



WORLD

Report 2026

From alert to agency:
What turns warnings
into action?

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RISK POLL





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I Foreword

The Lloyd's Register Foundation World Risk Poll provides a crucial platform for people around the world to voice concerns about their safety, gathering data on everyday risks and harms every two years. Through its global coverage and inclusive methodology, the Poll amplifies marginalised voices, offering invaluable insights to guide interventions to protect those most at risk.

Starting in 2019 and now in its fourth edition, the Poll has spanned major periods of global and regional change and provides a unique insight into emerging trends in people's perceptions and experiences of risk in turbulent times. With more than 143,000 interviews conducted across 140 countries and territories in 2025, the latest Poll allows trends first identified in previous years to be tested and refined.

This report asks who disasters most affect, whether those people are warned beforehand, and whether the warning made any difference to what they were able to do in response. The United Nations Early Warnings for All initiative commits the world to universal coverage by the end of 2027, and the Poll offers something that infrastructure audits cannot: an account from the people the warnings were meant for.

Warning coverage is now better than many would expect. Among adults impacted by a disaster in the past five years, four in five received at least one advance warning, and in every region except Central/Western Africa at least half were reached. The remaining gap, however, coincides with those who are most vulnerable. In low-income countries, where people are twice as likely to be impacted by a disaster as in high-income countries, less than two-thirds of those impacted were warned.

However, a warning received is not the same as a warning acted upon. This report finds that a significant minority of those warned about impending hazards could not act on the information they were given – and in low- and lower-middle-income countries, it is a slim majority. The gap between coverage and effectiveness is widest exactly where disasters hit hardest.

This report also finds that the number of channels matters, and that there is a key threshold to be achieved. For effective early warning systems, three is very much the magic number – both in terms of enabling action, and knock-on benefits of increased resilience.

Much of the technology needed to close the warning gap already exists. Of the people globally who received no warning at all, more than two-thirds own a mobile phone – equivalent to more than 170 million people.

Shaped through dialogue with international bodies, sector experts and frontline organisations, the World Risk Poll has been built collaboratively from the outset and is intended to be used the same way. We want this report, and its companions, to help policymakers, disaster management authorities and civil society direct early warning investment towards the people who most need it.



Acknowledgements

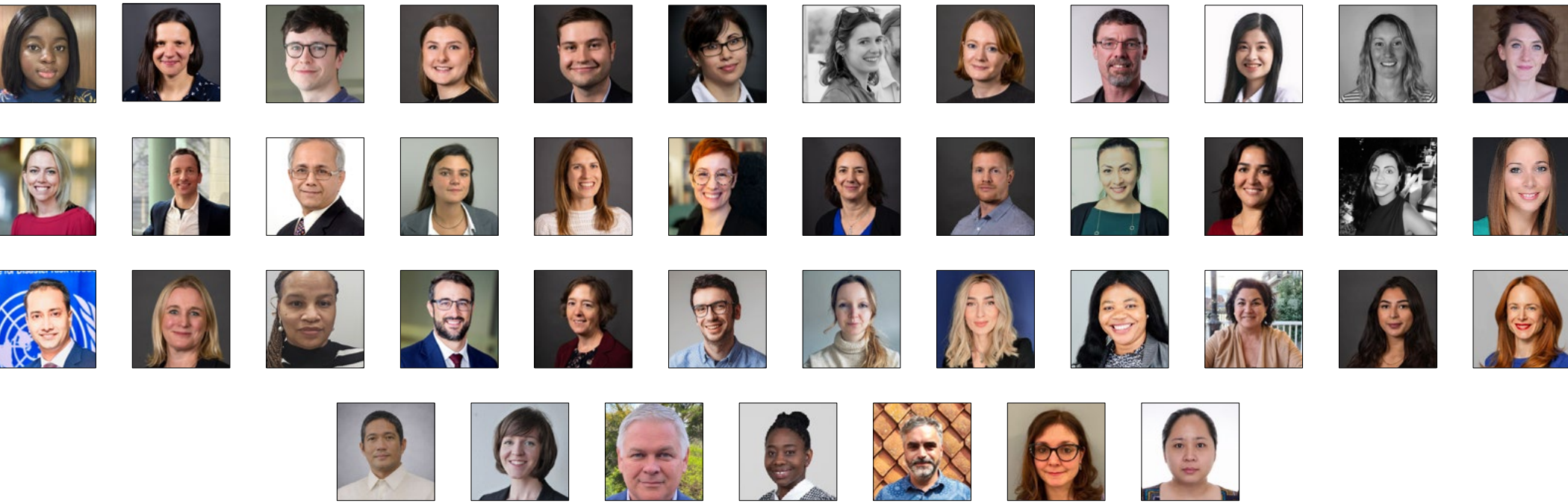
The World Risk Poll is a huge undertaking powered by multidisciplinary teams working across organisations. Lloyd’s Register Foundation is grateful to everyone who has contributed to this, and previous versions of the World Risk Poll, and the collaborative spirit in which they work.

We are continually inspired by the enthusiasm of our strategic impact partners who have invested time in developing the questionnaire and are now embedding the data in their work, inspiring and galvanising people to take action.

The Technical Advisory Group for the World Risk Poll was first convened in early 2019, and we are indebted to the ongoing time and effort voluntarily invested by the members in the analysis, planning and reviewing of all our outputs.

Finally, our thanks are extended to the team at Gallup for their efforts in constructing and testing the Poll, and to the local staff in countries across the globe who undertook the fieldwork, often under difficult circumstances. We are particularly grateful to the World Risk Poll delivery and analytical team at Gallup for their ongoing contributions and support.

You can learn more about the Poll and the change it has supported, through the Poll website at: wrp.lrfoundation.org.uk.



Additional information

About Lloyd’s Register Foundation

Lloyd’s Register Foundation is an independent global safety charity that supports research, innovation, and education to make the world a safer place. Its mission is to use the best evidence and insight, such as the World Risk Poll, to help the global community focus on tackling the world’s most pressing safety and risk challenges.

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To learn more about the World Risk Poll, please visit wrp.lrfoundation.org.uk.

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About Gallup

Gallup delivers analytics and advice to help leaders and organisations solve their most pressing problems. Combining more than 90 years of experience with its global reach, Gallup knows more about the attitudes and behaviours of employees, customers, students and citizens than any other organisation in the world.

For more information about Gallup, please visit www.gallup.com.

Contact us at www.gallup.com/analytics.

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Executive summary

The World Risk Poll is the first and only global, nationally representative study of worry about, and harm from, risks to people's safety. The Poll is based on more than 143,000 interviews conducted by Gallup in 140 countries and territories throughout 2025, and covers places with little to no official data on various aspects of safety and risk. This is the fourth edition of a dataset that offers a unique insight into people's experiences with and perceptions of different risks in their lives, from the everyday risks facing millions around the world, such as risks of harm from food and water or safety on the roads, to the generational and existential risk of climate change.

This report follows disasters from impact through to response. In 2025, the Poll changed its wording from asking whether people had experienced a disaster to whether they had been impacted by one, a higher conceptual bar intended to capture harm to lives and livelihoods rather than proximity to an event. It then asked those affected which channels warned them, and whether they were able to act on what they were told. Read alongside the Resilience Index, covered in the companion report *A resilient life: How wellbeing shapes the capacity to cope*, this allows early warning systems to be assessed on whether they change what people can do. As with every edition, the underlying data are freely available for governments, regulators, researchers and civil society to use for research and action to improve resilience and disaster preparedness.

One in five adults has been impacted by a disaster, and impact aligns with vulnerability

- Globally, 20% of adults say they have personally been impacted by a disaster in the past five years. This sits below the 30% who said they had experienced a disaster over the same period in 2023, which suggests impact is a higher bar than experience rather than representing a fall in hazard activity.
- Adults in low-income countries report being impacted at roughly twice the rate of those in high-income countries (31% vs. 16%), with lower-middle- and upper-middle-income countries at 20% and 22%, respectively. Within low-income countries, the burden falls further on the most vulnerable: 37% of adults with primary education or less report being impacted, compared with 22% with secondary and 20% with higher education.

- Country income explains only part of the pattern, and geographic exposure much of the rest. Australia and New Zealand rank highest of all regions at 31%, ahead of Eastern Africa and Southeastern Asia (both 28%). At the country level, impact ranges from 80% of adults in the Philippines to fewer than 1% in Israel.
- Precipitation-related hazards dominate. Among those impacted, 39% name floods, heavy rain or rainstorms as the most impactful event they experienced, followed by tropical storms (19%) and earthquakes (10%), closely mirroring the 2023 distribution despite the change in wording.

Four in five of those impacted were warned, but the warning gap follows the income gap

- Among adults impacted by a disaster, 80% received at least one advance warning through at least one channel. This is not directly comparable with the 70% recorded in 2023, because the 2025 Poll asked about eight channels rather than four, but both editions point the same way.
- Coverage rises with national income. Fewer than two-thirds of impacted adults in low-income countries (64%) received any warning, rising to 77% in lower-middle-income and 84% in upper-middle- and high-income countries. Central/Western Africa is the only region where fewer than half were reached (47%).
- Of the 13 Early Warnings for All priority countries for which we have sufficient data, nine reached at least two-thirds of impacted adults, with coverage highest in Mozambique and Somalia (both 84%).
- Coverage varies by hazard, mostly for reasons of physics rather than infrastructure. Tropical storms (94%), heatwaves (93%) and sandstorms (92%) carry the highest warning rates, whilst geological hazards are hardest to warn against, at 68% for earthquakes and 64% for mudslides and landslides.

Being warned and being able to act are different things

- Of those who received at least one warning, 64% were able to take action as a result. More than a third of warned adults (36%) could not act on the information they received.
- The ability to act splits sharply by national income, and more sharply than coverage does. Fewer than half of warned adults in low-income (48%) and lower-middle-income (47%) countries were able to act, against 75% in upper-middle- and 71% in high-income countries.
- High coverage does not guarantee effective response. More than nine in 10 adults impacted by a sandstorm were warned, yet only around half of those warned could act. Tropical storms outperform floods on both counts, on warning (94% vs. 76%) and on action (71% vs. 59%).
- Adults who were warned and able to act score 68 on the Resilience Index, 16 points higher than those warned who could not act (52). The gap is widest at the individual level (65 against 39) and narrows to three points at the societal level.

Three warning channels is the crucial threshold

- Multiple warnings are the norm rather than the exception. Whilst 80% of those impacted received at least one warning, only 11% received exactly one, and 15% received six or more. Digital and broadcast channels reach furthest: 59% were warned via the internet, 58% by television and 54% by SMS.
- Each of the first three channels adds substantially to the likelihood of action. Among adults who received one warning, 37% were able to act, rising to 51% with two and 64% with three. Beyond three, each additional channel adds between four and eight percentage points. The same threshold appears in individual resilience, which stands at 40 among adults warned once, little more than the 37 recorded among the unwarned, rising to 53 with a second channel and 58 with a third.
- Warnings work best alongside preparedness. Among adults impacted and warned, 27% of those with neither a household disaster plan nor a sense of personal agency took action, against 50% with a plan alone, 60% with a sense of agency alone, and 83% with both.

Policy implications

- ***The greatest need is in low-income countries.*** They face the highest rate of disaster impact, the lowest warning coverage, fewer than half of warned adults able to act (48%) and no measurable gain in individual resilience from having lived through a disaster, unlike every other income group. This strengthens the case for directing resilience investment towards the populations least able to absorb shocks.
- ***Early warning infrastructure needs to be more equitable, and more targeted.*** People in lower-income countries, and the most vulnerable groups within them, remain least likely to receive any warning. Closing that gap means deliberately targeting specific geographies, particularly across Africa and parts of Asia, and prioritising the countries where low coverage and high exposure overlap. Chad, at 42% coverage with more than half of all adults impacted by a recent disaster, is a different order of problem from low coverage in a low-exposure country.
- ***Build towards at least three warning channels.*** One warning is better than none, but the jump in both action and individual resilience comes with the second and third channel. Having multiple channels raises the chance a message is received, and consistent message repetition across these channels raises the chance it is believed.
- ***Mobile phones are the clearest route to the unwarned.*** Of adults who received no warning, 77% own a mobile phone, equivalent to more than 170 million people, and ownership among the unwarned is at or above 90% in seven regions. Expanding SMS-based warnings is the single largest opportunity to close the coverage gap, noting that phone ownership is not the same as reliable network coverage.
- ***Pair warning systems with household preparedness and personal agency.*** The difference between 27% and 83% acting on a warning is closely linked to whether people have a household plan and believe they can protect their family. Warning infrastructure alone does not produce action.
- ***Judge systems on action, not on reach.*** A coverage figure records that a warning was sent. The share of warned people able to act records whether it worked, and the two diverge most in the countries where disasters hit hardest.

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CHAPTER 1

Which disasters impact people the most?

Resilience can matter most when people are impacted by disasters. Natural hazards such as storms, earthquakes and volcanoes pose immediate risks to people's safety and test the ability of individuals, households, communities and societies to cope with and recover from adversity. Whether that test is passed often turns on something that happens before the hazard arrives: whether people were warned at all, and whether the warning reached them in a form that was useful.

This report is one of three drawing on the 2025 World Risk Poll data on resilience and disasters, and it deliberately takes the narrowest focus. *A resilient life: How wellbeing shapes the capacity to cope* sets out how resilience is distributed across the world, what strengthens it and where it is lowest. *After the storm: How disasters reshape resilience and trust* picks up what changes once a hazard has struck, tracking movements in resilience and in perceptions of government across successive waves of the Poll. This report sits between the two, in the hours and days before a hazard becomes a disaster.

That window is where early warnings do their work. They give people time to prepare, seek shelter or evacuate, and they limit the economic and infrastructural damage that disasters leave behind. But a warning is only worth what people can do with it. The chapters that follow ask two questions in turn: who is being reached, and what happens when they are?



Disasters occur when hazards have significant consequences for people, and the severity of a disaster depends, in part, on the vulnerability of the people and communities affected. As such, a low magnitude earthquake in a densely populated and vulnerable urban area can be more disastrous than a high magnitude earthquake in a rural, less populated and less vulnerable area. This understanding has underpinned thinking and research on natural hazards and resilience for decades, particularly since Hurricane Katrina highlighted the dimensions of vulnerability that turn natural hazards into disasters in 2005ⁱ.

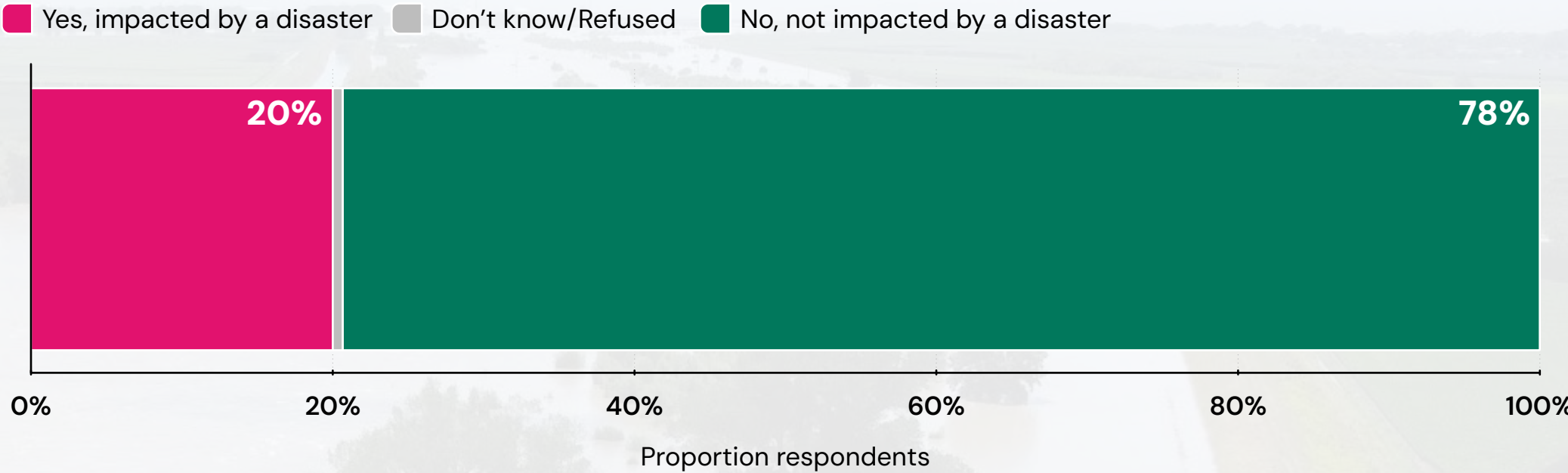
To better reflect this understanding, in 2025, the World Risk Poll shifted from asking people whether they had recently experienced a disaster to wording that focuses more on impact. This change is intended to capture a more acute sense of harm to people’s lives and livelihoods.

