

## A social model of secondary stressors in relation to disasters, major incidents and conflict: implications for practice

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# **A SOCIAL MODEL OF SECONDARY STRESSORS IN RELATION TO DISASTERS, MAJOR INCIDENTS AND CONFLICT: IMPLICATIONS FOR PRACTICE (Revision 1)**

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# **A SOCIAL MODEL OF SECONDARY STRESSORS IN RELATION TO DISASTERS, MAJOR INCIDENTS AND CONFLICT: IMPLICATIONS FOR PRACTICE**

## **ABSTRACT**

Researchers have long identified the ability of secondary stressors to have impacts on people's wellbeing and mental health that are similar to the direct effects of major incidents (e.g., emergencies, disasters, infectious disease outbreaks, and conflicts) experientially, and in respect of their prevalence and the strain on services. But there is a lack of clarity about the nature of secondary stressors that can hinder efforts to mitigate their effects. We develop a new theoretical approach in this article. We argue that most secondary stressors are a function of: 1. Social factors and people's life circumstances (that include the policies, practices, and social, organisational, and financial arrangements) that exist prior to and impact them during the major incident; and/or 2. Societal and organisational responses to an incident or emergency. We show that this conceptual framework makes sense of the evidence from different domains and represents a more coherent approach than do previous definitions. We present a worked example from our research on the psychosocial effects on healthcare staff of the COVID-19 pandemic that was declared by the World Health Organization in 2020. We argue that our social model enables a holistic approach to conceptualising and intervening to remedy many of the longer-term and widespread negative psychosocial effects of disasters, conflicts and infectious diseases.

## **KEY WORDS**

secondary stressors

primary stressors

emergencies

disasters

major incidents

COVID-19

healthcare staff

## 1. INTRODUCTION

Major incidents, including emergencies, disasters, disease outbreaks, and conflicts, have multiple direct impacts on humans' lives. They include: exposure to gruesome scenes; exposure to life-threatening danger; bereavement; and physical injury. Other impacts, such as loss of homes, possessions and amenities, may be life-changing.

In these circumstances, 'stress' is a term that is used widely and often inconsistently. Sometimes it refers to a stimulus (more appropriately described as a stressor) and sometimes to people's responses.[1] In respect of major incidents and emergencies, stress describes a collection of common human psychological, physical, and behavioural responses. It can be positive, when it motivates people, but is a problem when the level of stress people experience is overwhelming and unpleasant. Then, the experiences are described as distress.[2] *Stressors* are events, circumstances, attitudes, and responses that stimulate people to experience a stress response, or which cause states of strain or tension because they are excessive.[3]

*Primary stressors* have been defined as factors that are 'inherent in particular major incidents, disasters and emergencies and arising directly from those events', whereas *secondary stressors* are causes of stress that are indirectly related or 'non-inherent and consequential' to the incident.[2 p. 20] Examples of the latter include breakdown of family relationships, lack of effective leadership, lack of support or recognition in people's workplaces, and difficulties in claiming compensation following damage to one's property caused by flooding.[4]

Reviews of the combined evidence of effects on people's wellbeing and mental health of serious incidents and emergencies have long identified the role of *secondary stressors* as of similar importance to these primary stressors. Each kind of stressor is a major predictor of distress and a range of mental health disorders including depression, anxiety and PTSD.[5]

The significance of secondary stressors can be analysed at multiple levels. They include: experientially with regard to the distress they cause; in terms of the mental health outcomes; their prevalence; the strain caused by them and any interventions

made; and their demands on community and institutional support. In some studies, people report suffering more from the effects of secondary stressors than primary stressors.[6] Thus, the adjective *secondary* does not mean that a feature is of lesser importance or impact, but that it is not directly attributable to the incident under consideration.

The concept of secondary stressors has great utility in the context of psychosocial care following disasters for these same reasons; it offers a fruitful way of thinking about the true effects of disasters beyond the limited scope of 'trauma' and mental disorder, as well as the possibility of new ways of thinking about remedies to the distresses they cause. It is not surprising, therefore, that the concept of secondary stressors is widely used in the literature; a recent search on Google Scholar found over 4,000 articles referring to the concept.

Yet, there is a need for theoretical work on the concept of secondary stressors. This is for three reasons. First, even a cursory review of the literature shows that the same or similar constructs are being used with different names (e.g., 'daily stressors').[7] Conversely, the same name is sometimes used in a loose or imprecise way, thereby deviating from the conceptual core of being linked to the incident but not overlapping with the primary stressors. The work of Lock et al. and Alfadhli and Drury, which developed typologies of secondary stressors, mark important developments in seeking clarity.[4, 6] But this is still preliminary conceptual work, and much of the existing literature remains, at best, descriptive and, at worst, inconsistent.

Second, developing a theoretical approach to secondary stressors can serve to legitimise a focus beyond immediate traumatic events to the wider effects of major incidents. An example is the recent finding that having a pre-existing mental health disorder may pose a greater risk of death when people contract COVID-19 resulting from the impacts of cognitive changes, depressed mood, hallucinations and/or delusions, and behavioural problems.[8] Thus, secondary stressors may serve to increase the risks that primary stressors pose.

