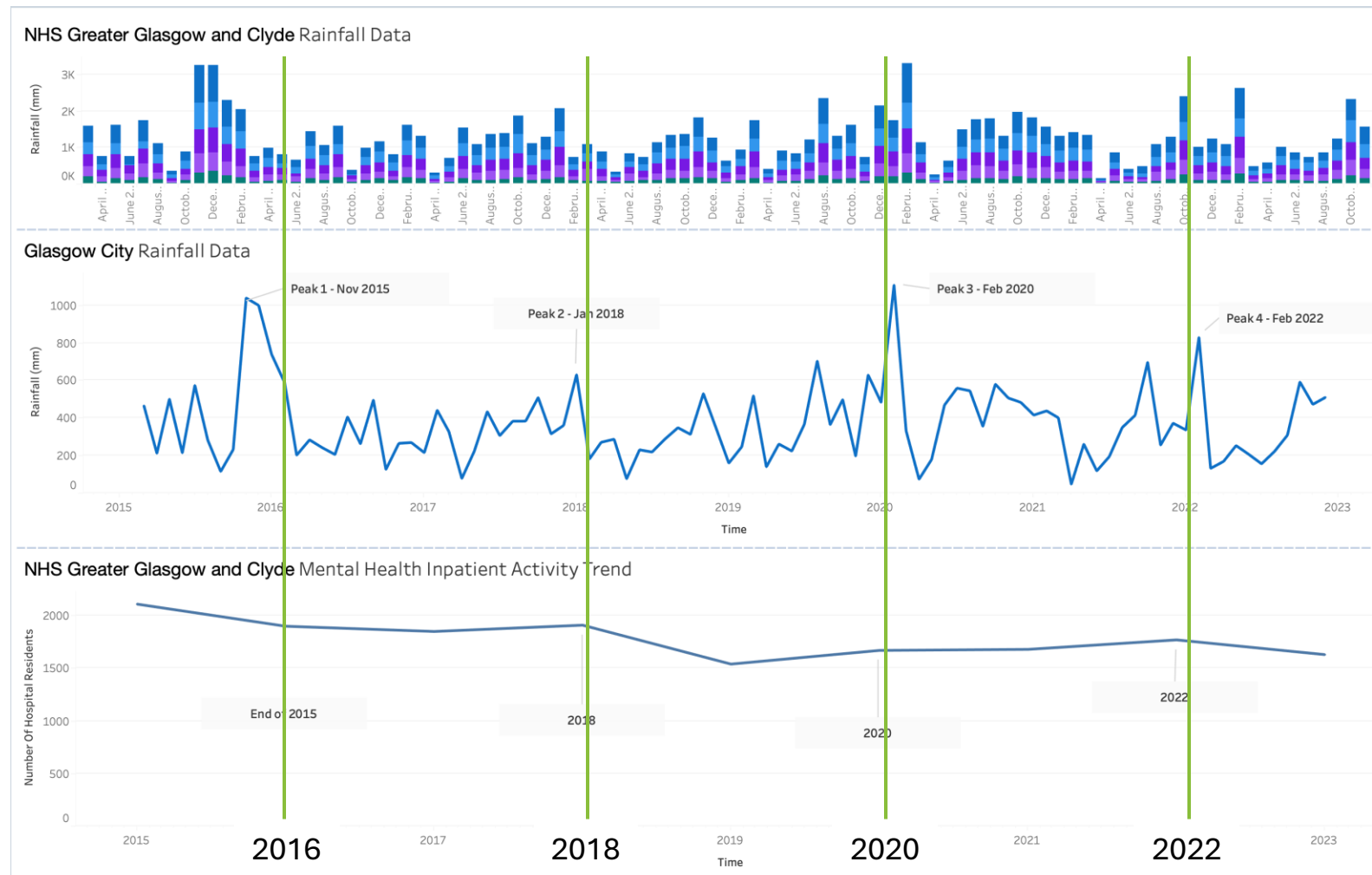
2014 Lowest Maximum Temperature



# Looking at the rainfall data....



# Pattern between rainfall data and mental health inpatient activity - **Case study of Glasgow**

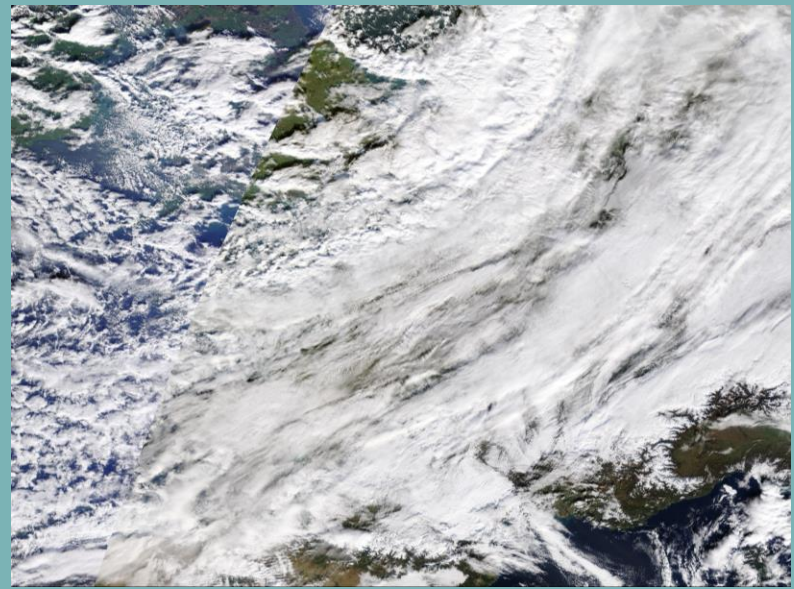


# Exploring Prescriptions - **Case study of Storm Arwen and Olanzapine Increase**

- Storm Arwen occurred in Dec 2021
- 136 GP practice are observed by their Olanzapine Tablet prescription trend, spread almost evenly across observed area
- Note: Data missing for May 2020

## **Areas are Classified by Damaged Levels**

- No impact: Outer Hebrides, Paisley, Dumfries and Galloway
- Medium: Fife area
- Most serious damaged: Moray, Angus