At a global level, one in five adults (20%) says they have personally been impacted by a disaster in the past five years. This is lower than the 30% who said they had experienced a disaster over the same period in 2023, suggesting that impact might be a higher conceptual bar to clear than experience alone. Importantly, this measure captures only those who felt the impact of a disaster and survived. Globally, disasters related to natural hazards are estimated to have caused 41,000 deaths annually over the past decade^{i,2}.

ⁱ. It also only captures the views of people Gallup was able to survey. In some instances, in the aftermath of a disaster, areas may be so difficult or dangerous to access that they must be excluded from the survey sample.

Chart 1.1. Percentage impacted by a disaster in the past five years (global %)

One in five adults globally (20%) reports being impacted by a disaster in the past five years.



Question text: Were you, personally, impacted by a disaster, such as [local examples] in [country] in the past 5 years?
Please do not think of coronavirus for this question.

Note: Percentages may not sum to 100% due to rounding.

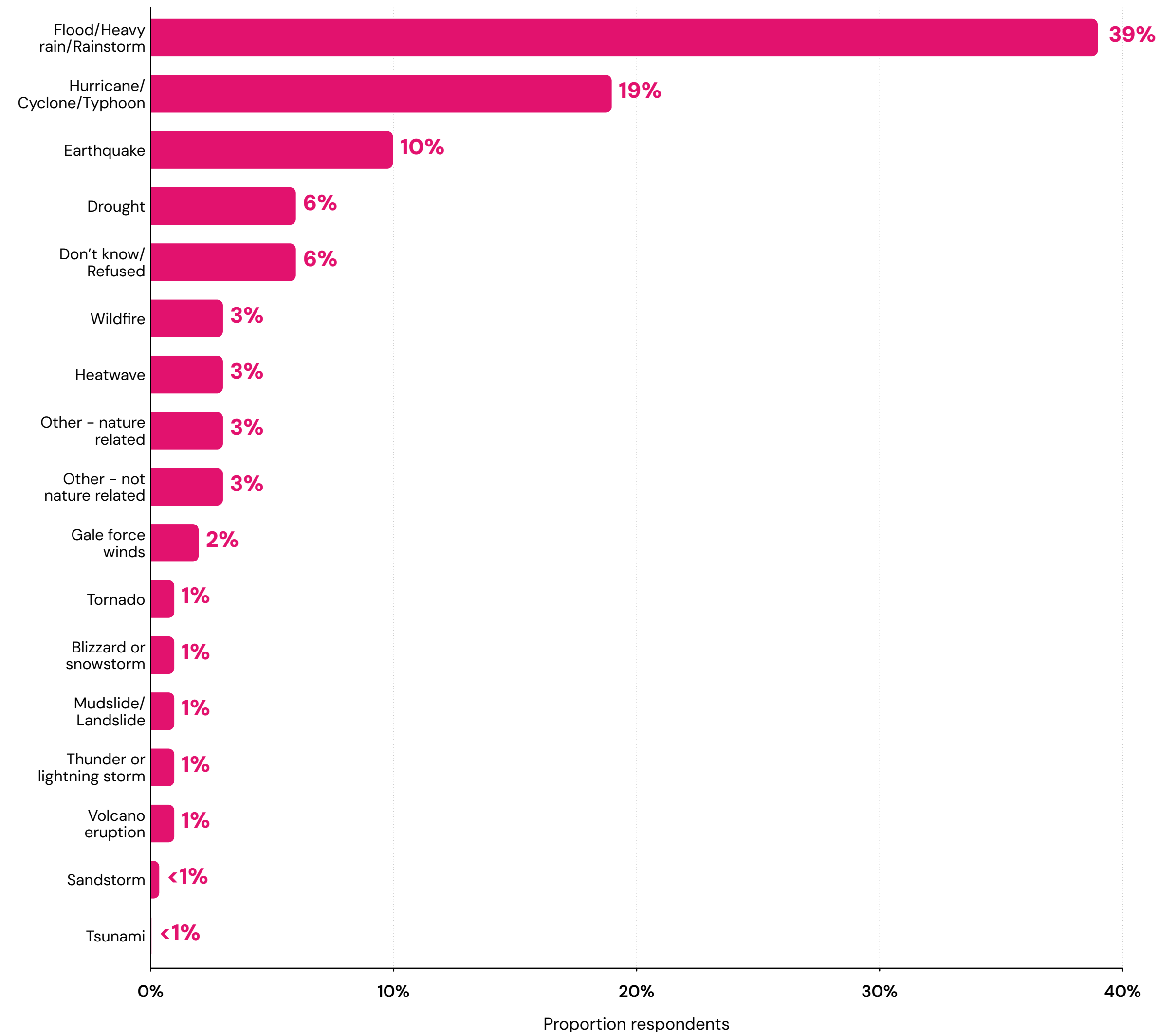
Floods have the greatest disaster impact on people globally

Flooding remains by far the most common hazard cited in the Poll worldwide. Among those who say they were impacted by a disaster in the past five years, 39% name floods, heavy rain or rainstorms (all forms of precipitation-related hydrometeorological hazards) as the single most impactful hazard they experienced. Tropical storms such as hurricanes, cyclones and typhoons are named by 19%, followed by earthquakes (10%) — all of which are short-term and high-frequency hazards. Notably, this pattern closely mirrors the distribution reported in the 2023 World Risk Poll, despite the shift from measuring disaster experience to measuring disaster impact. In 2023, 42% said they had experienced a flood, 19% a hurricane and 16% an earthquake. Although the overall percentage of people reporting being impacted by disasters is lower than the percentage who previously reported experiencing them, the same three hazards remain the most commonly reported across the globe.

The next three most impactful natural hazards are all related to extreme heat, with 6% impacted by drought, 3% by wildfires and 3% by heatwaves. Globally, tornadoes, blizzards, landslides, thunderstorms and volcanic eruptions each impacted 1%, while fewer than 1% were impacted by a sandstorm or tsunami. Some of these hazards, such as tsunamis and volcanoes, are typically low-probability but high-impact events. As such, it is not surprising that relatively few say they have been impacted by one in the past five years. Yet when they do occur, they often have more significant impacts than high frequency events such as floods.

Chart 1.2. Most impactful disaster experienced in the past five years (% among those impacted by a disaster)

Floods and heavy rain account for 39% of the most impactful disasters people report, ahead of tropical storms (19%) and earthquakes (10%).



Question text: Thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, what type of event was it?

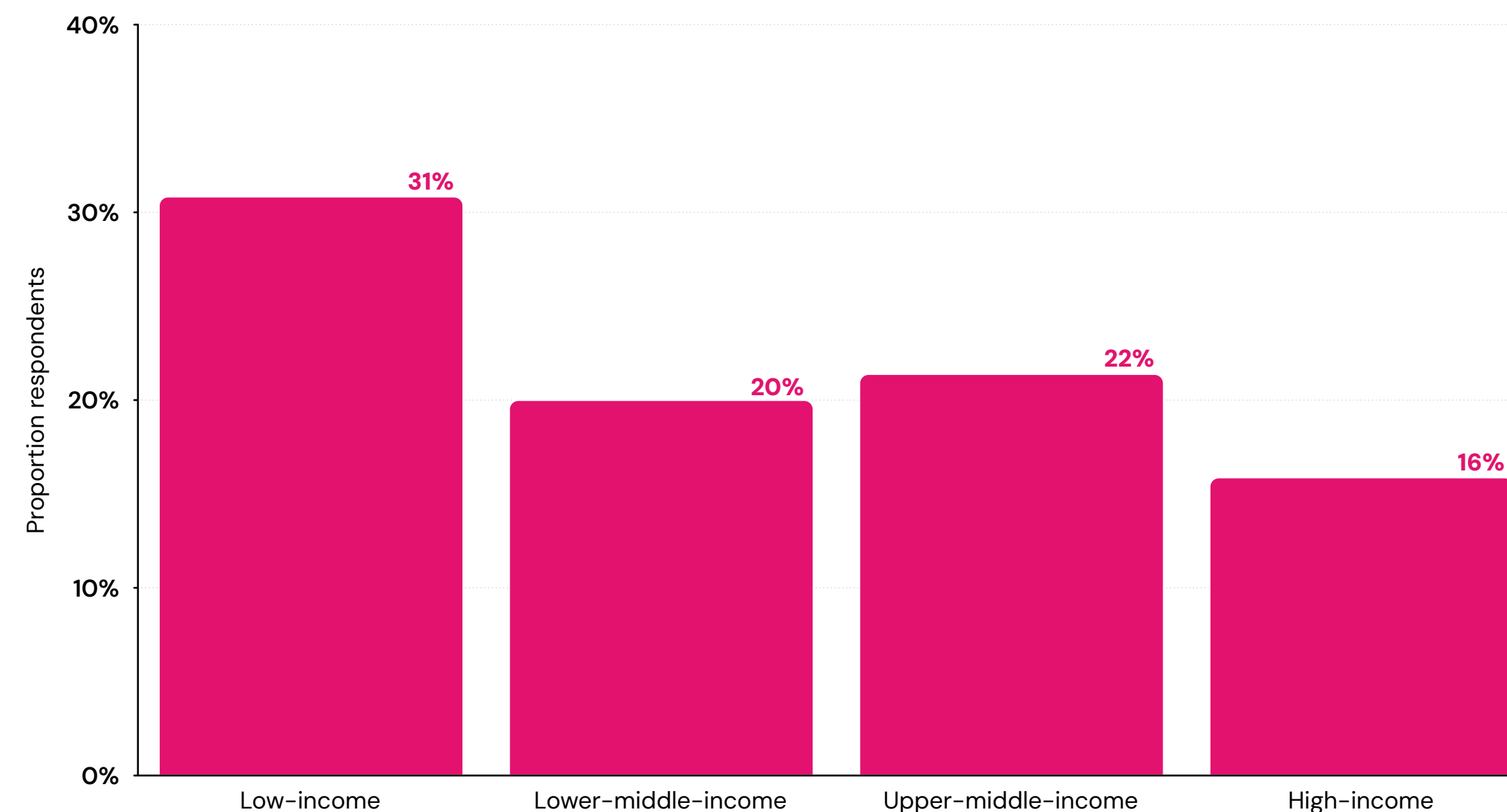
Disasters magnify existing inequalities and geographic differences

Risks from natural hazards are not experienced equally around the world. For example, people living along the Pacific Ring of Fire face a greater risk of earthquakes, and those living in low-lying coastal areas are more exposed to tsunamis and flooding. Disasters also do not affect all parts of the world or populations equally. Research finds that death tolls from floods — the most impactful type of hazard globally — in low-income countries are significantly higher than deaths in high-income countries³. Hazards also impact people to different extents within countries.

As shown in Chapter 1 of *A resilient life: How wellbeing shapes the capacity to cope*, resilience rises with country income level, with individuals living in low-income countries ranking lowest overall in the index. Consistent with this pattern, they are also the most likely to report having been personally impacted by a disaster in the past five years (31%). Reported impact is almost half that rate in high-income countries (16%) while lower-middle- and upper-middle-income countries report rates of 20% and 22%, respectively.

Chart 1.3. Percentage impacted by a disaster in the past five years, by World Bank country income group

Adults in low-income countries report disaster impact at nearly twice the rate of high-income countries (31% against 16%).



Question text: Were you, personally, impacted by a disaster, such as [local examples] in [country] in the past 5 years?
Please do not think of coronavirus for this question.

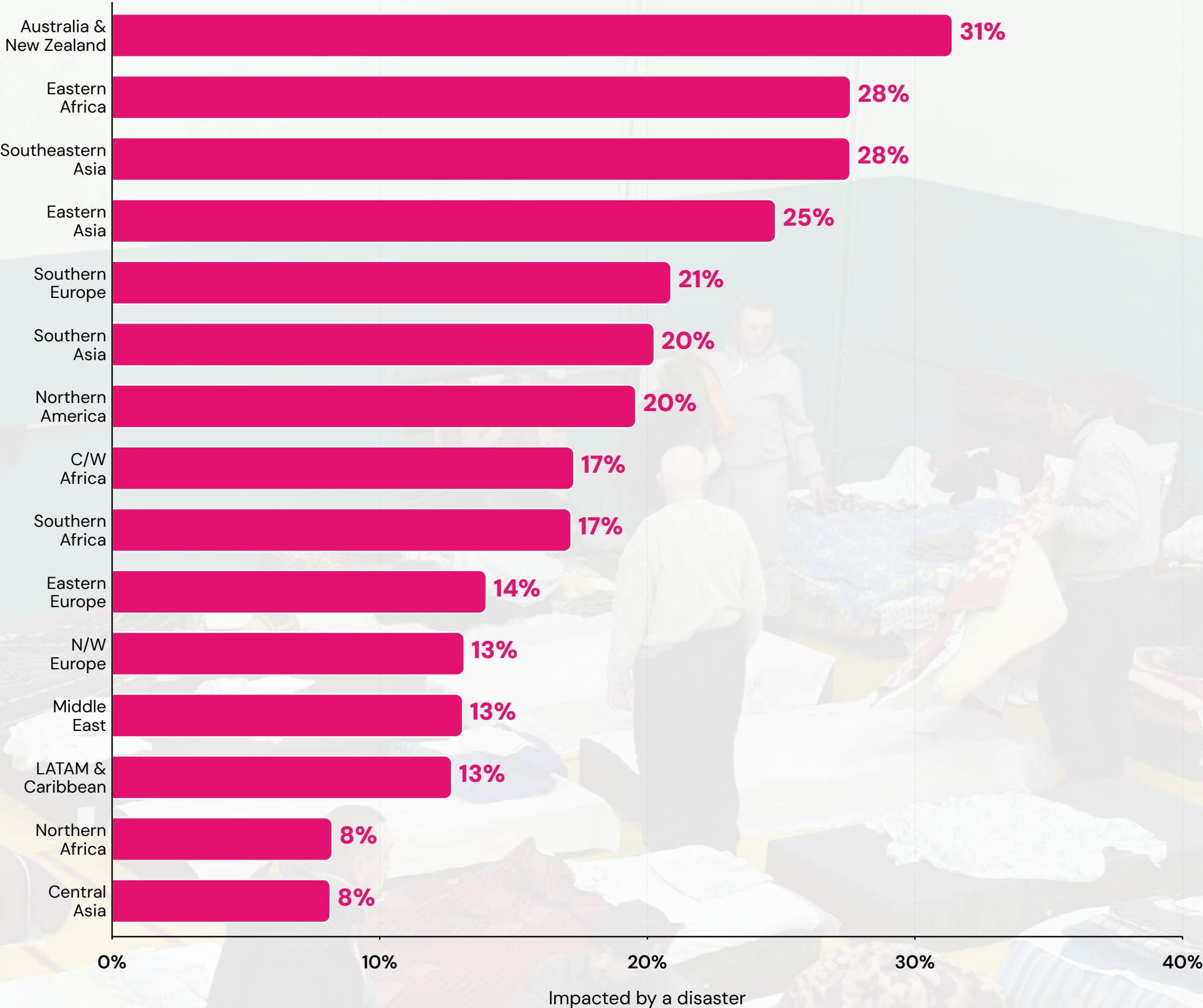
In low-income countries, disasters also have a greater impact on the most vulnerable. Among adults with primary education or less, 37% report being impacted by at least one disaster in the past five years, far more than the 22% among those with secondary education and 20% with higher education. In this way, disasters can often magnify existing inequalities in places of high prior vulnerability.

There are important nuances regarding the overall economic impact of disasters. According to the United Nations Office for Disaster Risk Reduction, over the last decade, disaster-related direct economic losses represented 0.28% of the global GDP⁴. The least developed countries accounted for nearly 13% of globally reported economic losses despite representing less than 1.5% of total GDP of reporting countries — a more than eight-fold disproportionate impact. While low-income countries experience smaller losses in absolute terms, they often bear much greater losses relative to the size of their economies.