A third reason why theoretical work is needed is to restore the balance between health promotion, prevention and care for distressed people, and meeting the needs of people

who receive a diagnosis. Understanding secondary stressors forces a focus on the societal factors that increase the risks and distress posed by major incidents. It asks the question: how can these factors be changed to ensure that there is no legacy of secondary stressors in the event of an emergency, disaster or disease outbreak?

Our argument is in line with the wider literature on the social ecology of health promotion, which argues that, in the context of major incidents, features of people's social environments can operate as stressors independently of the incident itself.[9] Our view of secondary stressors is also aligned with a 'systems thinking' approach when considering the relationship between climate change and mental health. Berry et al. argue that researchers should consider how systemic drivers (e.g., government actions and policies or the availability of infrastructure) can interact with other social (e.g., ethnicity, identity, social connectedness) and personal (e.g., gender, life circumstances) factors to affect mental health outcomes.[10] Our paper is a contribution in this direction.

We mean two things by 'developing a theoretical approach' with regard to secondary stressors. The first is seeking greater conceptual clarity over the definition and distinguishing features of secondary stressors. The second is a model indicating the relationship between primary and secondary stressors, their antecedents and consequences. The theoretical claim that we develop in this article is that most secondary stressors are a function of the nature of societal organisation (e.g., its government and public/group norms) and people's life circumstances *prior* to the major incident. They may also be in the form of the *response and recovery* arrangements after the incident begins that impact on each person who experiences primary stressors caused by a major incident or emergency.

Methodologically, we developed our theoretical claims about the nature of secondary stressors from our multifaceted empirical work on public responses to major incidents caused by extreme events, terrorist attacks and on how refugees cope with their situations [4, 6]. This work led to a broader literature search, concentrating on those topic areas in which the 'secondary stressor' concept has been developed and is widely used. Thus, we derived our own approach from an engagement with, and critique of the usefulness and tensions in, the existing literature.

In the next section, we review the empirical literature on secondary stressors in the main domains in which the concept has been employed (caregiving, disasters and major incidents, and refugees of conflict). We draw from our review the main features of secondary stressors, and main issues to be resolved. We outline our social model in the section that follows. We present a worked example from our work on the psychosocial effects on healthcare staff of the COVID-19 pandemic that illustrates how the concept of secondary stressors has substantial benefits for focusing planners' thinking on improving responses to incidents.

## **2. ORIGINS OF THE CONCEPT AND EMPIRICAL FINDINGS FROM THREE DOMAINS**

### **2.1 Secondary Stressors in the Literature on Caregiving**

The concept of secondary stressors has been a central tenet of work conducted on caregiving.

One of the most influential conceptualisations of secondary stressors in this context comes from Pearlin's '*stress process model*'.<sup>[11]</sup> Pearlin suggests that stressors do not operate in a social vacuum and focuses on the social conditions and structures that can result in caregivers' experiences of stress through social roles, structures, and institutions. The stressors include events embedded within ongoing circumstances, as well as chronic strains, that are persisting problems that people can face during their lives. Stressors such as these are not separate; rather, chronic strains can cause specific life circumstances and these life circumstances can trigger chronic strains, or the two may co-exist. Pearlin also notes that stressors do not occur independently but as clusters - a person exposed to a single stressor is also likely to be exposed to a range of other stressors that can be separated between *primary* and *secondary*.<sup>[11]</sup>

In Pearlin's approach, primary stressors are conceptualised as stemming directly from the phenomenon at hand (e.g., death, injury or job loss) and as driving the stress process. He treats secondary stressors as consequences of primary stressors (e.g. family conflict, financial difficulties, impacts on social life, loss of self, sense of captivity)

that can exacerbate the effects of primary stressors or become chronic stressors in themselves.

A large number of studies have empirically examined the theoretical propositions put forward by Pearlin and colleagues in relation to the impact of secondary stressors on caregivers' wellbeing.[11] The psychological burden of caregiving among Chinese men who cared for older family members, for example, was predicted by increased gender role conflict and a lower sense of self-efficacy in terms of handling distressing thoughts, coping with disruptive behaviours, and confidence in problem-solving.[12] Depression suffered by caregivers of family members who had dementia was predicted by loss of intimate exchange, loss of self through one's subjective identity being blurred or lost due to caregiving commitments, and reduction in the quality of relationships. These effects were due to cognitive impairment, personality change or memory loss.[13] Similarly, depression among caregivers for people who had AIDS was related to secondary stressors such as financial strain and conflicting demands between work and caregiving,[14] as well as being due to increased work strain and the constriction of leisure activities.[15, 16]

Other examples include the gender differences that have been observed in the impacts of primary and secondary stressors on wellbeing. Wives who are caregivers have reported more restriction of their personal and social activities, which can lead to a loss of sense of self and fragmentation of their subjective identity because of a decrease in their social connectedness, social roles and social contacts.[17] Moreover, primary stressors, such as a family member's cognitive impairment, were related to secondary stressors (such as decreased family adaptability, reduced satisfaction with decision-making and increased family conflict), and the later increased the chances of depression.[18] In each of these cases, the distress caused by the secondary stressors was in addition to, or exacerbated, people's suffering related to the primary stressor.