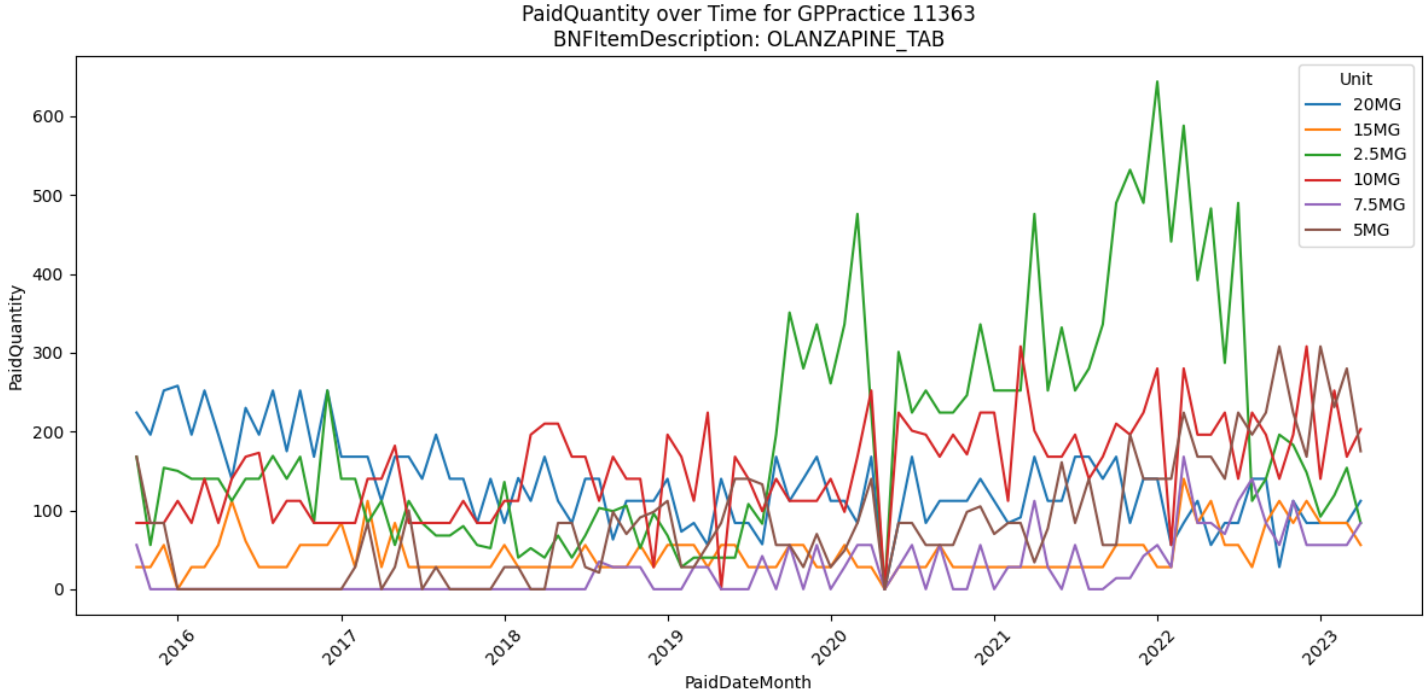
**Storm Arwen in 2021**



**Aftermath of Storm Arwen**



**Most Serious**  
areas  
experienced  
more increase  
compared to the  
other areas