Country income explains only part of the global distribution of disaster impacts. Regional patterns reveal the important role of geographic exposure to natural hazards. Australia and New Zealand — both high-income countries — rank highest among regions in terms of disaster impacts (31%). Eastern Africa and Southeastern Asia (both 28%) rank highly, as does Eastern Asia, where one in four adults has been impacted by a disaster in the past five years. Southern Europe (21%) also has a significantly higher proportion of adults affected by disasters than Eastern (14%) or Northern/Western Europe (13%). Northern Africa and Central Asia report the lowest levels of disaster-related impacts, with 8% of adults across these regions reporting being affected by one in the past five years.

Chart 1.4. Percentage impacted by a disaster in the past five years, by region

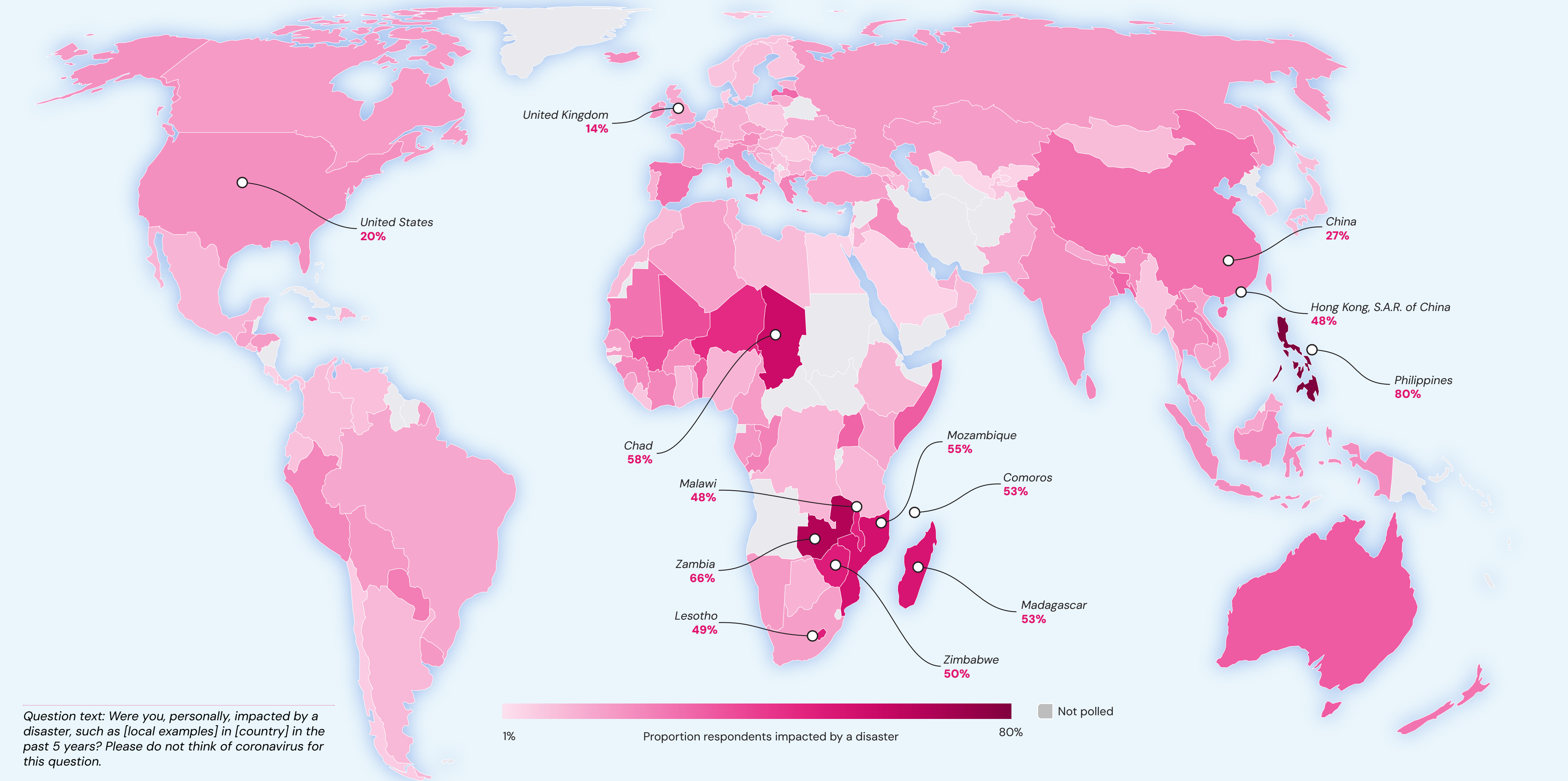
Australia and New Zealand top the regions at 31%, ahead of Eastern Africa and Southeastern Asia (both 28%), whilst Northern Africa and Central Asia report only 8%.



Question text: Were you, personally, impacted by a disaster, such as [local examples] in [country] in the past 5 years?
Please do not think of coronavirus for this question.

Chart 1.5. Percentage impacted by a disaster in the past five years, by country

Reported impact runs from 80% of adults in the Philippines to under 1% in Israel, with hotspots across the Sahel, Southeastern Africa and Southeastern Asia.



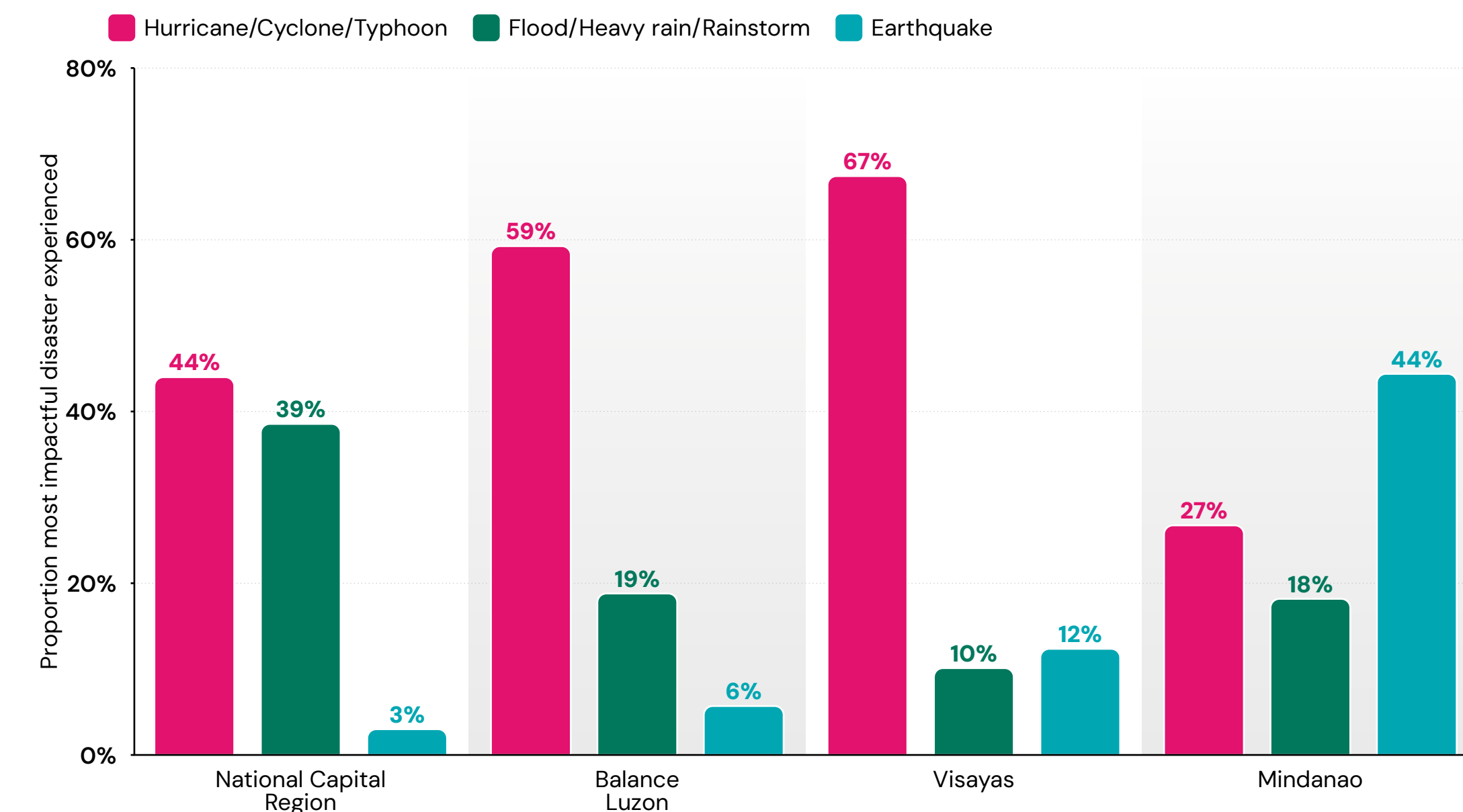
The Philippines: A case study in exposure to multiple disasters

The Philippines illustrates how geography can shape the impacts of disasters within a single country. Of adults impacted by a disaster in the past five years, 52% name a tropical storm as the most impactful, 19% a flood and 16% an earthquake. Spread across thousands of islands and located on the Pacific Ring of Fire, the Philippines is highly susceptible to a range of disasters whose impacts have varied considerably across different parts of the country⁵.

Tropical storms have had the greatest impact on the Philippines in recent years, particularly in the Visayas (67%) and Balance Luzon (59%) regions, and to a lesser extent in the National Capital Region (44%) around Manila. However, the Capital reports the biggest impact from flooding and heavy rain (39%), twice as many as in Balance Luzon and Mindanao, the latter of which saw the biggest impacts from earthquakes (44%).

Chart 1.6. Impact of most common disasters in the Philippines, by region

Tropical storms dominate in the Visayas (67%) and Balance Luzon (59%), whilst flooding hits the Capital region hardest (39%) and earthquakes Mindanao (44%).



Question text: Thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, what type of event was it?

Insight to action

Disaster impacts are distributed unevenly. They fall disproportionately on low-income countries, where people experience the highest rates of disaster impact, the lowest levels of resilience and where there is little evidence that experiencing disasters strengthens individual agency. This reinforces the importance of directing resilience investments towards the countries and sections of the population least able to absorb and recover from shocks.

The findings also highlight clear priorities for disaster risk reduction. Floods, tropical storms and earthquakes account for the overwhelming majority of the disasters people identify as having the greatest immediate impact on their lives. Targeting preparedness, early warning systems and risk reduction efforts towards these hazards, particularly in the communities most exposed to them, offers the greatest potential to reduce future harm.

Finally, building resilience should not depend on living through a disaster. Although in some cases, people who have experienced disasters often report a stronger sense of agency, waiting for disasters to build preparedness is both costly and avoidable. This aspect is explored in more detail in the companion reports *A resilient life: How wellbeing shapes the capacity to cope* and *After the storm: How disasters reshape resilience and trust*.

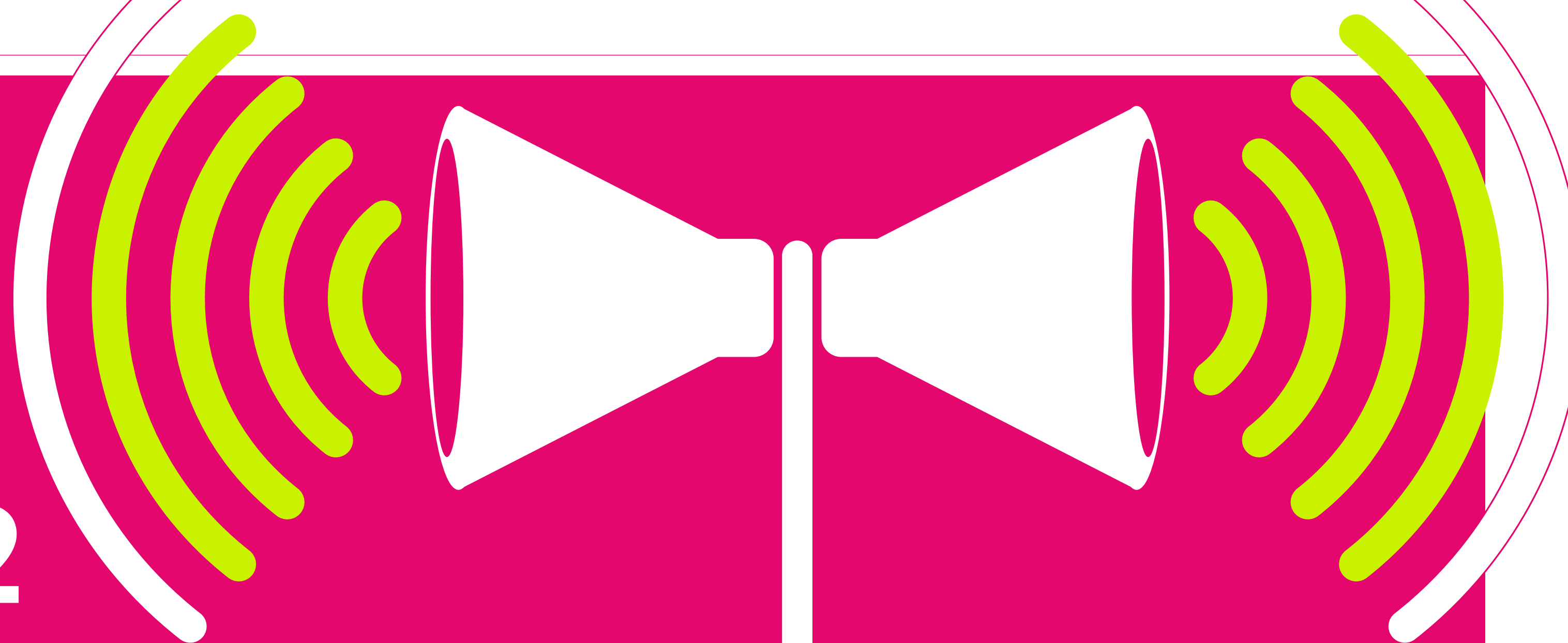
CHAPTER 2

How prevalent are early warnings before disasters?

Early warnings save lives. They give people time to prepare, seek shelter or evacuate, as well as manage resources and limit the economic and infrastructural damage that disasters leave behind⁶. Early warning infrastructure enables different sectors to plan and support more efficient operations. In areas prone to disasters but lacking early warning systems, the risk can discourage long-term investment. In short, early warning systems save lives in the short term and help build better lives in the medium and long term.

Some hazards, such as earthquakes, can only be alerted for as they are happening, and regardless of the hazard in question, not everyone who receives a warning will be able to escape harm. Whether people are able to act on a warning depends on factors such as proximity to a hazard and individual vulnerability. But warnings are a foundational part of disaster preparedness, and their importance is reflected in the United Nations' Early Warnings for All (EW4A) initiative, which aims to:

'Ensure universal protection from hazardous hydrometeorological, climatological and related environmental events through life-saving multi-hazard early warning systems, anticipatory action and resilience efforts by the end of 2027'⁷.



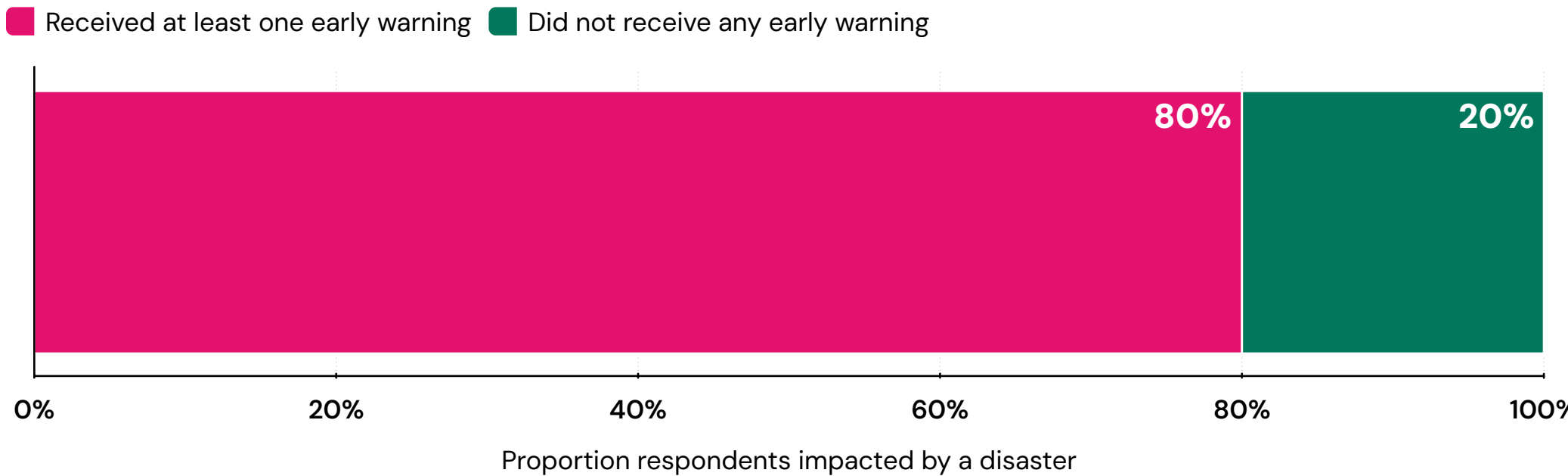
4 in 5

people **IMPACTED** by a disaster in the past five years received some form of early warning.