The evidence we have presented thus far clearly demonstrates that some authors see primary stressors as exerting their negative impacts on wellbeing either directly or indirectly through a range of mechanisms, which they may construe as being secondary stressors.



Crucially though, Pearlin and his colleagues note that the effects of primary and secondary stressors can be ameliorated by moderators such as availability of social support and caregivers' coping strategies.[11] People who identify as members of a couple, for example, and who incorporate their relationship in their self-concepts, can buffer the effects of secondary stressors on their mental health by reducing the sense of captivity and loss of self and subjective identity, while increasing their self-esteem and competence. Moreover, feeling overloaded as a caregiver may exacerbate secondary stressors (such as the impact on caregivers' schedules, financial issues, and lack of family support). But these effects can be buffered by the presence of social and emotional support.[19] In the context of mothers caring for children with leukaemia, higher levels of strain led to increased depression and lower perceived social support, though research indicates that social support moderates this relationship and diminishes the stressors' effect.[20] Elliott et al. found that the most resilient caregivers for family members who have spinal cord injuries were those people with lower levels of role captivity, loss of self and family conflict, the effects of which were mediated by social embeddedness and social support.[21]

The literature on caregiving is particularly insightful in relation to secondary stressors for several reasons. First, it highlights how wellbeing and mental health can be affected by factors other than primary stressors, including each person's life circumstances before the impact of a primary stressor. Second, it shows how potentially stressful conditions can affect wellbeing indirectly by a variety of mediating mechanisms. Third, and most importantly, it moves beyond a descriptive analysis by considering the processes behind the factors that can aid amelioration of the effects of stressors. However, this literature raises the question about whether it is most appropriate to designate mediating mechanisms as secondary stressors. If the term 'secondary stressor' is used broadly to include these mechanisms, consequences and impacts of primary stressors, there is a risk of obscuring distinctions between primary stressors, and explanations of how they operate, from stressors that are not directly connected with an incident.

## 2.2 Secondary Stressors in Disasters and Extreme Events

In the disasters literature, the concept of secondary stressors is based on the theoretical assumption that poor outcomes after disasters are likely to be influenced more by events that occur afterwards than by exposure to the disaster itself.[22] Traditionally, these events have been associated with the accumulation of major stressful events (e.g. displacement), work (e.g. job loss) or personal relationships (e.g. divorce).[23] However, Norris and her colleagues argue that secondary stress is better predicted from proximal, smaller scale, persisting pressures, hassles, and strains that can be a source of chronic stress and are more likely to be encountered during the course of day-to-day life than distal major life changes.[22, 23] The effects of disaster can be exacerbated by, for example, uncertainty regarding employment, family, financial, parental and childcare problems, poor working and living environments, problematic insurance negotiations or problems in the rebuilding period. These circumstances, in turn, can be an additional burden to people suffering from other types of acute or chronic stress,[24-26] and can exacerbate the negative effects of a disaster on distress and mental health more broadly.[27, 28]

Research across a range of disasters has explored the links between secondary stressors and negative psychosocial outcomes. Droughts can affect children by disrupting family life due to increased work and stress, or due to loss of family pets' lives and emotional pressures.[29] In the context of hurricanes, people who suffered higher residential damage, were separated from their families, and people who faced financial problems or were denied financial support grants from the state remained affected 32 months after Hurricane Katrina.[30] Network dispersion was linked to PTSD due to people perceiving a lack of belonging and inability to fulfil social roles.[31] Likewise, adolescents and children exposed to 1-3 secondary stressors, such as loss of networks and disrupted family and school environments, exhibited increased post-traumatic stress symptomatology and psychological morbidity.[32] People on low-incomes who had mental disorders experienced their mental health support services being disrupted and were further affected by loss of facilities, unemployment, and subsequent lack of financial resources or insurance to cover care costs.[33]

A high percentage of adolescent survivors of earthquakes have greater levels of self-reported suicidal ideation afterwards, which was predicted by emotional abuse, and symptoms of PTSD and depression.[34] The high prevalence, severity, and duration of what the author describes as 'psychological symptoms' following an earthquake in Soviet Armenia were affected by the collapse of social networks, political turmoil and delays in reconstruction, particularly related to the government's failure to keep to its promises to initiate rebuilding of the city.[35] In most of these cases, the circumstances that became stressors were not inherent in the disaster. They came about through societal organisation either prior to or in response to the disaster.