Example of prescription trend of Olanpazine in a GP

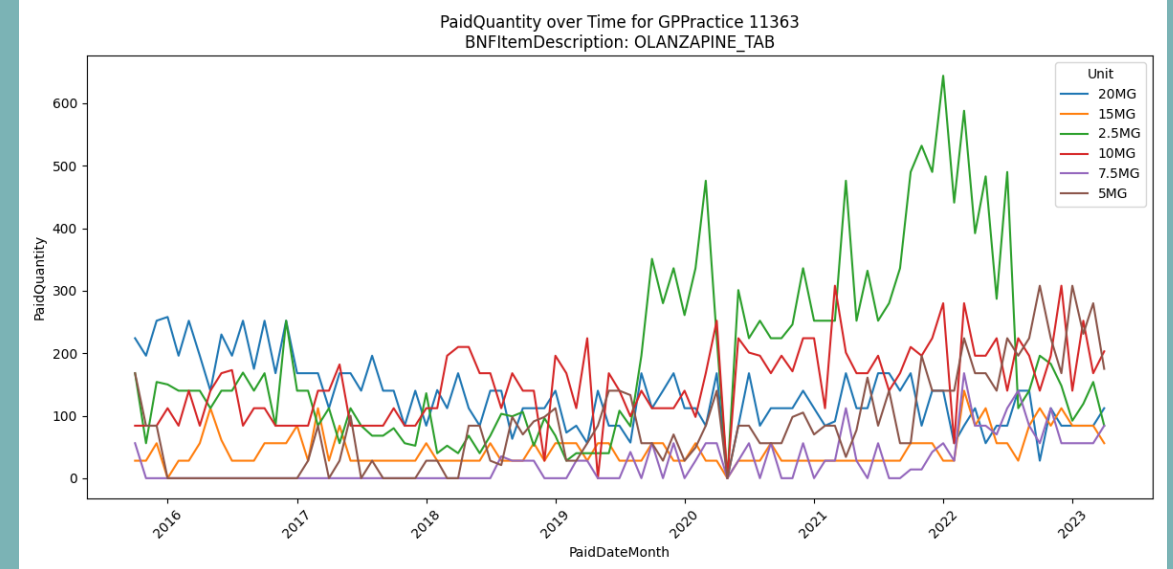
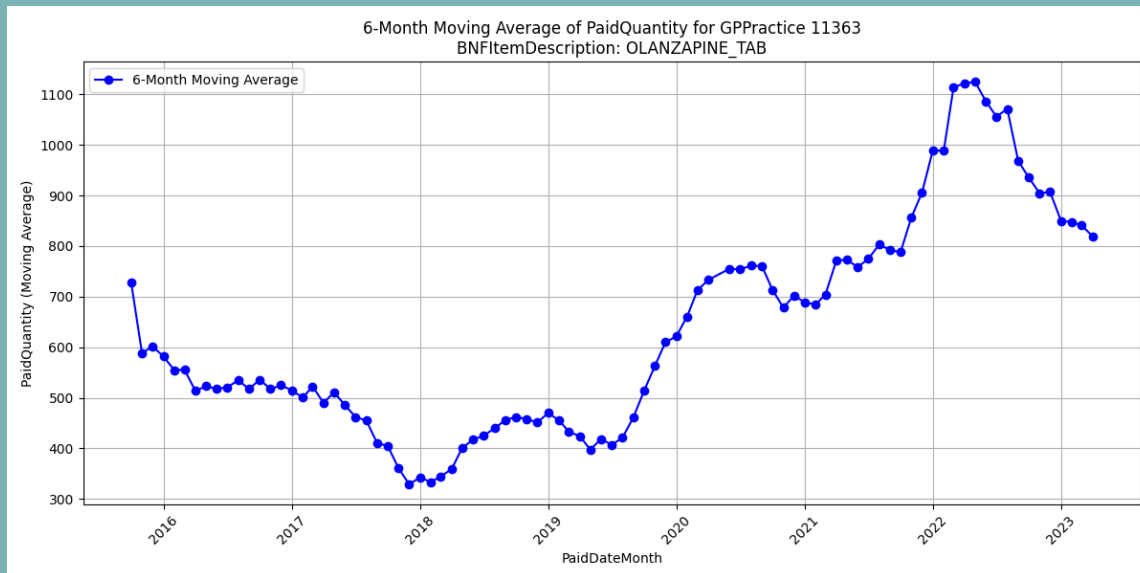
% of GPs that has increased trend of prescription acitvity