The 2025 World Risk Poll suggests that early warning systems are reaching most people before disasters occur. Among people who were impacted by a recent disaster, four in five adults (80%) received at least one early warning through at least one channel. Although this is not directly comparable to the 70% reported in 2023 because the 2025 Poll measured a broader list of sources (eight, compared to four in 2023), both surveys suggest that most people receive some form of warning before disaster strikes.

Chart 2.1. Percentage of those impacted by a disaster who received at least one early warning

Four in five adults impacted by a disaster (80%) received at least one advance warning, leaving one in five with none.



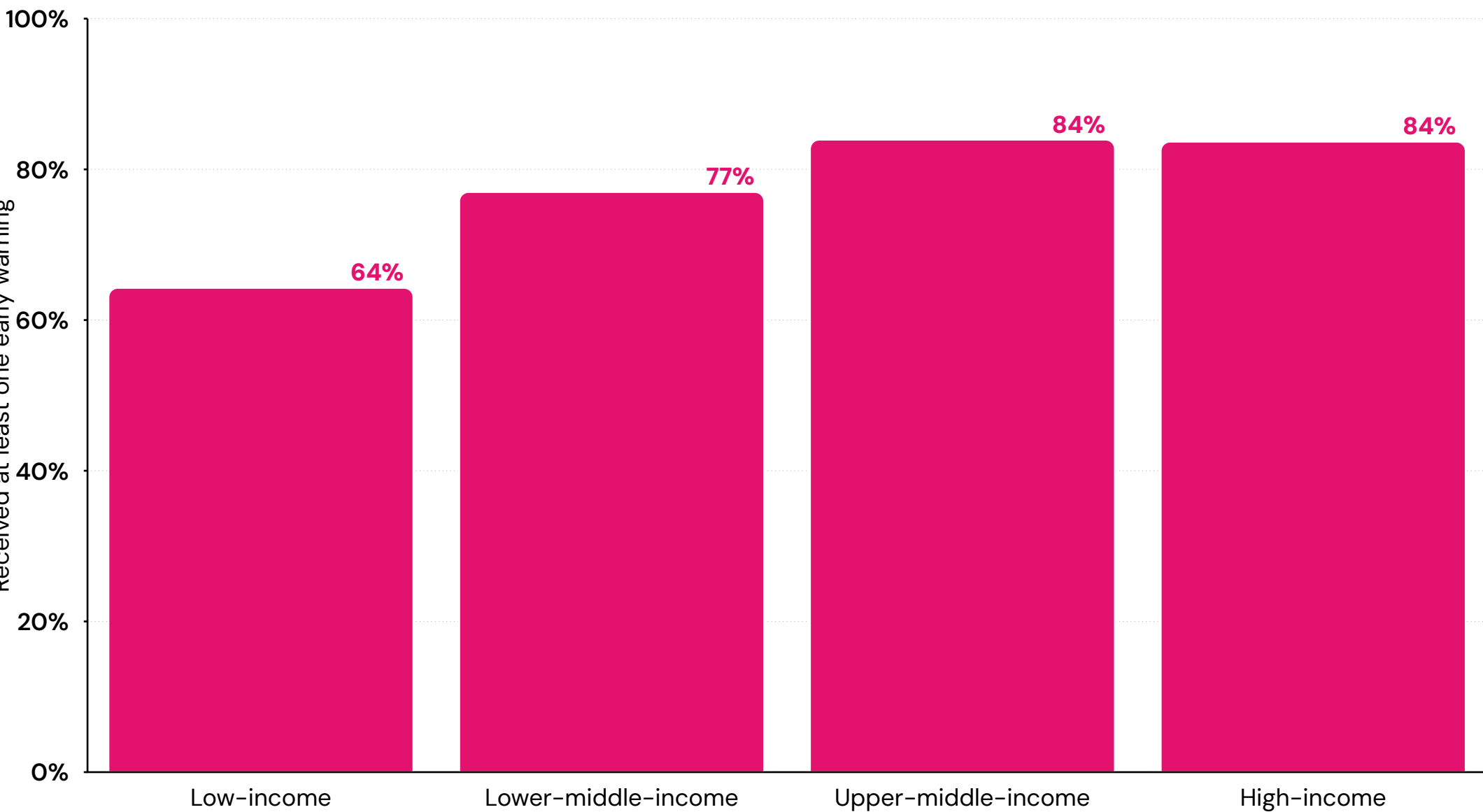
Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not? Internet, social media, websites or apps, including online newspapers or news websites, Radio, Television, Printed newspapers or magazines, SMS or text messages on a mobile phone, WhatsApp, Billboard, Megaphone, microphone, or loudspeaker.

Regional and income variations in early warnings

The countries that suffer most from disasters are also the least well-equipped to warn people in advance. In low-income countries, fewer than two-thirds of people impacted by a disaster (64%) received at least one warning. The gap narrows considerably as national income rises. Around three-quarters (77%) of those impacted in lower-middle-income countries were warned, rising to 84% in upper-middle- and high-income countries.

Chart 2.2. Percentage of those impacted by a disaster who received at least one early warning, by World Bank country income group

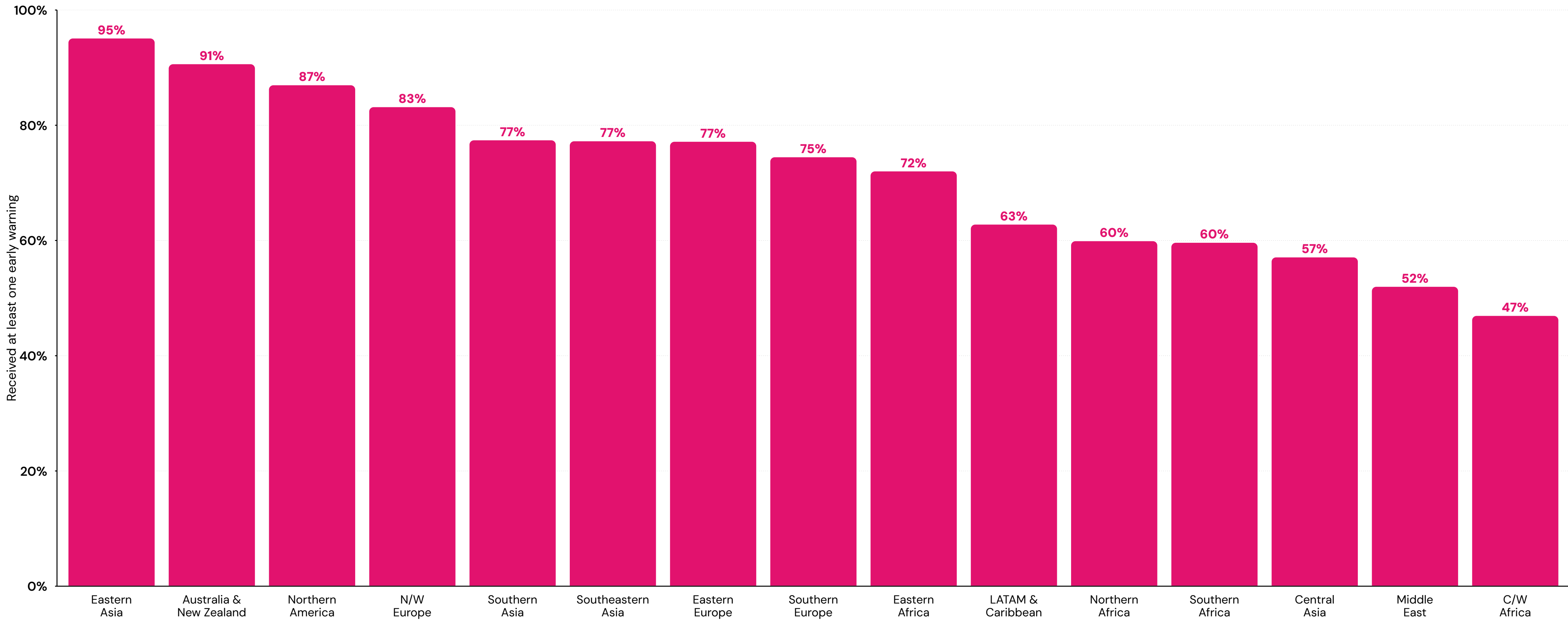
Warning coverage rises with national income, from 64% in low-income countries to 84% in both upper-middle- and high-income countries.



Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

Regional differences in early warning coverage are substantial, though most of the world achieves relatively high levels. Eastern Asia leads the world for exposure to early warnings, with 95% of those impacted by a disaster receiving at least one form of warning, followed by the mostly high-income regions of Australia and New Zealand (91%), Northern America (87%) and Northern/Western Europe (83%). In every region except Central/Western Africa (47%), at least half of all adults affected by a disaster received at least one warning beforehand.

Chart 2.3. Percentage of those impacted by a disaster who received at least one early warning, by region
Eastern Asia leads the world at 95%, and Central/Western Africa is the only region where fewer than half of those impacted were warned (47%).



Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

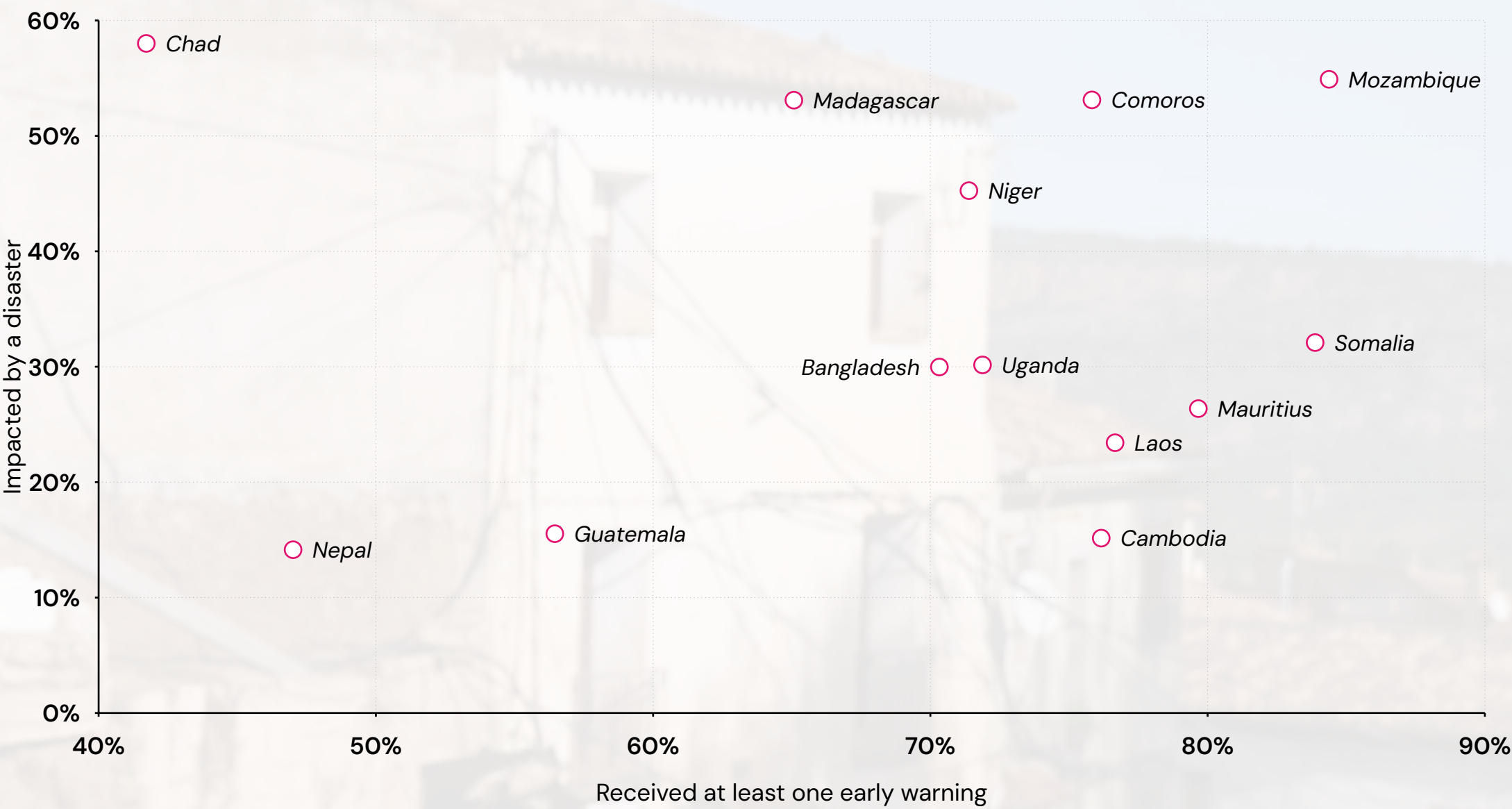
At the country level, Vietnam (100%), Hong Kong, S.A.R. of China (99%) and China (96%) top the rankings. At the other end of the scale, the Republic of the Congo and Gabon (both 24%) record the lowest rates of any countries with sufficient data.

Thirteen countries included in the Poll were initial priority countries for the UN’s Early Warnings for All initiative and have enough respondents who reported being impacted by a recent disaster to analyse the prevalence of early warnings with sufficient statistical confidence. In all but four of the 13 countries, at least two-thirds of people were reached by at least one warning, with reach highest in Mozambique (84%), Somalia (84%), Mauritius (80%), Laos (77%) and Cambodia (76%).

In only two initial priority countries surveyed are fewer than half of those impacted by disaster warned beforehand: Chad (42%) and Nepal (47%). These countries have very different levels of exposure, with more than half of all adults in Chad being impacted by a recent disaster compared to fewer than one in five in Nepal. As such, addressing early warning infrastructure gaps in countries where large numbers are exposed to disasters takes on renewed importance.

Chart 2.4. Reach of early warnings, by overall percentage impacted by disaster in Early Warnings for All priority countries

Chad records the lowest coverage of any initial priority country at 42%, and more than half of all Chadian adults report being impacted by a recent disaster.



Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

Were you, personally, impacted by a disaster, such as [local examples] in [country] in the past 5 years? Please do not think of coronavirus for this question.

N.b., Nepal was polled in 2025, before the Trishuli river flood of August 2026.

Disaster-based variations in early warnings

The type of hazard in question matters in determining whether people are warned in time. Tropical storms (94%), heatwaves (93%) and sandstorms (92%) see the highest warning rates, with over nine in 10 adults affected receiving at least one warning. At the other end, geological hazards are much harder to warn against, with 68% of people impacted by an earthquake and 64% of those affected by a mudslide or landslide receiving at least one warning.

