Barriers to Compliance with Emergency Warnings

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When a disaster strikes we hope that people will 'Keep Calm and Carry On', listen to the emergency warnings and respond appropriately. Although many people do act as directed, a significant number of people will ignore warnings and put themselves and sometimes emergency service personnel in danger. The following article explores some of the reasons why emergency warnings may be ignored and suggests some ways we can overcome these barriers.

Denial

How often do we hear a fire alarm and assume that it is just a false alarm and likely to be down to someone burning toast? Disbelief and denial are the most common reasons why people fail to act when they see warning signs or hear an emergency warning. For example, during a discotheque fire in Gothenburg partygoers would not evacuate even though the building was filled with black smoke and there was a strong smell of burning[1]. Denial has also been seen under experimental conditions in simulated emergencies. In one study participants were asked to park in a tunnel and wait for the experiment to begin. The experimenters then filled the tunnel with smoke and even when the cars were completely obscured participants still sat passively in their cars as if nothing was wrong[2].

So why do people fail to respond to warnings and deny they are in danger? One reason is that denial can be a useful coping strategy in some situations. For example, when we can not change the outcome (such as when someone is diagnosed with a terminal illness) denial can be psychologically protective. By explaining away the danger warning signs people can reassure themselves that they are not in danger and so reduce their anxiety levels. However, in an emergency situation, when decisions and actions need to be undertaken quickly, denial is not the best approach. For example, in the period leading up to the Ash Wednesday bush fires in Australia in 1983 there were clear warning signs indicating a major fire was likely. However, the residents did not accept the risk and so did not evacuate. If residents had taken notice of the emergency warnings it is possible that 72 lives could have been saved[3].

Even if people decide that following the emergency warning advice is in their best interests, there are still barriers which might stop them from acting on the advice. The three most commonly encountered barriers which people face when

attempting to comply with emergency warnings are: 1) - the cost involved, 2) - the practical difficulties in responding to emergency warnings, 3) - family ties.

Cost

The cost, both financially and in terms of the time and effort people need to invest in responding to emergency warnings should not be underestimated. Research suggests that income level is one of the key predictors as to whether people will undertake behaviours, such as buying emergency equipment or evacuating from hazardous areas. For example, cost has been suggested as being one of the major barriers to the purchase and installation of flood prevention measures in the UK[4]. Further, in America, during Hurricane Katrina those with a low income were less likely to evacuate when instructed to do so[5]. Likewise, single parents (who are significantly more likely to be below the poverty line) are less likely to respond to hurricane warnings[6]. This is not surprising as the average cost of hurricane evacuation for a family in America is thought to be around $200 per household[7] Therefore, the monetary cost involved in responding to emergency warnings (such for equipment purchase or evacuation transport) can be a significant barrier to compliance.

As well as the financial cost there is also the time cost with people needing to invest considerable time and effort to comply with emergency advice. For example tasks such as filling sand bags or planning and carrying out an evacuation all take time as well as money. The importance of time cost was illustrated in one study which found that tourists were more willing to evacuate an area towards the end of their holiday rather than at the start. Evacuating at the start of their holiday presented a considerably higher 'cost' to the individuals (in terms of 'giving up' their holiday) than leaving their holiday when it was nearly over[8].

Practical barriers

One reason people may not respond to emergency warnings is that they may simply not be able to access the message. For example, if an alert is given via the radio or with sirens then those with hearing impairments, the elderly and other vulnerable groups may not hear the warning. In some cases people will hear the emergency warning and decide that they should follow the emergency procedures suggested. However, practical obstacles can make compliance with emergency

protocols difficult if not impossible for some. Research suggests that when people have ready access to emergency equipment or transport then they are much more likely to follow emergency advice. However, compliance is reduced when people are unable to access facilities. For example, people with mental or physical disabilities can find it hard to follow emergency advice, due to a lack of practical support[9]. Further, some people with a physical disability may not follow advice if they perceive that services, such as emergency shelters, are not able to cater for their needs.

Family ties

Another common reason for people not complying with instructions during an emergency, such as evacuation orders, is the absence of a family member. Usually, the presence of young children within a family unit increases compliance with emergency warnings [10]. However, some parents will delay evacuating until their children have returned from school so that they can leave with their children[10]. Furthermore, in some cultures, such as Mexican Americans, family ties are very strong and so evacuation will not take place until all members of the family are present.

Pet ownership has also been shown as being a barrier to compliance with emergency warnings, especially when they involve evacuation. People are very reluctant to leave their animals in danger but emergency shelters rarely have space for pets. Research suggests that pet owners, without children, are the least likely to evacuate with evacuation failure increasing with every additional dog or cat owned[11].

Over reacting?

As well as people failing to respond to emergency warnings authorities also have to deal with people who may overestimate the risk and so overreact during an emergency. For example, during the Three Mile Island accident in 1979 ten times more people evacuated than necessary due to poor understanding of the risk[12]. Similarly, in 1995 following the Sarin attacks in Tokyo 4000 people sought medical assistance even though only 29 people showed any evidence of being exposed to Sarin[13]. This can mean that the resources and support needed for the 'at risk' population may be unavailable as the 'worried well' block access to emergency services.

One of the key reasons that people may overreact to an emergency warning is that they have been given limited or incomplete information. As a result people can overestimate the danger they are in[12]. Officials may shy away from giving out too much information about the details of an emergency for fear of causing panic. However, panic is unlikely to occur and additional information can help people to accurately interpret the risk level they face[14]. Insufficient information can also lead to inappropriate/ undesirable responses with people who are not at real risk undertaking action which could hamper the survival of others who are in danger.

Breaking down barriers.

Although we can never guarantee compliance with emergency warnings there are a number of strategies which can be adopted to encourage appropriate actions.

- To reduce denial behaviours detailed emergency information should be given including specific instructions on how the public should respond. Further the public should be signposted to further sources of information to help informed their decisions. Giving people all the relevant facts is unlikely to cause panic and can allow people to make rational and considered decisions.

- Supplying emergency equipment and training at a low cost and in an easy to access location (such as a supermarket or a school) can encourage people to become prepared for an emergency. Any actions given in an emergency warning must appear feasible and should be low cost to encourage compliance.

- Lessening the financial impact of responding to an emergency can also encourage people to comply. For example, if free transport and free emergency shelters are provided more people will be more likely to evacuate.

- Emergency warnings need to emphasise the 'benefits' of avoiding the potential hazard so that the perceived 'cost' of complying with the warning does not seem so high.

- Strategies need to be put in place to ensure that emergency warnings are accessible and understood by the target population. For example, a sign interpreter can be added to warning messages on television so that the deaf community can access the emergency advice.

- Authorities should ensure that they have emergency procedures in place for special groups, such as the elderly and those with a physical disability. Furthermore, people in these special groups should be reassured that provision for their special needs has been made. For example, emergency transport and shelters need to be appropriately adapted for use by the disabled. In addition, special groups need reassurance that services are able to support them during an emergency.

- To avoid parents delaying evacuation, authorities should communicate clearly how children will be kept safe and moved from affected schools to safe areas.

- Families living in high risk areas should be encouraged to arrange a pre-planned meeting point so that they can all aim for that safe location.

- Provision should be made for people to bring pets with them if they need to evacuate from an area. Emergency carrying devices for pets should be available so owners can safely transport their animals to safety.

- Authorities should consider giving out messages of reassurance to people who are unaffected by the emergency. Reassuring people not 'at risk' can stop them from blocking services needed by people genuinely in danger.

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