A significant volume of research has explored the impact of secondary stressors on wellbeing following flooding. A lack of insurance, and hence difficulties restoring homes, and disruption of support services, as well as lack of access to education, work and care, were related to scores on self-report screening tools that have been interpreted as indicating probable psychiatric morbidity.[36-38] Additionally, displacement was linked to increased risks of psychiatric morbidity, which could be higher for those people who received no warnings.[39] However, further research points to the fact that it might not be displacement itself (i.e. actions taken to avoid a primary stressor) but the introduction of secondary stressors that can harm mental health and wellbeing. For example, relocation following flooding became problematic for displaced residents due to problems such as constant noise and a lack of a familiar living environment,[40] and their separation from support and healthcare services on which they customarily relied. People's concerns about their own and their families' health predicted greater risks of psychiatric morbidity, whereas loss of personal items and memorabilia has been associated with anxiety.[41]

Overall, the negative impact of disasters on mental health can be protracted and influenced by a range of secondary stressors.[42, 43] Lock led empirical work to develop a typology of secondary stressors associated with extreme events. It includes economic stressors, loss of physical possessions and resources, health-related concerns, education-related stressors, stress related to the media, family and social matters, and loss of leisure and recreation.[4] Importantly, these stressors can be a function of social systems but their effects can be exacerbated by the impact of a disaster.[26] Furthermore, they may also reflect inequality,[44] and problems of poor

treatment of affected people by companies and organisations after disasters.[45] Studies of flooding in England have found that additional services created in response to disasters may be withdrawn before the people affected have recovered and while they continue to have needs that are not met by the usual levels of services; this creates what the researchers called a 'recovery gap'.[43-45]

The concept of secondary stressors is also included in some official guidance documents on disaster preparedness and response. One such, from England's Department of Health,[2] on planning for major incidents and disasters, states that secondary stressors include disruptions in transport and key services, problems in buildings and structures, lack of trust or resources, and miscommunication. Secondary stressors are also treated as indirect problems that have not been successfully addressed or as prolonging the impact of the incident, delaying recovery, and producing ongoing stress for those affected. Academic papers endorse this view of secondary stressors, defining them as '*non-inherent or consequential to the index extreme event*',[4 p. 20] potentially of a prolonged duration, that can be either entities in themselves or primary stressors that persist in the post-disaster period. But reclassifying persistent or unresolved primary stressors as secondary stressors seems to us to be controversial. Surely a persistent primary stressor remains just that and, therefore, we now ask if that definition of secondary stressors has been too wide, as it loses reference to those stressors that are independent of primary stressors yet contribute to distress either additionally or by increasing the effects of primary stressors.

### **2.3 Secondary Stressors in the Literature on Refugees of Conflict**

In the last decade, the crises of people's forced displacement in the face of conflict escalated sharply prompting humanitarian organisations to seek not only extraordinary resources but also new ways of meeting people's needs. One important aspect of change concerning wellbeing and psychosocial care has involved researchers and practitioners seeking to achieve better contextual understanding by expanding their focus beyond trauma caused directly by war to include other stressors with which people who are forcibly displaced must deal in their struggles and distress. The stressors that arise in exile, which are worsened by displacement and social responses

to it, are wide-ranging and include poverty, discrimination, isolation, unfamiliarity, insecurity, and lack of essential services such as healthcare, education and housing.[6] As these sources of distress are different from the death, threat and injury caused directly by the conflict, they are often conceptualised as secondary stressors or by reference to similar concepts.

### *2.3.1 Different Labels and Problematic Terms*

Although that there is an increasing recognition of the importance of the stressors associated with displacement, and a large number of researchers studying them, there is a lack of agreement on the terms to describe them, or of clear explanations and a deep understanding of their nature. The terms include: migration stressors,[46] post-migration stressors,[47-50] displacement stressors,[51] environmental stressors,[52] exile stressors,[53] daily stressors,[7, 49, 50] on-going stressors,[54] chronic stressors,[55] and critical stressors.[56] Only a minority of authors define the terms they use.

Many terms have been used by researchers to identify stressors of forced displacement, which are not directly related to conflict. This might have led some authors to use more than one of these terms as compound descriptors in order to capture different aspect of the nature of the stress such as 'daily-displacement stressors',[49] or 'daily environmental stressors',[52] or 'post-migration daily stressors',[46] or 'post-migration ongoing stressors'.[57, 58] The term 'daily stressors' is used widely, but some of the stressors cited in the literature do not happen daily (e.g physical attack). Another circumstance in which 'daily stressors' is problematic is when it is used with, but as distinctive from, the term 'traumatic stressors' to refer to trauma related to experiencing conflict.[e.g. 52, 59] This can lead to confusion because there are stressors that arise in exile that can also be severe (e.g. domestic violence and sexual assault).[e.g., 6, 60]. These complications support our argument for using the term 'secondary stressors' rather than other terms.

### *2.3.2 The Nature of The Stressors*

Many researchers who have studied secondary stressors in the context of forced displacement found them to have an interaction with war trauma prior to displacement, which increases the risk of mental health problems.[47, 50, 52, 57, 58] Although practitioners and researchers have shifted from only focusing on war-trauma toward including more environmental stressors, it is insufficient to study secondary stressors as additional predictive factors for quantifiable diagnosed mental health disorders (e.g., PTSD), given that more people suffer distress than suffer from disorders. The importance of a wider perspective on mental health has been picked up by a number of researchers,[46, 55, 61] who realise that the role of secondary stressors is a part of larger social and political dynamics and that these stressors demand a more contextual and holistic approach. Such an approach can be helpful in understanding how the role of all stressors unfolds differently in different contexts [46, 62] and is in line with our objective to propose a new model.

## **3. A NEW MODEL**

We turn now to summarising the outstanding issues and proposing our own account.