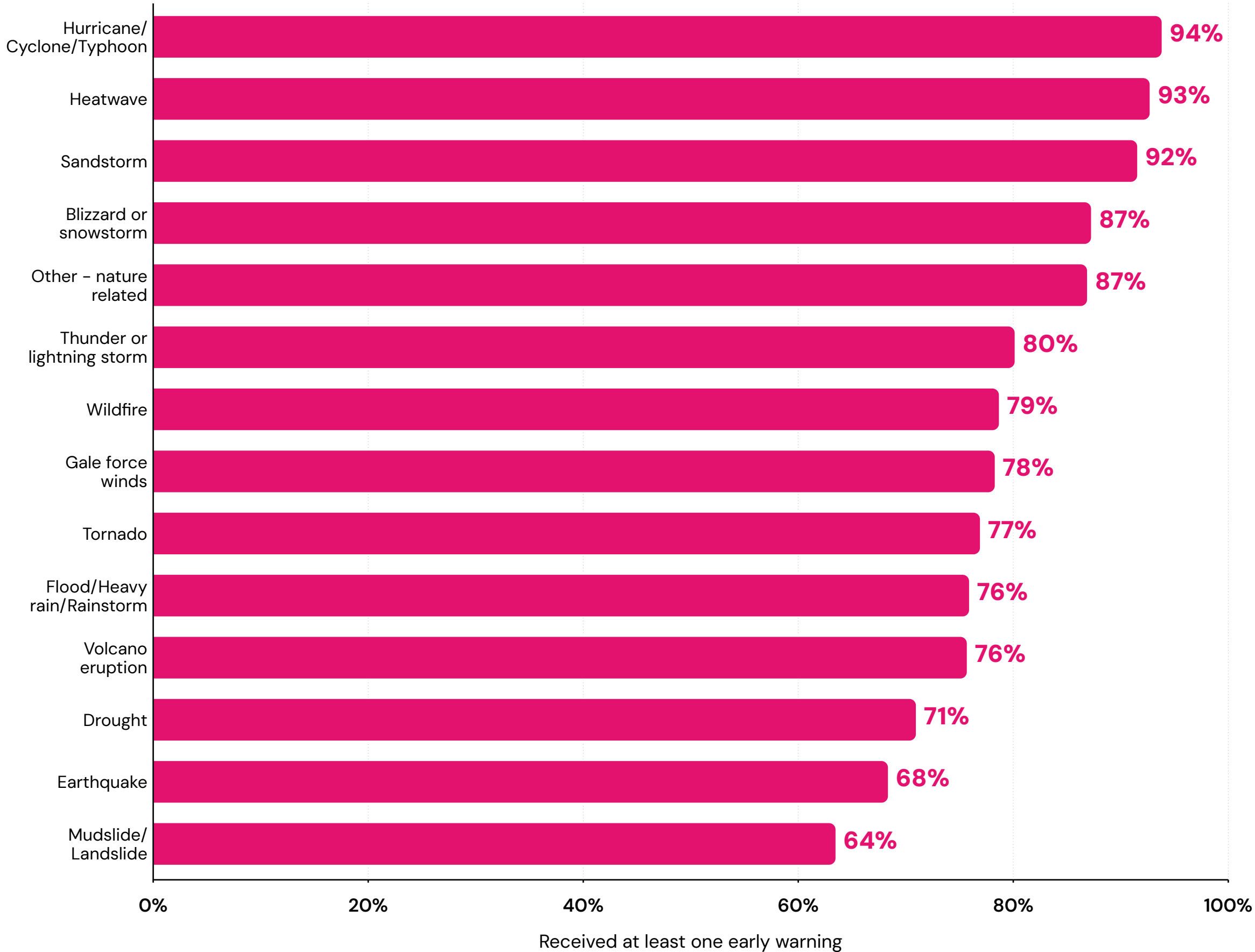
This pattern makes intuitive sense, as these geological hazards tend to strike quickly and with little forewarningⁱ, whereas hydrological hazards develop more gradually and are easier to monitor and predict. Earthquakes, in particular, are notoriously difficult to forecast and, therefore, give warning of, so some people who reported receiving a warning may be referring to information received during or shortly after the event, rather than solely alerts prior to the event.

Nevertheless, earthquake warnings can still be valuable. Alerts can provide warnings of aftershocks. Additionally, earthquakes can also affect places far from the epicentre, since seismic waves take longer to reach them. This delay means that seismometers closest to the epicentre can detect the initial waves and trigger an alert, giving valuable advance notice to those farther away.

ⁱ Other geological hazards like volcanoes can be warned about, though the precision of the warning may still be lacking.

Chart 2.5. Percentage of those impacted by a disaster who received at least one early warning, by disaster type

Coverage is linked to how fast a hazard arrives, from 94% for tropical storms down to 68% for earthquakes and 64% for landslides and mudslides.



Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

Thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, what type of event was it?

Early warning channels

In 2025, the World Risk Poll expanded its questions on early warnings, asking people affected by a disaster whether they received a warning from any of eight specific channels — twice as many as in the 2023 edition, which blended channels (e.g., internet/social media) with sources (e.g., local government or police). This allows for a more detailed assessment of how early warning systems operate in practice.

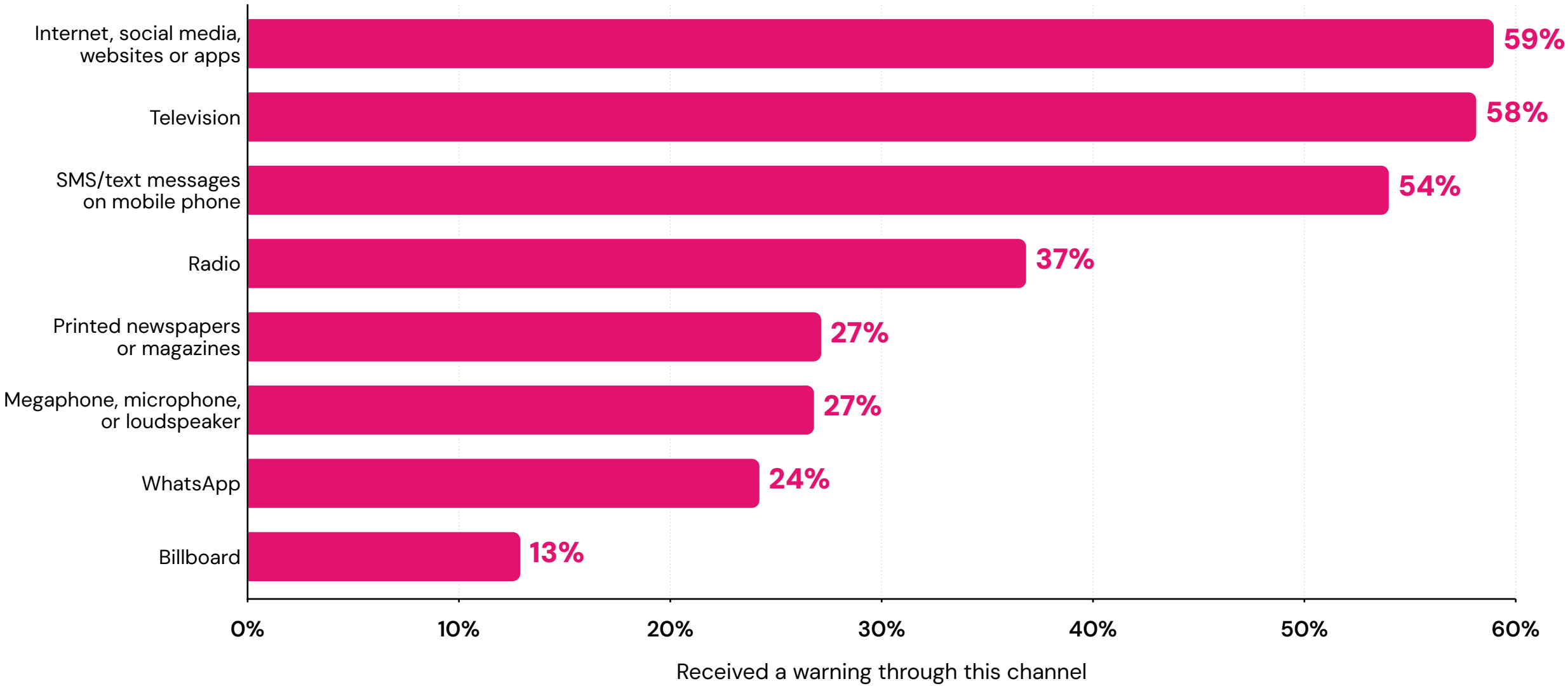
2023	2025
Radio, TV, or newspapers	Internet, social media, websites or apps
Local government or police	Television
Internet/social media	SMS/text messages on mobile phone
Local community organization	Radio
	Printed newspapers or magazines
	Megaphone, microphone, or loudspeaker
	WhatsApp
	Billboard

Of the channels surveyed, digital and broadcast media stand out for their reach. More than half of those who have been impacted by a disaster were warned via the internet (59%), television (58%) or via SMS/text message on a mobile phone (54%). Slightly more than one in three adults (37%) received a warning from the radio, while one in four saw a warning in a printed newspaper or magazine, or heard one from a megaphone or loudspeaker (both 27%). Billboards are the least common form of early warning measured in this survey, seen by 13% of those impacted by a disaster in the past five years.

Not all forms of early warning are the same when delivered across these different channels. For example, SMS messages tend to be used for more real-time alerting or urgent short-term warnings, while other media are more suited to longer-term warnings. Academic research based on findings from earlier editions of the World Risk Poll highlights how local news is often the most trusted source of early warnings and that most people affected seek warning information from multiple sources, highlighting the importance of message verification⁸.

Chart 2.6. Percentage of those impacted by a disaster who received a warning, by channel type

Digital and broadcast channels reach furthest, with the internet warning 59% of those impacted, television 58% and SMS 54%, compared with only 13% for billboards.



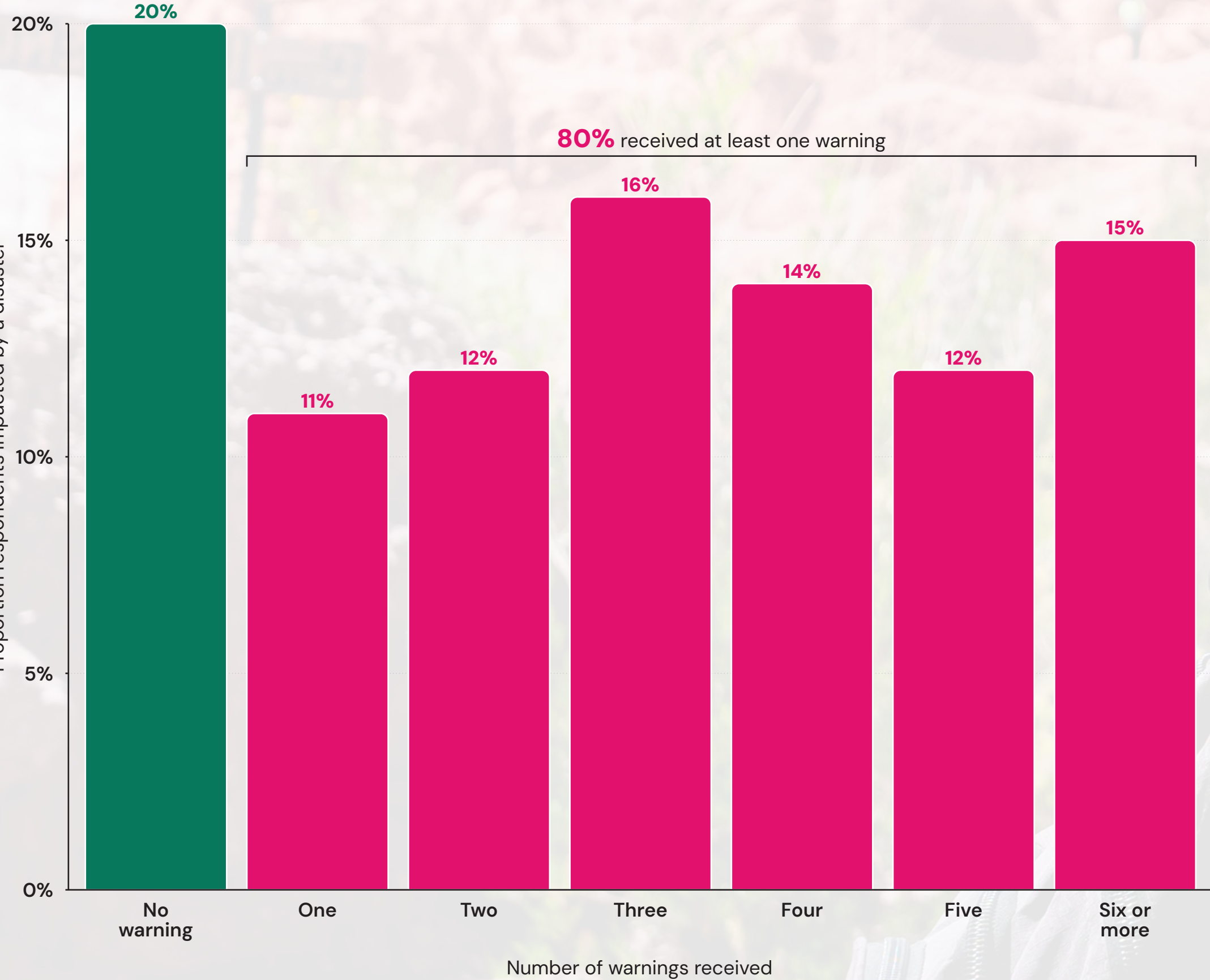
Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

Different early warning systems are associated with different types of natural hazards, likely related to different degrees of urgency and the speed at which hazards become disasters. Of the two most common sources, internet warnings skew notably towards storms, while television use skews towards warnings of heatwaves. Across all hazard types, SMS/text messages outrank WhatsApp and other chat app warnings by a considerable margin. Although both deliver direct messages to mobile phones, the fact that SMS messages do not require internet connectivity likely plays a role in their higher overall prevalence.

People impacted by disaster could select multiple warning channels they may or may not have been reached by, and the findings show that multiple warnings are the norm rather than the exception. While 80% of those affected received at least one warning, only 11% received just one. At the other extreme, 15% received six or more, mostly in the context of slower-onset hazards.

Chart 2.7. Number of warnings received among those impacted by a disaster

Multiple warnings are the norm rather than the exception: only 11% of those impacted received exactly one, whilst 15% received six or more.



Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?



Early warnings and individual resilience

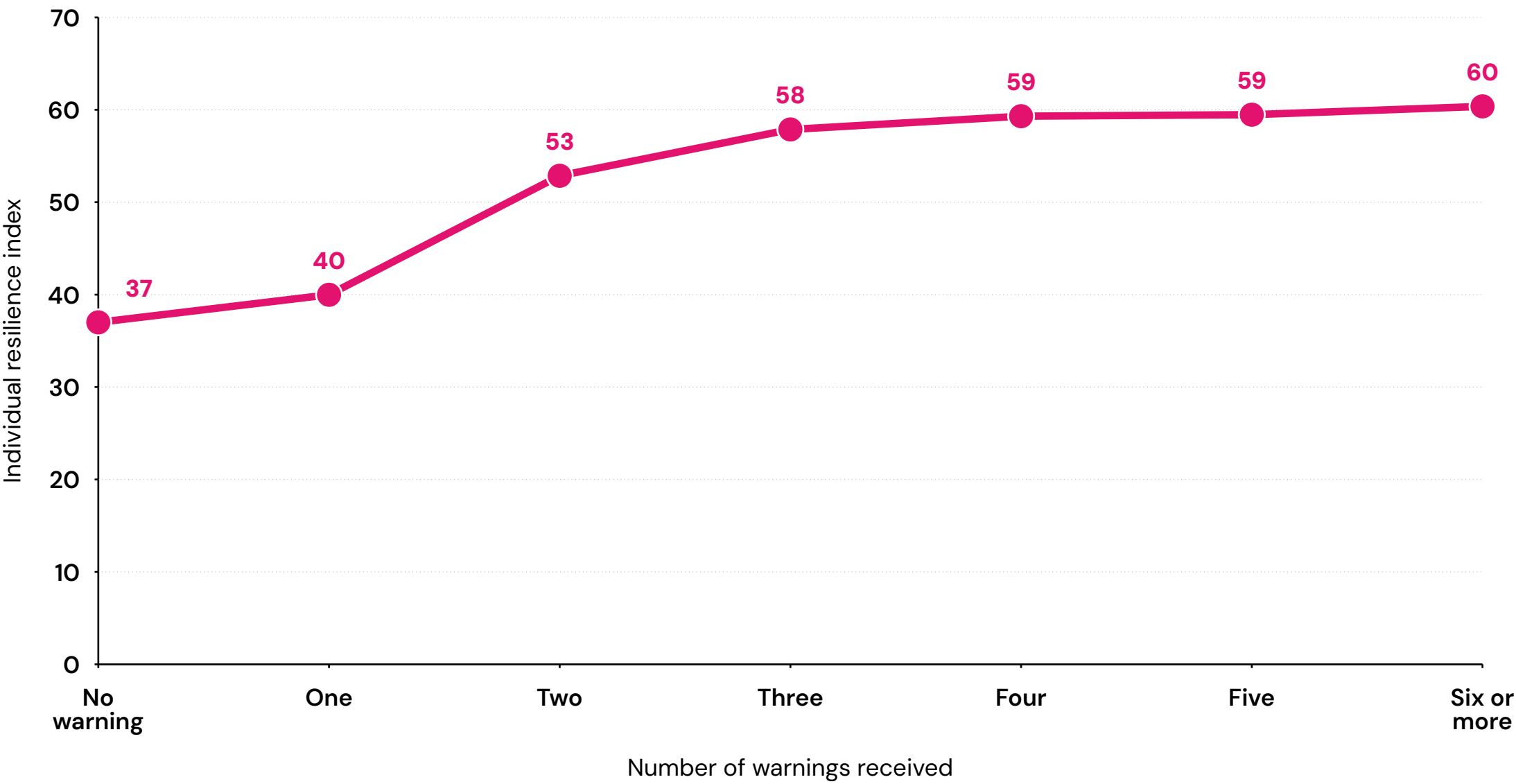
Receiving early warnings before a disaster is a critical component of building resilience. In many cases, early warnings give people more time to prepare, seek protection or evacuate, depending on the nature of the hazard. The Poll’s individual resilience component captures elements of this through a measure of agency, gauging how much people feel they can protect themselves and their families from a disaster.