	% of Increased	% of Not Increased	Information Value
No Impact	10.2	89.8	1.48
Moderate Influenced	13.95	86.05	1.25
Most Serious	29.55	70.45	0.23



# Limitation

- No strict definition for increase trend
- No measurement about whether the trend is minor or significant
- Only investigated 136 GP Practices among 900+

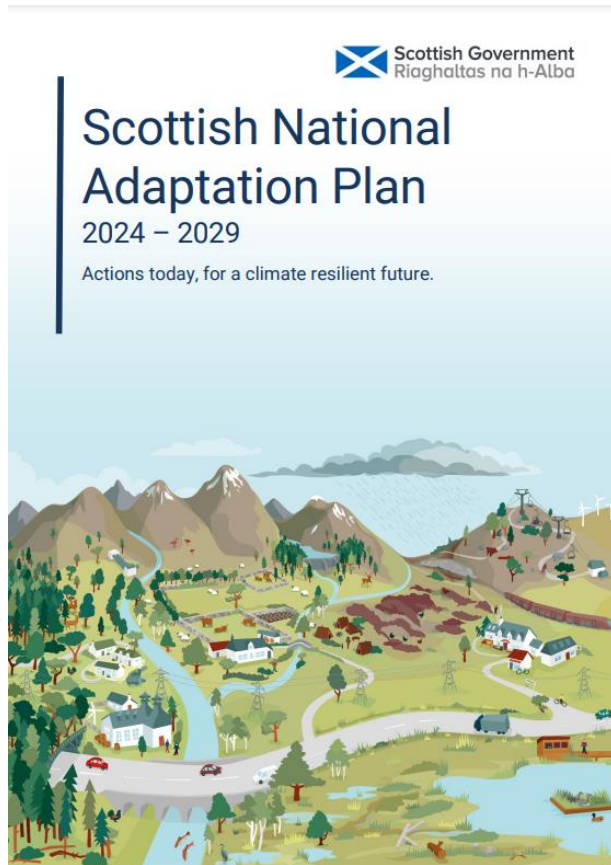


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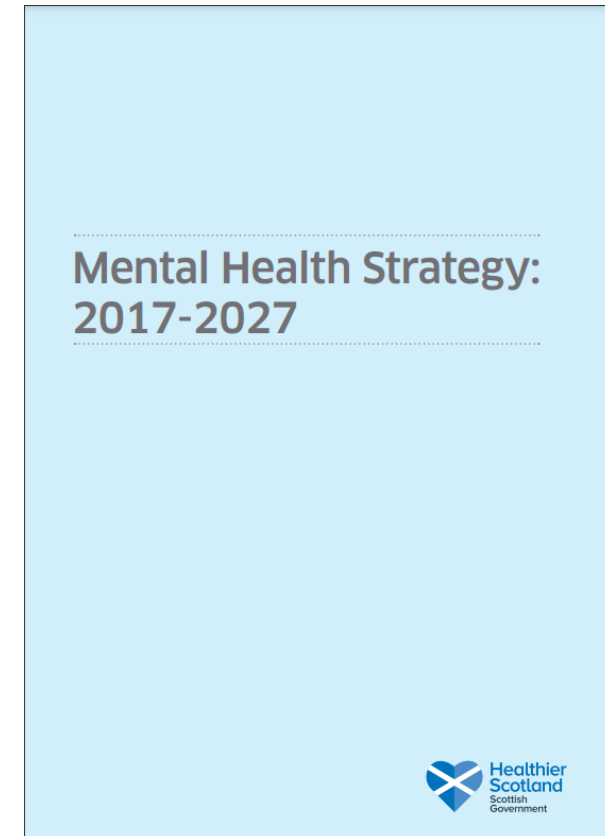
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# Existing Policies and Mental Health Interventions in Scotland

## Scottish National Adaptation Plan (2024-2029)



## Scottish Government's Mental Health Strategy (2017-2027)



# Existing Policies and Mental Health Interventions in Scotland

The plan acknowledges the impact of climate change on mental well-being, and includes several commitments:

- **Developing adaptation plans with all health boards** to address climate-related health risks.
- Public Health Scotland **delivering an Adverse Weather and Health Plan**, incorporating mental health considerations.
- Strengthening **Community Climate Action Hubs** to support vulnerable communities.



# Existing Policies and Mental Health Interventions in Scotland

The Mental Health Strategy (2017-2027) emphasizes:

- **Community-based resilience programs and early intervention strategies.**
- Addressing inequality and vulnerability in mental health services, which aligns with protecting those most affected by extreme weather.
- **lacks climate-specific strategies**

## Mental Health Strategy: 2017-2027



Scotland's  
mental health

Public Health  
Scotland



Find out about  
Scotland's  
mental health  
first aid: young  
people



## Existing Policies and Mental Health Interventions in Scotland

- NHS Scotland provides **Psychological First Aid (PFA)**, but there are concerns about **service accessibility and resource constraints**.