### **3.1 A Summary of the Challenges to Theoretical and Practical Development**

Our review of research on secondary stressors in three key domains identifies three reasons why further theoretical work is required to conceptualise these stressors in the contexts of disasters. They are to:

1. Begin the process of agreeing terminology and, particularly, how the widely-used term 'secondary stressors' is defined, understood and applied.
2. Legitimise a focus beyond immediate events at the time of major incidents to their longer-term psychosocial effects.
3. Achieve a better balance between primary, secondary and tertiary prevention for people who are distressed and for people who receive diagnoses.

Our survey of the literature on caregiving, disasters, and refugees allows us to develop these themes. Our synthesis of the evidence:

- Illustrates the plethora of terms that are used to describe the impacts of the wide range of events that are covered.
- Validates our earlier assertion about the different ways in which the term 'secondary stressor' is used.
- Calls into question whether it is useful to treat secondary stressors as necessarily consequential on the primary stressors they evoke, rather than independent of primary stressors in important ways.
- Shows that there may be a variety of mechanisms whereby primary stressors exert their effects and this raises the question about whether influential mediating factors should be called secondary stressors.
- Recognises that some authors see primary stressors that persist, or which have not received an adequate response, as becoming secondary stressors.

In our opinion, these five features impede us in achieving our three objectives. Together, they leave the field very wide and allow room for considerable interpretation and misunderstanding. The paper by Lock et al.,[4] and papers from Norris et al,[5, 22, 23] have been influential in propelling research and have generated an understanding that intervening to reduce secondary stressors is often as important as responding to the primary stressors and their impacts. That work has taken matters forward. But, our survey of the literature supports our assertion about the need for further work on a theoretical approach to secondary stressors that is not only an academic matter but is also practically important. How we understand secondary stressors directs us to particular kinds of mitigations and it allows better comparison of scientific studies. Therefore, we set out here a new model for discussion and debate.

### **3.2 The New Model**

Based on the evidence reviewed thus far, we develop our argument to suggest that secondary stressors are based on people's *prior life circumstances and/or societal responses to the disaster*.

Social factors and people's life circumstances - that is the affects on people of policies, practices, and social, organisational, and financial arrangements - include institutional or broader macro-environmental policies and structures. There is an extensive literature showing the effects of the environments in which people live, including their living environment and previous experiences of stressful events, on their subsequent health or ill health.[3] In our approach, the effects of these and other stressors become acute in the context of a major incident.

An example comes from the current COVID-19 pandemic. Fancourt and Bradbury's survey of 70,000 people found that people's experiences of the pandemic were dependent on their life situations prior to the 'lockdown'. Ethnic minorities, people who are more deprived, and young people struggled much more with distress and other problems than those who were better off.[63] Some of these differential outcomes can be explained by primary stressors such as the increased incidence of disease among these groups and their limited resources to help with mitigations (such as working from home, entertainments, large gardens etc.). But, in addition, the UK's policies of austerity that predated the pandemic created health inequalities, including a reduction in mental health services, have made it difficult for some groups to get formal assessment and care during the pandemic when their needs were acute.[64]

Accepting that secondary stressors are independent of primary stressors forces a focus on these predetermining factors. How can they be changed to ensure that there is no legacy that creates secondary stressors in the event of a major incident, a disaster or an epidemic or pandemic infectious disease?

Thus, for example, the rules by which insurance companies operated to compensate property owners were not created by, or specifically for, the people of Hull whose homes were flooded in 2007. But interaction between these processes, for example, and how affected people dealt with the primary stressors (e.g. damage to property) brought huge negative implications for people who had been flooded. In other words, prior to the floods, the insurance procedures had few impacts, but, after the floods, they came to have a new significance.[45] We can also see from this example that previous authors may have been endeavouring to express this interaction when they



included the notion that secondary stressors are consequential on the primary stressors. However, that link appears to us to have been widely misinterpreted.

We portray our new model in Figure 1.

**Insert Figure 1 about here**

The model identifies that aspects of *society's responses* to an extreme event may be secondary stressors in themselves. Following the Grenfell Tower fire, for example, the local authority failed to provide adequate emergency housing locally, which meant that people became separated from their support networks.[65] Also, we hypothesise a transitive aspect of the circumstances created by an emergency or incident whereby certain existing policies and actions become more stressful and identifiable as secondary stressors during and after a major incident or emergency. But we propose that primary stressors that persist or to which interventions have been ineffective remain as primary stressors and should not be relabelled as secondary stressors by some arbitrary process after an indefinite elapse of time.