Receiving a warning from only one channel is associated with resilience scores similar to receiving none (40 vs. 37). A significant jump is observed with a second warning channel, with individual resilience rising to 53. This finding suggests that a second warning converts an alert into a genuine prompt for action in a way a single warning does not. Those who received warnings from three channels have an individual resilience score of 58, but beyond three, additional warnings are associated with relatively little further improvement. One warning is better than no warning, but alone it might not be enough for effective resilience building.

This relationship partly reflects the fact that better-educated people (a component of the individual resilience dimension) are more likely to live in countries with advanced warning infrastructure. But it also points to the value of multi-channel warning systems in their own right and their role in building the kind of individual agency that strengthens wider societal resilience. Multi-channel early warning systems increase the likelihood that a warning reaches people, since if one channel fails, another can still get through. They also reinforce the warning’s credibility: receiving the same message through several channels can make people more likely to believe it and act on it.

Chart 2.8. Individual resilience scores based on number of warnings received (average score among those impacted by a disaster)

The second and third channels carry the resilience gain, lifting individual resilience from 40 to 53 and then 58, with little movement beyond three.



Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

Notably, being reached by multiple warnings for the same disaster does not mean that an early warning infrastructure is ‘multi-hazard’. Most systems are designed around individual hazards, yet people rarely encounter them in isolation. For example, a tropical cyclone can generate flooding, flash flooding, landslides, coastal inundation and catastrophic wind damage — being both multi-hazard and cascading hazards (e.g., heavy rain leading to landslides). Systems that focus only on individual hazards in isolation can lead to fragmented approaches, unclear warning messages and potentially conflicting advice, thereby missing the opportunity to prepare for interconnected hazards and risks⁹. Household preparedness plans alongside early warnings are crucial in reducing the impact of disasters in multi-hazard contexts¹⁰.

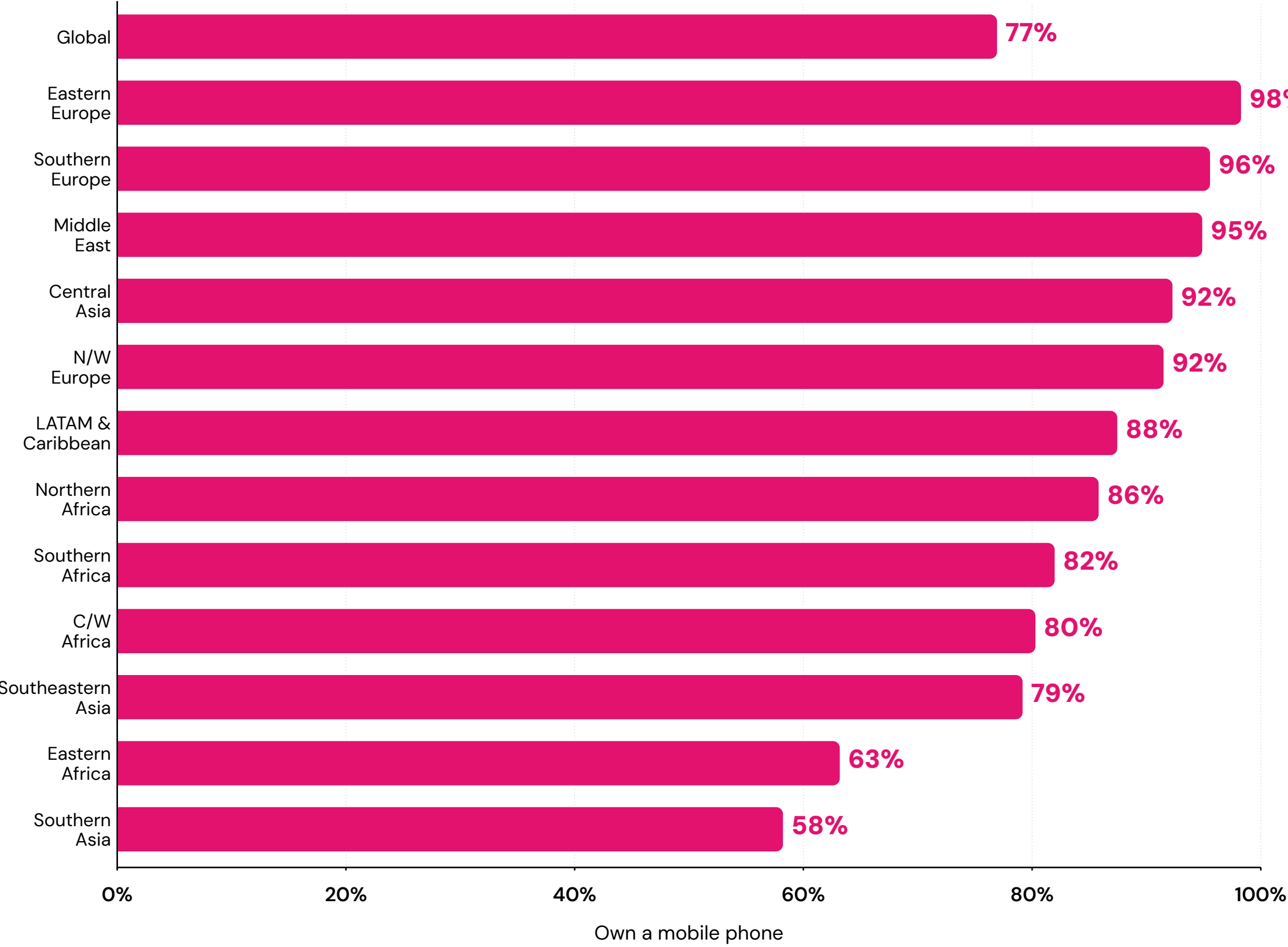
Closing the gap: mobile phones and the unwarned

Most people who have been impacted by a disaster are warned beforehand, often through multiple sources. But those who receive no warning — i.e., the ‘unwarned’ — are often the most vulnerable, and the consequences of not being warned can be significant for people’s health, safety and livelihoods.

Yet many of these unwarned people possess the technology needed to reach them. Of the 20% globally who received no warning before being impacted by a disaster, 77% own a mobile phone — equating to more than 170 million adults. Device ownership among the unwarned is practically universal in Northern America and Australia and New Zealand (both 100%) and above 90% in Eastern, Southern and Northern/Western Europe, the Middle East and Central Asia. Even in the two lowest regions on this measure — Southern Asia (58%) and Eastern Africa (63%) — around three in five of the unwarned own a mobile phone. While access to a mobile phone is different from having consistent network coverage and signal on that phone, it nevertheless shows that most people do have access to technology that could help alert them before a disaster.

Chart 2.9. Percentage of unwarned people who own mobile phones, by region

Of adults who received no warning, 77% own a mobile phone, ranging from 98% in Eastern Europe to 58% in Southern Asia.



Question text: Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

Do you have a mobile phone that you use to make and receive PERSONAL calls?

Note: Regions with fewer than 100 unwarned respondents are not shown in the chart.

These findings represent a significant opportunity to close the remaining gap in access to early warnings for all. Mobile phones can deliver warnings through multiple channels, including SMS, internet-based services and messaging apps. Given the evidence supporting multiple warnings in shaping resilience and informing decision-making, there is a significant opportunity to make greater use of mobile devices to extend early warning infrastructure.

Insight to action

While much of the world is doing relatively well at providing early warnings to people before disasters, this chapter highlights three key levers to close existing gaps in access.

- 1. More equitable access to early warning infrastructure:** People in lower-income countries, and more vulnerable groups within those countries, remain the least likely to receive any warning at all. Closing this gap requires deliberate focus on specific geographies (particularly across Africa and parts of Asia) and demographic groups.
- 2. Exposing people to more than one warning:** Having at least one warning is better than receiving no warnings, but there is a compounding effect where people who receive at least two are associated with a significant jump in individual resilience and feelings of agency in the face of disasters.
- 3. The opportunity of mobile phones:** Roughly four in five people who receive no warnings own a mobile phone. Expanding efforts to strengthen SMS warnings is a major opportunity to reach more people with early warnings.

Much of the early warning technology needed to keep people safe from hazards already exists. As such, improving early warning coverage should focus on deploying existing technology more equitably and effectively.



WARNED, NOT READY

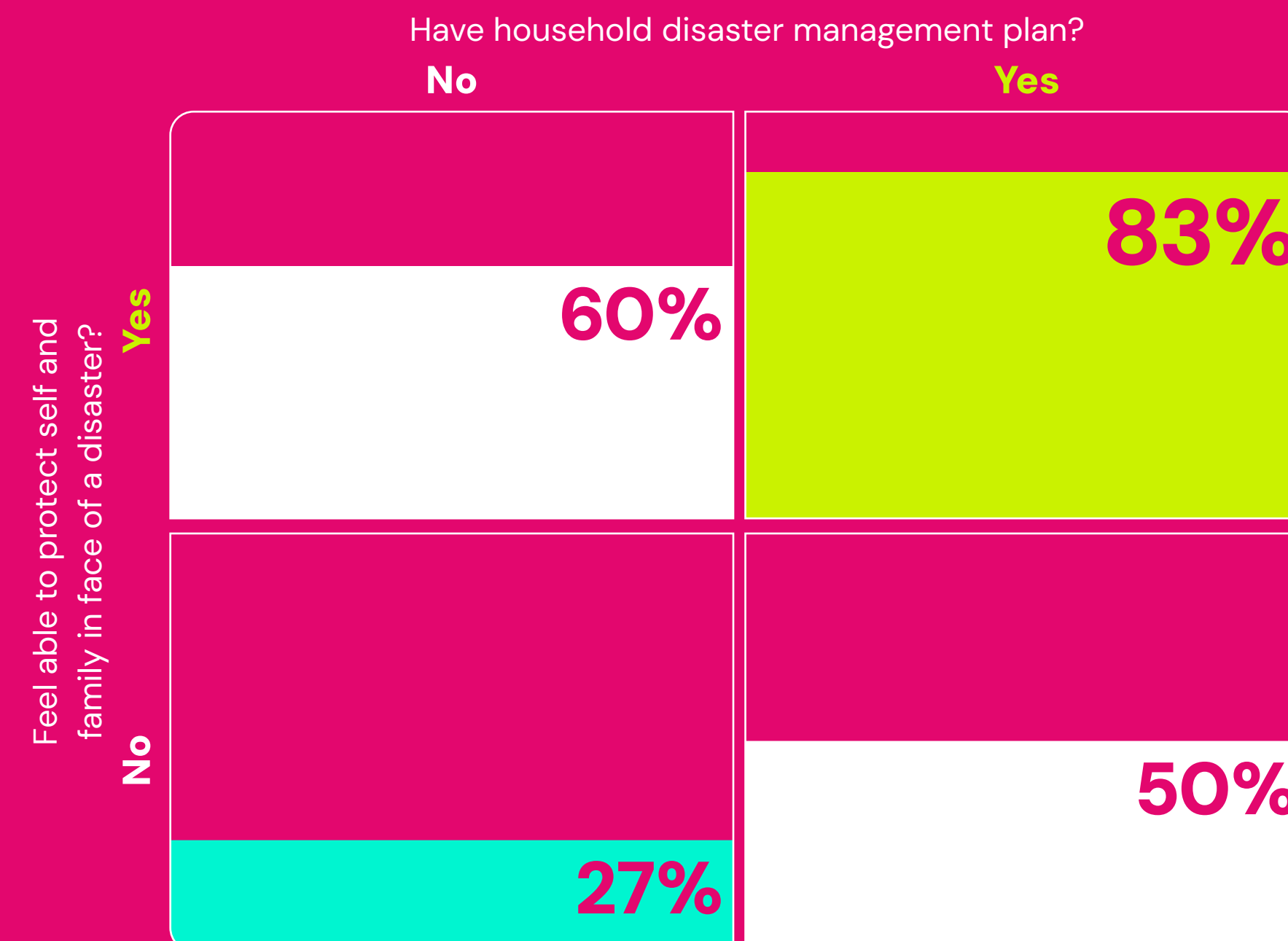
Ability to take action is shaped by feelings of agency AND having a disaster plan.

CHAPTER 3

How effective are early warnings before a disaster?

Early warnings are vital in coping with natural hazards and minimising the extent to which they develop into disasters. However, an early warning is only effective insofar as it enables people to take action, whether that means evacuating ahead of a tropical storm, seeking shelter during a tornado or adapting daily routines during a heatwave. A warning that arrives too late or fails to communicate what someone should do offers little protectionⁱ. The Protective Action Decision Model (PADM) is based on how people respond to disasters and identifies three key decision-making processes related to early warnings: the reception of a message, whether the message commands someone's attention, and how easy it is to comprehend and interpret the warningⁱⁱ. Types of action also differ according to the hazard and warning, ranging in some cases from short-term evacuation to longer-term changes in people's livelihoods.

i. Risk Know-How helps communities navigate risk information and weigh up what should be done. Read more at <https://riskknowhow.org/>

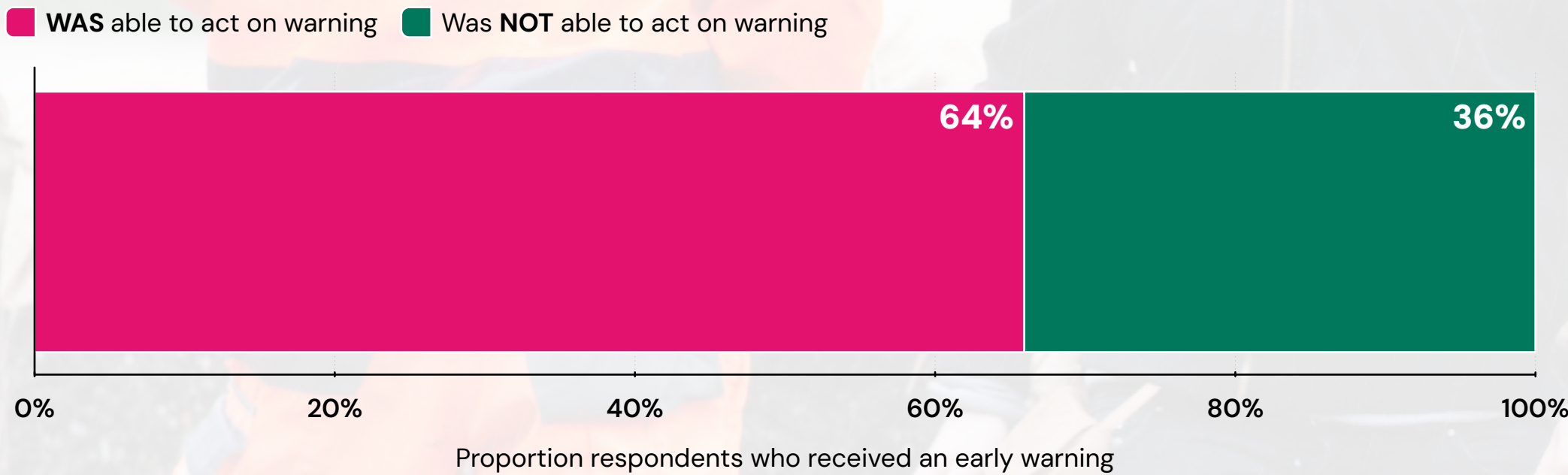


Measuring whether people were able to act because of a warning is just as important as measuring whether they received any in the first place. The prevalence of action offers a lens into the efficacy of early warning systems, whether they reach those at risk and whether their information provides timely, clear details about the recommended course of action. There are several barriers that can prevent people from taking action based on early warnings, such as a lack of resources, distrust in the source of the warning and social influences from others in the community.