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# Scotland has made a numerous efforts **in-line with other regions** to recognise mental health with climate change

Category	Scotland	England	EU	US	China
<b>Policy Framework</b>	Scottish National Adaptation Plan	mental health -climate adaptation strategies	EU Climate Adaptation Strategy	National Climate and Health Program (CDC)	No national-level policy
<b>Emergency Mental Health Response</b>	Psychological First Aid (PFA)  Inconsistent availability	Local NHS crisis intervention  services vary by region	Some EU nations (DE, NL) have national post-disaster mental health programs  Inconsistent coverage	structured mental health response post-disasters (FEMA, SAMHSA)	Emergency response includes psychological support,  mental health services remain underdeveloped.
<b>Funding for Community Resilience Programs</b>	SAMH funds some community-led initiative	Public Health England supports more established local resilience programs	EU funds community adaptation initiative	Federal funding for community resilience programs under NOAA and CDC	Some regional programs exist in disaster-prone areas
<b>Research</b>	Increasing research focus	Recognized in public health research	Addressed in academic discourse	Growing focus in research, especially among youth	Emerging research on climate-related stress



# In an effort to solve **main limitations**, the **policy recommendations** are outlined in 6 key points

based on adaptations of best practices from multiple countries

## Main Limitations:

1. Long waiting times for mental health services, Funding cuts
2. Limited evidence of post-disasters mental health interventions



# 1. Establish a Dedicated **Disaster Mental Health Framework**

## Best practices



Australia's Beyond Blue program integrates climate-related trauma support into national mental health policies.