This approach also allows us to recognise that, while the effects of secondary stressors burden affected people further and may exacerbate the impacts of primary stressors, they may also facilitate beneficial processes. In some circumstances, secondary stressors - when they are perceived as shared and there is an opportunity to discuss them over time - can become the basis of shared social identities among groups of people who are affected (e.g. 'we are the group who had the same problems getting insurance to pay up').[66] This can, in turn, lead to social support which can reduce the stress experienced.[67] Thus, for example, similar to the role of primary stressors operating to create a sense of a common fate,[68] persisting secondary stressors following the floods in York in 2015 seemed to operate as one of the factors that led to a sense of community being developed.[69, 70] Similarly, Alfarhli et al. found that, over time, secondary stressors have a strong negative impact on refugees' wellbeing, but also work as catalysts for shared social identity that was the basis of social support.[71]

Based on our model, we propose a new definition of secondary stressors:

Secondary stressors are: 1. Social factors and people's life circumstances (including the policies, practices, and social, organisational, and financial arrangements) that exist prior to but impact them during the major incident, emergency, disaster, conflict, or disease outbreak, and/or 2. Societal responses to the major incident or emergency. Thus, the impacts of major incidents and emergencies on people are exacerbated by a. their pre-existing life circumstances and b. by the societal responses to the events. These two factors transform the impact of the events and can become sources of substantial stress in addition to, but separately from, the primary stressors. Thus, the impacts of major incidents and emergencies on people are exacerbated by their pre-existing life circumstances and by the societal responses to emergencies that transform the stress these events cause and their impacts such that they can become sources of substantial stress in addition to, but separately from, the primary stressors. They are not inherently based in that emergency, disaster or conflict.

#### **4. THE SOCIAL NATURE OF MANY SECONDARY STRESSORS AND THEIR TRACTABILITY**

Thus far, we have presented a theoretical approach. However, the practical aspects of this approach to defining and recognising the importance of secondary stressors lie in demonstrating that there are substantial pre-existing life circumstances and social relationship perspectives and/or responses to a major incident made on behalf of society that are identifiable in the many matters that we might define as being secondary stressors. Furthermore, are they amenable to reform (i.e., are they tractable?) and can making changes to them result in reducing morbidity for the people involved after their exposure to extreme events? Indeed, it is the adjustments to the definition of secondary stressors, which we propose, that expose their tractability.

##### **4.1 A Worked Example**

An example is offered by the ways in which COVID-19 has affected and continues to affect the lives and health of staff of the health services in the UK.

Prior to the pandemic, staff of the health services in the UK were already struggling with the conditions in which they worked. Dr Samantha Batt-Rawden opined in January 2020, 'If we don't start looking after our doctors, there will be no one to care for our patients'.<sup>[72]</sup> She drew attention to her anticipation of the stress of working with patients who have serious needs (a primary stressor) but said,

These were struggles that I was prepared for. What I wasn't aware of [when I started] was how things would change over the 14 years I've been part of the NHS – and it's these changes that have made it so much harder to do an already hard job.

She illustrates her argument by itemising features of doctors' working conditions that she experienced as affecting how doctors cope with the pressure they experience, 'Gone were our on call rooms and canteens so there was nowhere for us to connect with our peers, get our heads down or grab a much-needed coffee after a stressful shift.' That these opinions go beyond anecdote is shown by the same points being made by paramedics in a rigorous Delphi research project carried out nearly a decade earlier.<sup>[73]</sup> Dr Batt-Rawden also identified changes in the support structure offered by the ways in which medical work is organised saying, 'Doctors were no longer part of a team but just another number on the rota'.<sup>[72]</sup> We identify from her account that the changes in the structure and circumstances of the ways in which professional practitioners worked together became secondary stressors when staff faced the impact of primary stress arising from their work.

Table 1 summarises work done in 2019 by a group of emergency medicine practitioners. They constructed a list of aspects of their work and working lives they experienced as stressful. One of the authors of this paper separated this list into two groups. The group in the left side of Table 1 appear to us to be primary stressors whereas the column on the right contains experiences that appear to us to be secondary stressors that are sub-divided into two groups of matters that cover: 1. Practitioners' existing life circumstances and background training; and 2. The adequacy or otherwise of the resources provided in response to the pandemic and their training for dealing with specific incidents. The originators of the list were quick to

point out to us that they found the experiences in the column on the right much more stressful than those on the left. The items on the right appear to us to be remediable given effort and resources and certainly not as inherent in the work of healthcare.

**Insert Table 1 about here**

When the pandemic began just two months after Batt-Rawden's article, NHS England and NHS Improvement (NHSE/I) recognised the risks to the health and mental health of the staff arising from their work with very ill people, their hours, the pressures of decision-making in an information-poor environment and the risks to themselves. It set up a taskforce to explore matters and make recommendations. As a consequence, a rich array of dedicated phone lines, text lines and other support services were set in place to which staff could have direct and free access. At the beginning, their main focus was on the primary stressors that are listed in Table 1 (i.e. the risks to life and health posed by exposure to the virus). Members of the taskforce advised a broad approach, which proved popular, that focuses on preparing staff with a view to preventing psychosocial problems as well as rapid responses to staff's needs in relation to secondary as well as primary stressors.[74] The responses of staff to the support services bore out the advice given by several of the authors of this paper and alerted policymakers to the range of secondary stressors that were affecting people. Thus, in many places in the UK, access for healthcare staff to common rooms, improved overnight sleeping arrangements and improved arrangements for team rotas were made. Consequently, much greater investment of time, interest and finance was made to assist staff to deal with these matters and to moderate them at source (e.g., provision of hot meals at night in hospitals, improvements to car parking and provision of peer support training).