Overall, the efficacy of early warnings globally is somewhat less positive than their prevalence. While 80% of those impacted were warned, almost two in three (64%) of those warned were able to take any action as a result. By extension, more than a third (36%) of those who received at least one warning were still unable to act on it.

Chart 3.1. Percentage of those warned before a disaster who were able to take action because of the warning(s)

Of adults who received a warning, 64% were able to act on it, leaving more than a third (36%) warned but unable to respond.



Question text: Were you able to take any action AHEAD of this disaster as a result of the information in the advance warning?



Regional and income divides in acting on early warnings

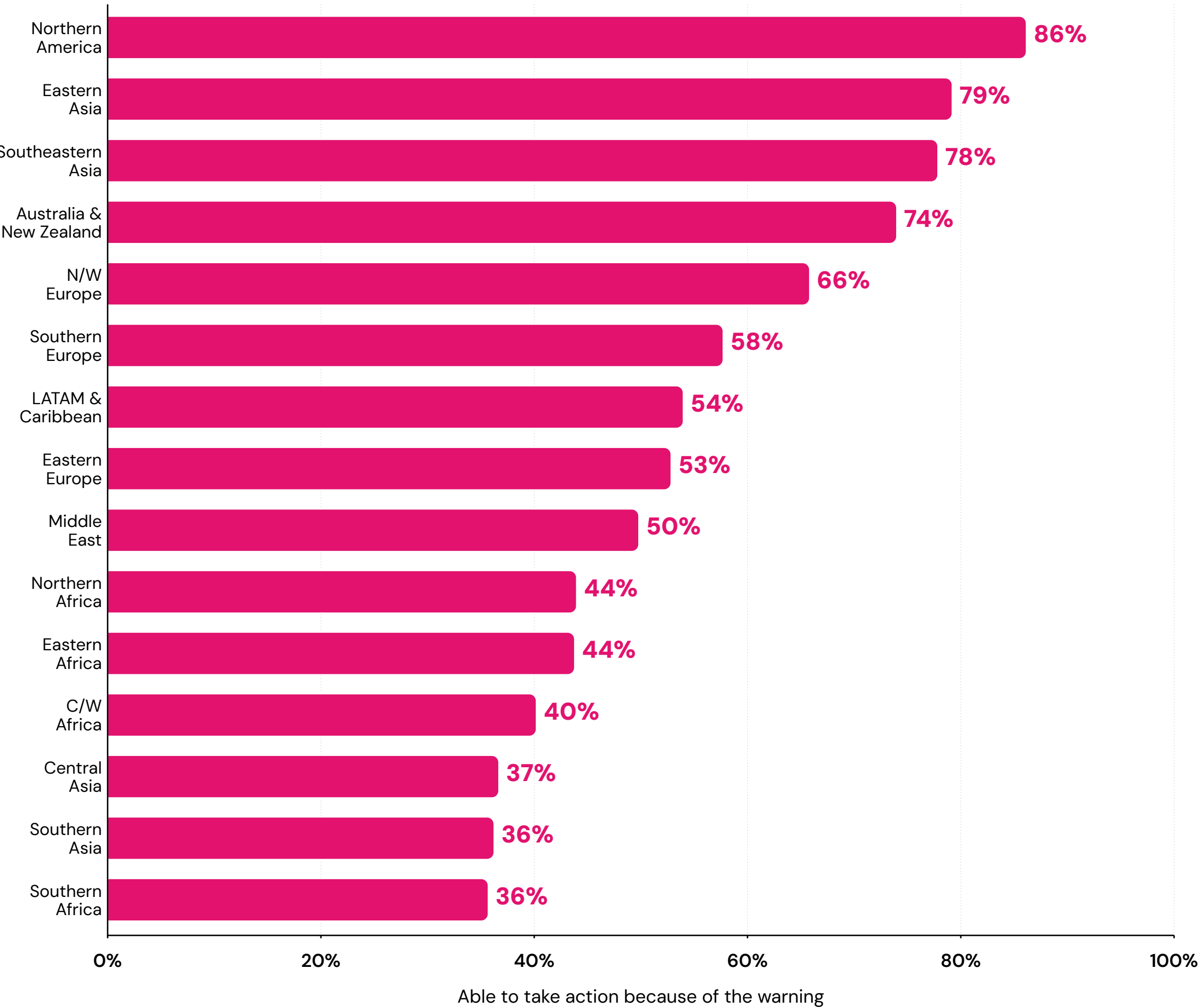
The ability to act on an early warning is closely tied to a country’s income level. Fewer than half of those who received a warning in low-income (48%) and lower-middle-income countries (47%) were able to take action, compared with 75% in upper-middle-income and 71% in high-income countries. In other words, the gap between being warned and being able to act is far wider in lower-income countries.

Regional patterns also reveal important variation. Northern America leads globally, with 86% of those warned able to take some form of action. Eastern Asia (79%), Southeastern Asia (78%) and Australia and New Zealand (74%) also report relatively high rates, and two in three (66%) in Northern/Western Europe were also able to take action. By contrast, only a minority across Africa’s main regions were able to act on early warnings, ranging from 44% in the Northern and Eastern regions to 40% in Central/Western Africa to 36% in Southern Africa. Slim majorities of the warned in Southern Europe (58%), Latin America and the Caribbean (54%) and Eastern Europe (53%) were able to take action.

Asia presents the greatest regional contrast. Central (37%) and Southern (36%) Asia have among the lowest levels of early warning efficacy in the world, compared with Eastern and Southeastern Asia, which rank among the highest.

Chart 3.2. Percentage of those warned before a disaster who were able to take action because of the warning(s), by region

Northern America leads at 86% able to act, whilst fewer than half could respond in every African region, from 44% in Northern and Eastern Africa to 36% in Southern Africa.



Question text: Were you able to take any action AHEAD of this disaster as a result of the information in the advance warning?

Types of disaster, warnings and ability to act

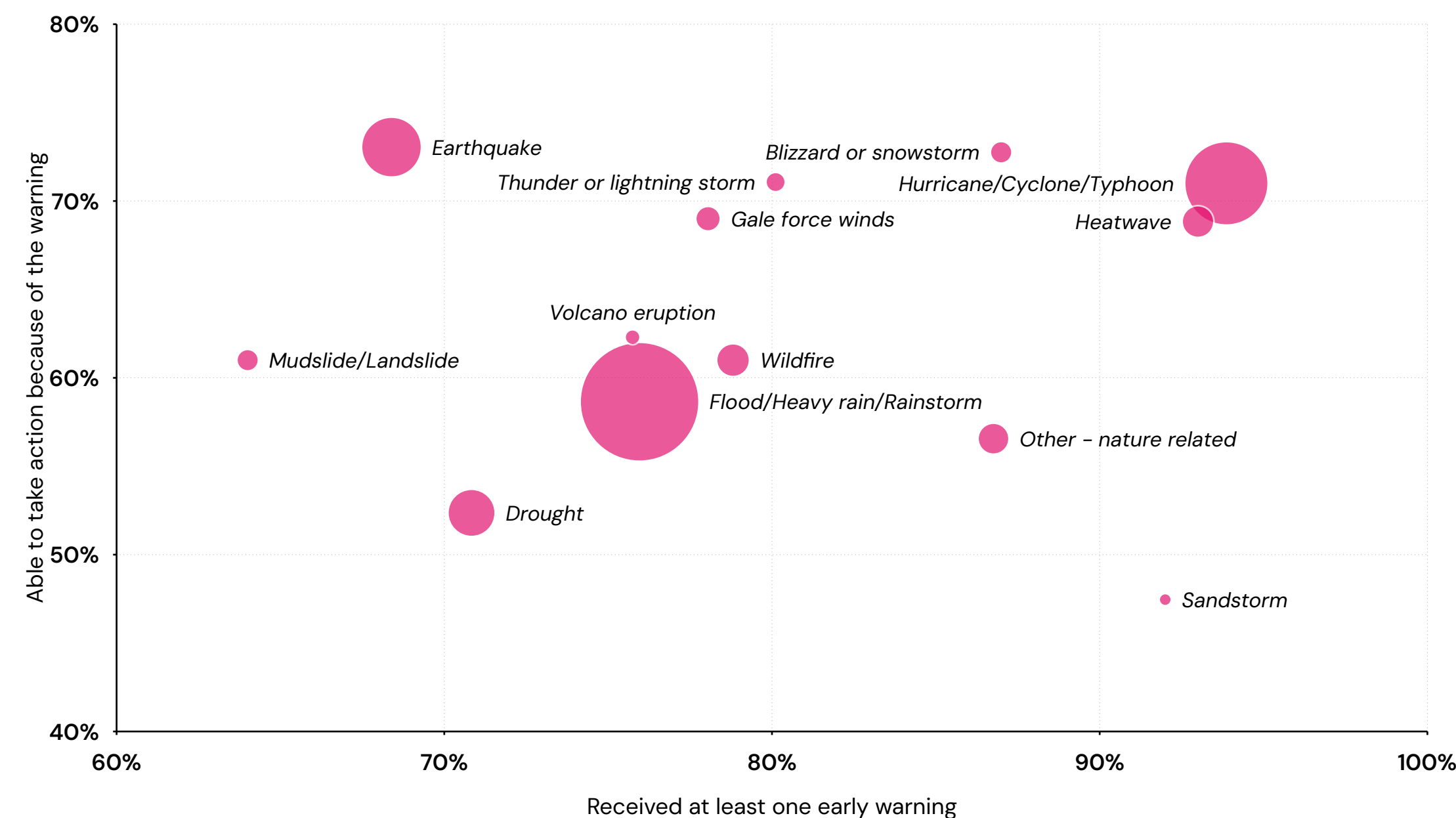
The type of disaster influences not only the likelihood of people receiving a warning but also their ability to act on it. High coverage does not automatically translate into an effective response. Sandstorms, for instance, result in warnings for more than nine in 10 of those they impact, yet only around half of those warned are able to take action.

The two most widely experienced hazards — floods and tropical storms — tell two different stories. Those affected by tropical storms are not only more likely to be warned (94% vs. 76% for floods), but also more likely to act on those warnings (71% vs. 59%). Earthquakes present a different challenge: roughly three in four of those warned (73%) were able to act, close to the rate for tropical storms and well above that for floods, but far fewer of those affected by earthquakes received any warning (68%), and those who did likely received it during or after the event rather than before it.

Drought follows yet another pattern. Even though around seven in 10 of those affected by drought were warned about it, only half were able to take action. This may partly reflect the nature of the hazard and the fact that those affected are disproportionately located in lower-income countries. Drought is predominantly a concern for people working in agriculture, meaning that those in urban jobs may have less need to take action.

Chart 3.3. Percentage of those warned about each disaster type vs. those able to take action because of the warning(s)

Coverage does not guarantee response: more than nine in 10 of those affected were warned about sandstorms, yet only about half could act, whilst 68% were warned about earthquakes with 73% able to act.



Size of bubble proportional to number of people impacted by hazard in past five years.

Question text: Were you able to take any action AHEAD of this disaster as a result of the information in the advance warning?

Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

Thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, what type of event was it?

Note: Disaster types with fewer than 100 warned respondents are not shown in the chart.

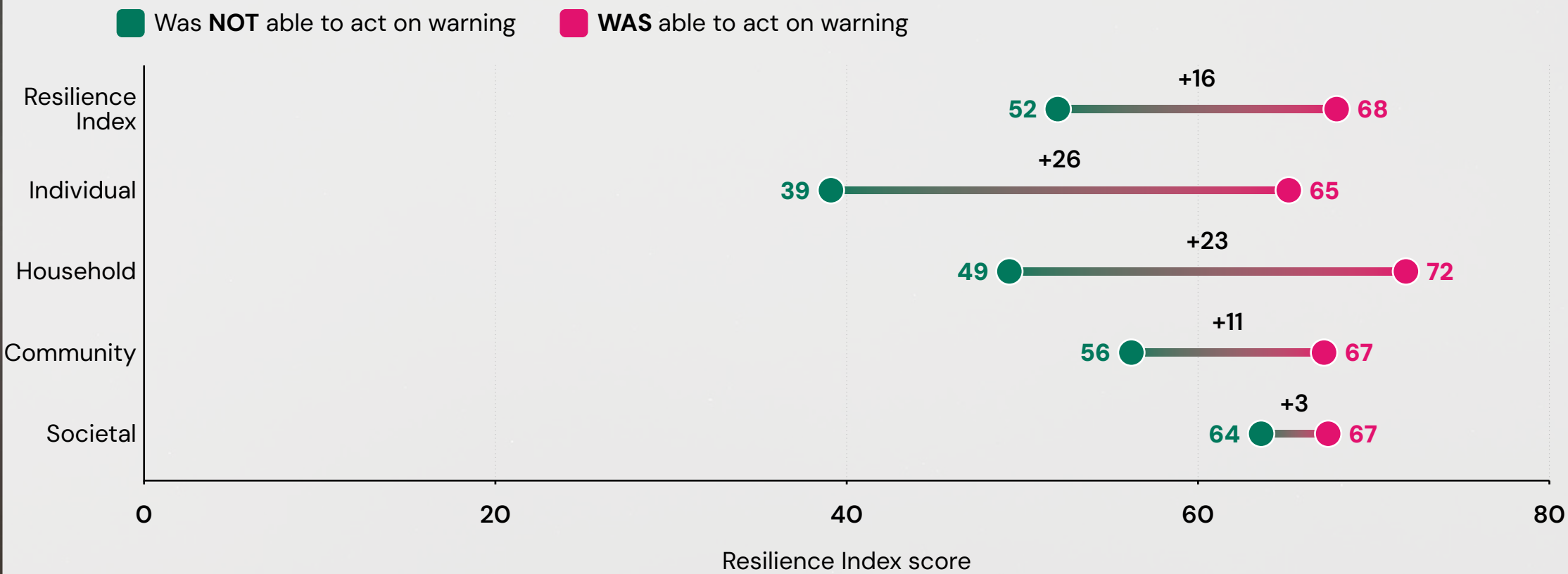
The relationship between resilience and acting on early warnings

There is a consistent link between resilience and the ability to act on an early warning. Among those warned who were able to act, the average Resilience Index score is 68 out of 100, 16 points higher than among those who could not act despite being warned (52).

The gap is widest at the individual resilience level, where those able to act score 26 points higher than those who could not (65 vs. 39). It is likely that people who were able to act consequently rate their individual agency higher because they have some experience of exercising it. The gap narrows at the household level (23 points), shrinks further at the community level (11 points) and is smallest at the societal level (three points). Across every dimension of resilience, however, the link holds.

Chart 3.4. Resilience Index scores, by ability to act based on early warning(s)

Adults able to act on a warning score 68 on the Resilience Index compared with 52 among those who could not, with the gap widest at the individual level (65 vs. 39).



Question text: Were you able to take any action AHEAD of this disaster as a result of the information in the advance warning?

Establishing the direction of causality is difficult. Experience of disaster may build resilience, or more resilient people may be better placed to act when warnings arrive. Regardless of the direction of the relationship, it shows how important agency and effective warning systems are in building people's resilience to disasters.