The U.S. Crisis Counseling Assistance and Training Program (CCP), funded by FEMA, provides immediate and long-term psychological support after disasters.

## Recommendation



Improve Scotland Climate & Mental Health Response Plan, better **integrating** psychological first aid and **trauma-informed care** into **national disaster management policies**.



**Fund** mobile mental health teams and volunteers that provide **post-flood psychological support** in affected areas.

## 2. Strengthen **Community-Based Psychological Resilience**

### Best practices



Japan created community mental health hubs after the 2011 Fukushima disaster.



New Zealand's All Right Campaign post-Christchurch earthquake used creative community outreach to normalize mental health discussions.

### Recommendation



Expand **community-based mental health hubs** in flood-prone areas, providing safe spaces for emotional support.



Use **public awareness** to promote mental resilience strategies before, during, and after extreme weather events.



Promote **emotional healing for climate adaptation by place making through Art and Design**. Even expand partnership with organizations like VAS to form ecosystem in conducting sustainable intervention.

### 3. Implement **Psychological First Aid (PFA)** for First Responders & Affected Individuals

#### Best practices



The Netherlands integrates Psychological First Aid (PFA) into emergency response training for first responders and local authorities.



Sweden's disaster response includes mental health screening for affected populations to prevent long-term PTSD.

#### Recommendation



**Optimize Training Program** for first responders, social workers, and volunteers in **PFA** to help people cope with emotional distress after floods.



Implement **early intervention screenings** for at-risk individuals, such as children, elderly, and those with pre-existing mental health conditions.

## 4. **Improve Accessibility** to Climate-Sensitive Mental Health Services

### **Best practices**



Canada expanded telehealth services post-disasters, ensuring remote communities received mental health support.



Germany funds long-term therapy grants for individuals affected by climate disasters.

### **Recommendation**



**Expand telehealth** and digital mental health services.



**Introduce mental health recovery vouchers** covering therapy costs for those severely impacted.



**Establish an Emergency Mental Health Fund** to provide financial assistance.

# 5. Integrate Mental Health into Climate Adaptation Policies

## Best practices



Finland embeds mental well-being into climate adaptation strategies, ensuring national policies acknowledge climate anxiety and disaster-related trauma.



Norway mandates psychological preparedness training for local governments.

## Recommendation



Better incorporate **mental health considerations** into the Scottish Government's **climate adaptation framework**.



Include **psychological well-being metrics** in climate risk assessments.



Establish **local mental health task forces** that work alongside climate resilience planners.

## 6. Funding and Monitoring

- Utilize a mix of government funding, private partnerships, and NGO collaboration to ensure long-term sustainability.
  - Secure grants from EU and international climate resilience programs.
  - Establish an independent task force to oversee the implementation and conduct annual assessments.
  - Implement public feedback mechanisms to adjust policies based on community needs.
  - Data Monitoring and Integration and an early warning system.
-

Some previous recommendations were **already addressed in official policies**, such as:

- Developing climate resilience plans with NHS Scotland (**already in progress**).
- Integrating mental health into climate adaptation policies (acknowledged in government strategies, though **implementation is ongoing**).
- Community-led mental health programs for climate resilience (**Community Climate Action Hubs** are part of this effort).



But there are also areas still **needing improvement**

- **A formalized Psychological First Aid (PFA) training program** for extreme weather-related trauma is not yet widely implemented.
  - Expanding mental health support for post-disaster recovery beyond immediate response (e.g., long-term trauma care).
  - More direct funding allocation for mental health adaptation programs.
-

# Conclusion

The relationship between **climate change** and **mental health** in Scotland is **increasingly evident**, with **extreme weather events exacerbating psychological distress**. While existing policies acknowledge these challenges, a more structured approach is necessary to implement effective mental health interventions. Future research should focus on **developing climate-sensitive mental health strategies** and **increasing funding for long-term resilience programs**.

# The Psychological Climate

Exploring the Impact of Climate Change on Mental Health

Thank you for listening!