In summary, soon after opening the support facilities relating to the primary stressor, the people running them identified that NHS staff rang in to the helplines in substantial numbers and a large number of calls identified matters which we see as falling into our description of their being related to the life circumstances of staff and/or to the organisational and societal responses to the pandemic of the kinds that are in the right hand column of Table 1.

Many staff faced the primary stressors with fortitude but experienced the secondary stressors as causing high levels of distress. It appeared to us from the beginning of the emergency that the societal and organisational responses to the COVID-19 pandemic were impacting on the working conditions of staff, some of which placed them at greater risk. This situation gave pre-existing stressors even greater power than they had prior to the pandemic.

Staff have reported anecdotally that they knew the secondary stressors were tractable, whereas the primary stressors were less so. This was a major cause of their unhappiness over the former. One of the standout features related to claims of inadequate volumes and types of personal protective equipment (PPE) and consistent instructions for using it. Inadequate stockpiles and availability of PPE, which had sat in the background before COVID-19, became one of the most major sources of worry for staff and society when the SARS-CoV-2 virus arrived and differing expert agencies' interpretations of what was needed to protect staff became apparent.

#### **4.2 Mitigating secondary stressors in healthcare workers in the pandemic**

In response to identifying the role of secondary stressors in staff distress in the pandemic, NHSE/I brought forward developments to its support programme to enable staff to raise their concerns about responses. In this way, recognition of the importance of secondary stressors allowed traction to be applied to them. The huge importance of camaraderie, taking adequate breaks, having conversations with peers, reducing hassles over parking and eating, for example, demonstrated a decade ago, was re-emphasised.[73] We also observe that many staff said that their changed working conditions brought greater solidarity and an increased focus on teamwork as compared with working solely to rotas.

At the core of these interventions that were and are intended to remediate the secondary stressors lies the notion of aiding staff to benefit from their psychological membership of a social group i.e., to develop and draw upon their shared social identities.[75, 76] As a result, one type of intervention, that based on peer support, has become of central importance to staff. Now, NHS staff are very keen to retain these additional support services and build them into more permanent changes in their

working conditions to tackle the kinds of longer-term secondary stressors that one doctor identified.[72]

There is empirical support for these observations from recent literature. Kisely et al [77] examined the psychological effects on clinicians of their working to manage novel virus outbreaks and successful measures to manage stress and psychological distress through a process of rapid review and meta-analysis of 59 papers (eight were studies relating to the COVID-19 pandemic). They concluded that, 'Effective interventions are available to help mitigate the psychological distress experienced by staff caring for patients in an emerging disease outbreak (p.1)'. In particular, they conclude that clear communication, access to adequate PPE, adequate rest and both practical and psychological support were associated with reduced morbidity. We argue that some factors causing stress relate to the primary stressor (the impacts of the virus) while others are more aptly described as secondary stressors because they are aspects of the response by organisations and society or relate to people's existing life circumstances and the prior policies and arrangements of organisations that are traceable to situations before or which emerged during the time when the viral outbreak occurred. Their social nature and tractability are shown by these findings and the recommendations of Kisely et al. [77] for dealing with the psychosocial problems of staff.

Furthermore, there are indications from the People Plan for 2020/2021, published by NHSE/I in July 2020, that policy is moving towards better recognising the long-term secondary stressors, the power of which was demonstrated in first acute phase of COVID-19.[78]

## **5. IMPLICATIONS OF THE MODEL FOR DISASTER RISK REDUCTION**

Some mitigations of the effects of secondary stressors might take place without the benefit of the framework outlined here. However, the example of changes to the working practices of healthcare workers in the COVID-19 pandemic illustrates that the framework adds value and assists with positive change in two ways. First, through the *recognition* it affords to the causes of some forms of distress and, second, through the *priority* it suggests should be given to these causes. Without foregrounding the social

and tractable nature of secondary stressors, it can be easy to discount all sources of distress in major incidents and emergencies as inevitable, intractable, or inherent.

In relation to life circumstances arising before the major incident, policies of austerity that lead to cuts in mental health services that then disproportionality disadvantage poorer sections of populations, minorities and young people are evidently political choices. This means that there could be different ways to achieve the same aims (in this case, of managing the economy). This also means that obstructions to any changes are often also political or reflect short-term interests. In our worked example, we know historically that excessive workload, long hours, lack of time, which operated as stressors for healthcare workers during the COVID-19 pandemic, are not inevitable, because, in the past, different forms of workplace organisation and relationships operated, including the ability to provide peer support.[73] These, then, are all things that can be changed.

We are not the first to argue that disaster risk reduction needs strategic investment to address inequalities and other factors,[79] but our model helps to demonstrate connections between mental health outcomes and social policies and practices that can inform spending and political priorities in terms of the allocation of resources and the development of 'resilient' emergency response organisations.

In relation to societal responses to the major incident, our example of secondary stressors in the case of flooding point to how things can be done differently. Here, factors that can mitigate the impact of secondary stressors relate to integrating otherwise fragmented post-disaster support services,[45] simplifying insurance procedures and reducing waiting times for support,[41] disaster management and recovery of the wider community.[39]

Overall, while it is not always possible to identify the most serious actual or potential secondary stressors, we suggest that adoption our model leads to a reflexive, holistic approach to the issue of mental health in disaster risk reduction that, if sufficient, will be able to reduce unnecessary distress.