The compounding effect of multiple warnings

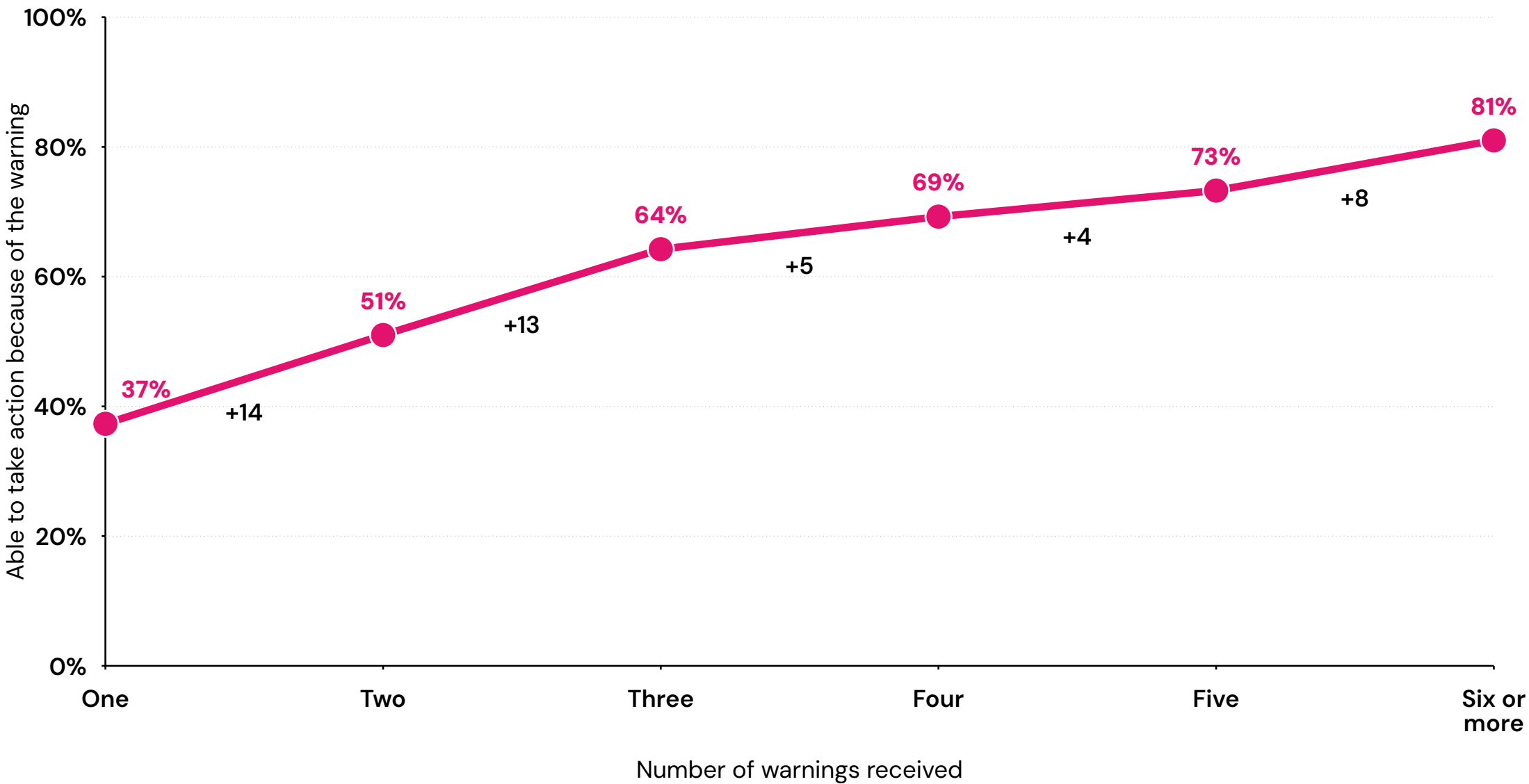
Previous sections in this chapter have shown that exposure to early warnings and the ability to act on them are closely related to the type of disaster, and that most people who are warned can take some form of action, with the ability to act linked to resilience.

This raises an important question: does exposure to more warnings increase the likelihood of taking action? The evidence suggests that it does. Among those who received only one warning, 37% were able to take action. This rises by 14 percentage points among those who received two warnings (51%), and by a further 13 points among those who received three (64%). Beyond three, each additional warning is associated with a smaller gain of four to eight percentage points.

For policymakers seeking to improve early warning infrastructure, these findings suggest that building towards multiple reliable warning channels that reinforce and echo the initial warning gives people the best chance to act when it matters.

Chart 3.5. Ability to act based on number of warnings received (% among those impacted by a disaster and warned)

The share able to act rises from 37% with one warning to 51% with two and 64% with three, after which each further channel adds four to eight percentage points.



Question text: Were you able to take any action AHEAD of this disaster as a result of the information in the advance warning?

Still thinking about the MOST IMPACTFUL disaster you experienced in [country] in the past 5 years, did you receive any advance warning about the disaster through any of the following ways, or not?

This partly reflects access to infrastructure. On average, those with a mobile phone received 3.1 warnings, compared with 2.2 for those without a phone. There is a similar divide between those with (3.3) and without (2.1) internet access.

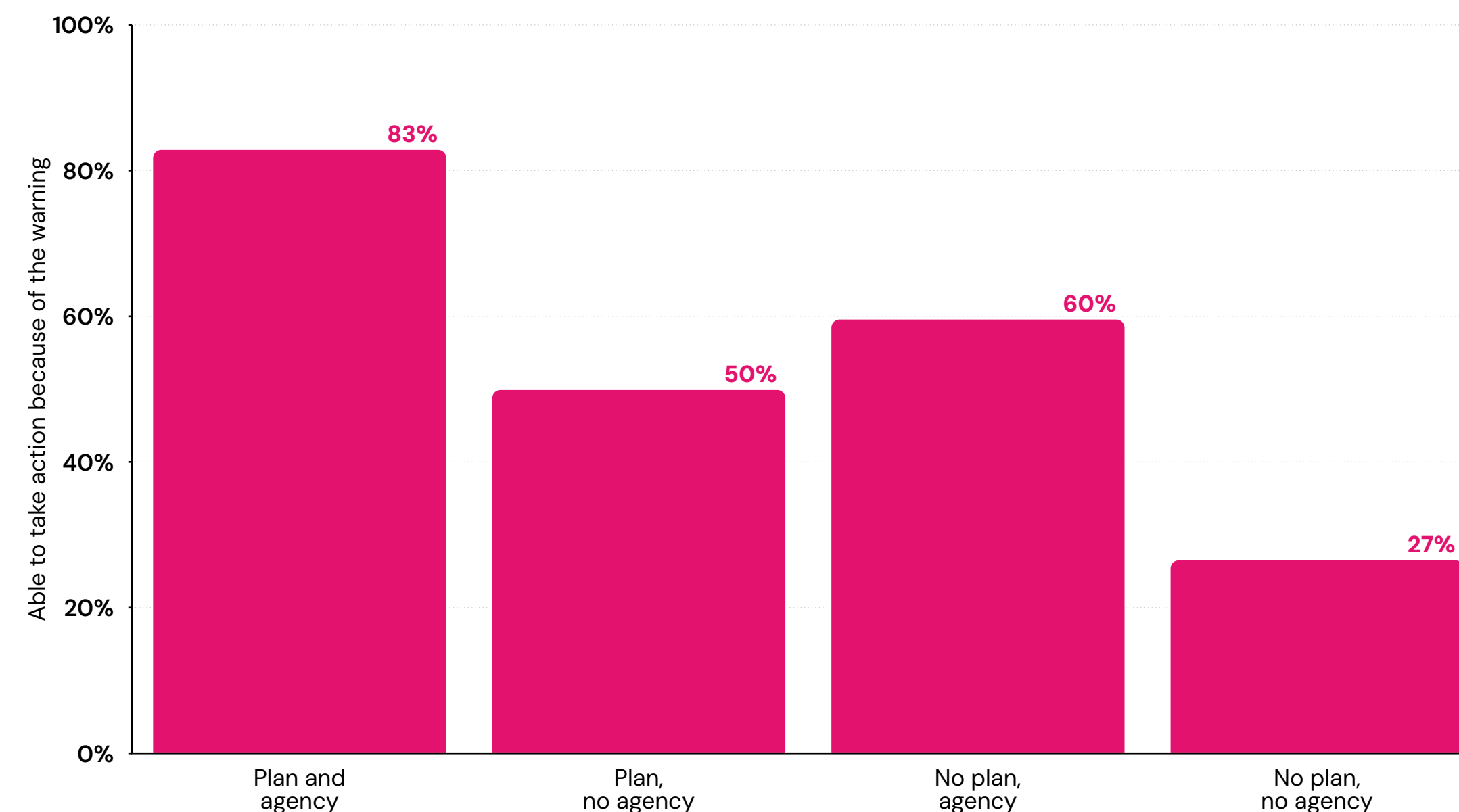
Acting on early warnings linked to disaster planning and sense of agency

Beyond the number of warnings someone is reached by, their ability to act on these warnings is closely tied to two components of individual and household resilience: the belief of being able to protect oneself in the event of a disaster (i.e., a feeling of agency) and having a household plan in case of a disaster, known to all people over the age of 10.

Among those impacted by a disaster and warned beforehand, there are clear differences in the ability to act by agency and planning levels. Only around one in four (27%) of those with no household plan and no sense of personal agency took action in response to the warning. Among those with a plan but no agency, half (50%) were able to act, rising to 60% of those with a sense of agency but no household plan. However, when people have a sense of agency and a household plan in place, 83% can take action when warned of an approaching disaster.

Chart 3.6. Ability to act based on having a household plan and feelings of agency (% among those impacted by a disaster and warned)

Household plans and personal agency compound: 83% of adults with both were able to act on a warning, compared with 27% of those with neither.



Question text: Were you able to take any action AHEAD of this disaster as a result of the information in the advance warning?

I Insight to action

Early warning systems are only as effective as people's ability to act on them. The findings in this chapter show that building effective warning systems requires investing not only in forecasting and communication, but also in people's capacity to respond. More resilient people are more likely to receive warnings and considerably more likely to act on them, giving them the best chance of surviving and recovering. As such, implications for policymakers and other resilience professionals emerge.

First, building resilience at the individual, household, community and societal levels is a prerequisite for making early warning systems work. Second, multi-channel warning infrastructure has a compounding effect, meaning that three warning channels is the practical threshold for maximising the likelihood of action, though every additional channel still carries independent value. Third, efforts to improve early warning effectiveness need to pay particular attention to the regions where it is currently weakest — across much of Africa and parts of Asia — where the gap between being warned and being able to act remains wide. Finally, ensuring that early warning infrastructure is built alongside household disaster plans and an individual sense of agency is necessary to build resilience in the face of disasters. Many of these determinants of resilience are shaped at the city and local level, making subnational governments a key lever for longer-term and flexible resilience investment going forward.

Turning the World Risk Poll into action

The Poll is only useful if it changes something. The Foundation has committed £4.5 million so far to projects that use World Risk Poll data to alter practice rather than only describe it, awarded through an open competitive call, with further funding available on an ongoing basis. Several of those projects work on the warning gap this report measures, and in the South African case a Poll finding is what identified the population the project now serves.

Reaching the households forecasts miss

The Poll identified adults in South Africa's second-lowest income quintile as significantly less likely to receive a warning before severe weather. The South African Weather Service, the UK Met Office and the University of Bristol are working across three areas of the country to establish why, and to change how forecasts are distributed, with the intention of scaling what works across southern Africa.

[*Strengthening access to forecasts for early response in South Africaⁱ*](#)

Local warning systems for landslides

Nepal is one of only two Early Warnings for All priority countries in the Poll where fewer than half of those impacted by a disaster were warned beforehand (47%), and worldwide only 64% of those impacted by a landslide or mudslide received any warning at all. The Global Network of Civil Society Organisations for Disaster Reduction, the National Society of Earthquake Technology Nepal and Light for Generation Ethiopia are installing low-cost warning technology in landslide-prone areas of both countries, alongside indigenous knowledge and local leadership.

[*Strengthening localised early warning systems in Ethiopia and Nepalⁱⁱ*](#)

Warnings that reach informal settlements

Eastern Africa is one of the two regions where mobile phone ownership among the unwarned is lowest, at 63%. Resurgence has integrated Poll data into DARAJA, its early warning service for East African cities, which links residents of informal settlements to national weather agencies through channels people already use and trust. DARAJA began as a pilot in Nairobi and Dar es Salaam and now operates across Kenya, Tanzania, Uganda, Ethiopia and Sudan.

[*Supporting urban community climate resilience in East Africaⁱⁱⁱ*](#)

i. <https://www.lrfoundation.org.uk/news/strengthening-access-to-forecasts-for-early-response-in-south-africa>
ii. <https://www.lrfoundation.org.uk/news/using-the-world-risk-poll-to-strengthen-localised-early-warning-systems>
iii. <https://www.lrfoundation.org.uk/news/supporting-urban-community-climate-resilience-in-east-africa>

Indigenous knowledge in Bolivia's warning systems

Indigenous people make up close to half of Bolivia's population and are not consistently reached by early warning systems. Practical Action, with CLEAR Global and the University of Edinburgh, is working with the Tacana territory in the Amazon and Aymara communities in the high Andes to bring traditional bioindicators and adaptation practices into official risk management, and to make warning information actionable in the languages people actually use.

[*Indigenous inclusion for informed disaster risk reduction in Bolivia^{iv}*](#)

Household preparedness in multi-hazard settings

Among adults impacted by a disaster and warned beforehand, 83% of those with both a household plan and a sense of agency were able to act, against 27% of those with neither. Researchers at Cardiff University and King's College London, with 510 at the Netherlands Red Cross, Geology for Global Development, UN-Habitat and UNESCO, are developing multi-hazard household preparedness plans for low-income settings, with fieldwork in Nakuru, Kenya.

[*Improving household preparedness in multi-hazard contexts^v*](#)

Trust in the source of a warning

A warning only changes behaviour if the person receiving it believes it. Resilience First, with the International Coalition for Sustainable Infrastructure and University College London, has analysed Poll data to identify what shapes trust in disaster information sources, and the analysis of warning source preference cited in Chapter 2 comes from that work. Researchers at the University of Leeds are separately combining the Poll with climate projections to design risk communication strategies for particular contexts.

[*From perceptions to saving lives: designing multi-hazard early warning systems · Analysing risk perception and preparedness to develop disaster risk communication strategies^{vi}*](#)

Details of every funded project, and the criteria for the next round, are on the Foundation's [*grant funding pages^{vii}*](#).

iv. <https://www.lrfoundation.org.uk/news/indigenous-inclusion-for-informed-disaster-risk-reduction-in-bolivia>

v. <https://www.lrfoundation.org.uk/news/improving-household-preparedness-in-multi-hazard-contexts>

vi. <https://www.lrfoundation.org.uk/news/analysing-risk-perception-and-preparedness-to-develop-disaster-risk-communication-strategies>

vii. <https://www.lrfoundation.org.uk/partnerships-and-funding/grant-funding>

Conclusion

Early warning coverage stands out as a clear positive in this report, with findings that offer real grounds for optimism. Four in five adults impacted by a disaster in the past five years received at least one advance warning, and in every region except Central/Western Africa, at least half of those affected were reached. Measured against the ambition of Early Warnings for All, much of the world is closer than the state of formal infrastructure alone would suggest.

The gap that remains is not randomly distributed. Adults in low-income countries report being impacted by disasters at roughly twice the rate of those in high-income countries (31% vs. 16%), and within low-income countries the burden concentrates on those with least education (37% among adults with primary education or less). These are the same populations least likely to be warned — at 64% coverage compared with 84% in upper-middle- and high-income countries — and, with lower-middle-income countries, the least likely to be able to act on a warning when it arrives (48% and 47%). Low-income countries are also the only income group where being impacted by a disaster is not associated with a stronger sense of personal agency afterwards, scoring 33 compared with 32 among those not impacted. Living through a disaster builds something almost everywhere else. Where resources are thinnest, it does not.

Of adults who were warned, 36% could not act on the warning, and that share is far larger in lower-income countries. This distance between coverage and effectiveness should change how early warning systems are judged, because coverage statistics alone would record a system as working in places where people are being told about a hazard they can do nothing about. What separates the two is measurable and mostly local: among adults with both a household disaster plan and a sense of personal agency, 83% acted, compared with 27% among those with neither.

The number of channels matters, up to a point. The first warning does little on its own, with individual resilience at 40 compared with 37 among the unwarned, and with only 37% able to act. The second and third channels realise most of the benefit, taking the action rate to 51% and then 64%, after which each further channel adds four to eight percentage points. Three reliable channels that reinforce one another, rather than only one channel operated well, is what the evidence supports.

Most of what is needed to close the remaining gap already exists:

- **Reach the unwarned through the devices they already hold.** Of adults who received no warning, 77% own a mobile phone, more than 170 million people, and ownership among the unwarned is at or above 90% in seven regions.
- **Target where exposure and coverage gaps coincide.** Chad, at 42% coverage with more than half of all adults impacted by a recent disaster, is the clearest example of a gap that may cost lives at scale.
- **Fund preparedness alongside forecasting.** Household plans and personal agency account for the widest observed difference in whether a warning produces action, and both can be shaped at the city and community level.
- **Judge systems on action, not on reach.** A coverage figure records that a warning was sent. The share of warned people able to act records whether it worked.

We hope that by showing where warnings arrive, where they do not and what determines whether they change anything, this dataset can help policymakers, disaster management agencies and subnational governments direct early warning investment towards the people it is currently missing.

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