## 6. CONCLUSIONS

In this paper, we propose a new and more precise definition of secondary stressors based on restricting the definition of what is a secondary stressor by excluding: the mediating factors relating to primary stressors; primary stressors that fail to yield to interventions; primary stressors that become chronic causes of stress; and the requirement that secondary stressors are consequential on major incidents and emergencies and the primary stressors they evoke.

In our opinion, the essence of defining secondary stressors is that they are a function of: 1. Social factors and people's life circumstances (including the policies, practices, and social, organisational, and financial arrangements) that exist prior to but which impact them during the major incident; and/or 2. Societal and organisational responses to the incident. The importance of identifying and defining them is that these are usually tractable stressors that have implications for more effective reduction of the mental health risks to which people are exposed by their involvement in major incidents, emergencies and disasters.

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## **Captions for Table and Figure**

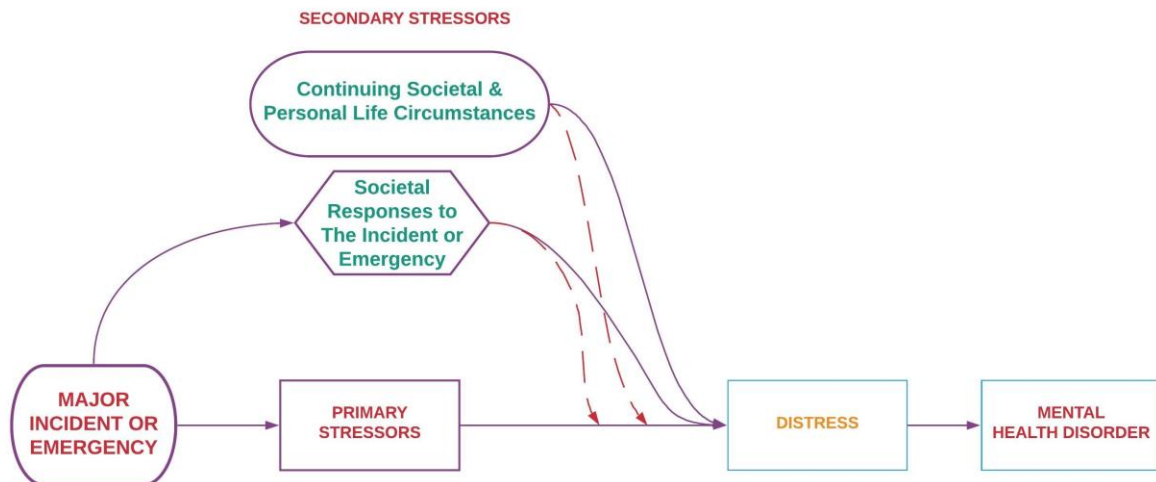
**Figure 1: A Model of Secondary Stressors**

**Table 1: Primary and secondary stressors affecting frontline staff in emergency medicine (© R. Williams, 2020. All rights reserved. Published with permission of the copyright holder)**

**Table 1**

Primary Stressors	Secondary Stressors		
Repeated exposure to personal tragedy, gruesome scenes and events and stories that trigger personal memories	<b>Pre-existing Life Circumstances or Organisational Features</b>	Excessive workload, long hours, lack of time	
A sense of futility in the face of overwhelming need		Lack of autonomy or control	
Anguish resulting from the need to triage		Lack of supportive leadership	
Moral and ethical dilemmas		Lack of opportunities for peer support	
Repeated exposure to danger		Problems with psychological safety	
Chronic uncertainty		Lack of access to childcare or support for relatives in need	
Exposure to anger		Lack of effective personnel management	
		Personnel management that reduces morale (e.g., disputes about pay and working conditions)	
		Excessive bureaucratic demands	
		Lack of organisational justice including employers using unauthorised processes or lack of adherence to due process	
		Interpersonal conflict among team members who are in close and prolonged proximity and interdependence	
		Physically demanding and unpleasant working conditions	
		<b>Societal and Organisational Responses to the Emergency</b>	Lack of adequate personal protective equipment (PPE)
			Lack of other resources
	Lack of training in the skills that are required to do the job that has newly arisen		
	Unacknowledged concerns about own family		
	Lack of logistical support		
	Lack of recognition from employing organisation		

**Figure 1**



**Legend for Figure 1**

- The continuous lines in this Figure show direct influences of an incident or emergency on the outcomes.
- The discontinuous lines show how secondary stressors may reduce, alter or amplify (moderate) the impacts of primary stressors.
- An incident or emergency usually raises primary stressors for people who are affected. In turn, these primary stressors may give rise to experiences of distress, which may raise the risks of people developing a mental health disorder
- Such an incident or emergency causes responsible authorities to develop responses to try to mitigate the impacts of the incident or emergency. But, if inadequate, these responses may become secondary stressors.
- Similarly, continuing societal or personal circumstances that are not directly related to the incident or emergency may become secondary stressors in the changed situation created by the incident.
- Both types of secondary stressors may have direct impacts on people affected and cause distress or mental health disorders.