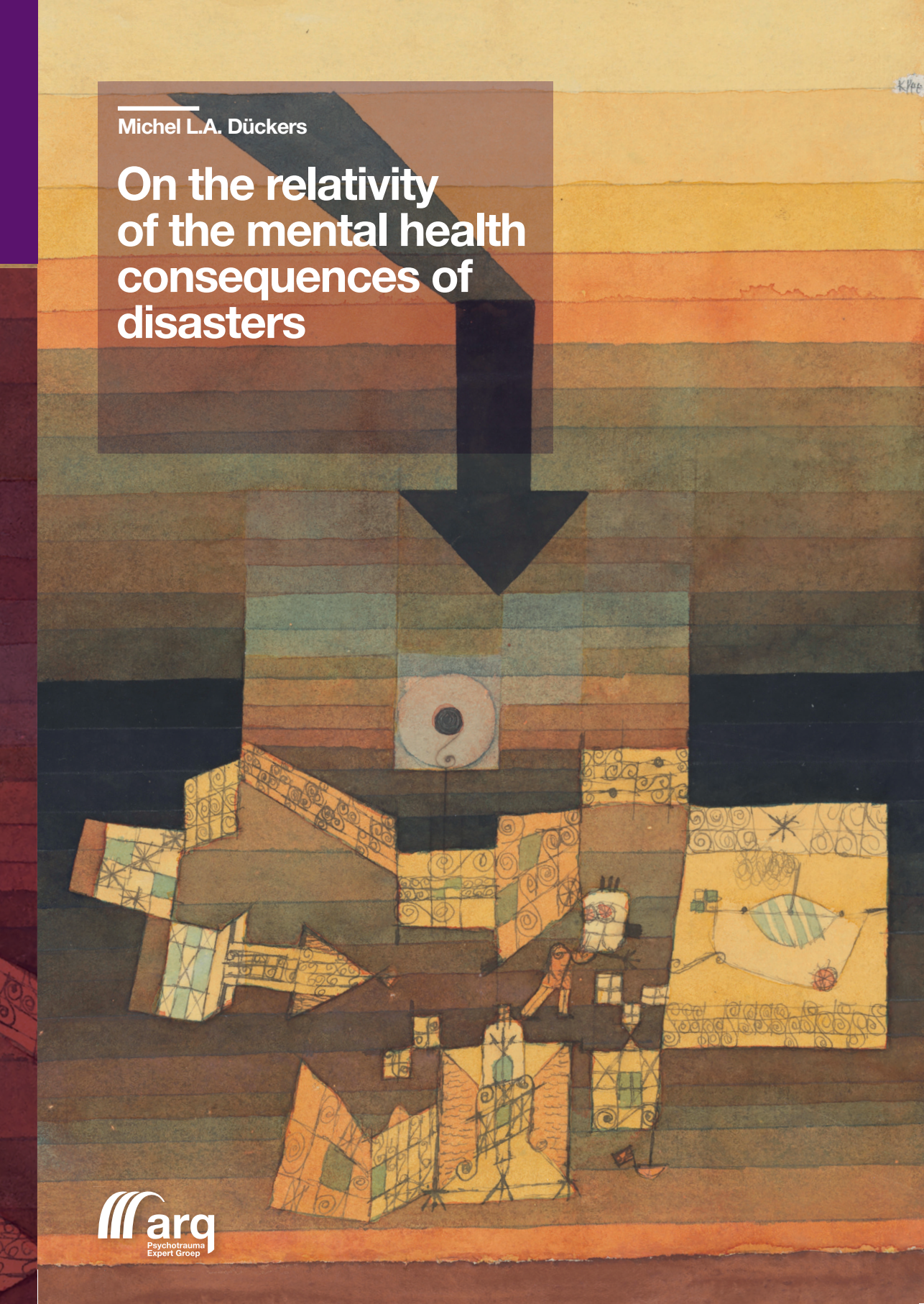


Michel L.A. Dückers

On the relativity of the mental health consequences of disasters



**On the relativity of the mental health
consequences of disasters**



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Paul Klee

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Affected Place, 1922, 109

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Michel L.A. Dückers

Foreword

To love at all is to be vulnerable. Love anything and your heart will be wrung and possibly broken. If you want to make sure of keeping it intact you must give it to no one, not even an animal. Wrap it carefully round with hobbies and little luxuries; avoid all entanglements. Lock it up safe in the casket or coffin of your selfishness. But in that casket, safe, dark, motionless, airless, it will change. It will not be broken; it will become unbreakable, impenetrable, irredeemable. To love is to be vulnerable.

C.S. Lewis – The Four Loves (1960)

C.S. Lewis reminds us of how our vulnerability is linked to what matters most dearly to us. He beautifully describes the risk of adopting a counterproductive strategy to protect ourselves from losing what we love. It is true that those things we care about most, can affect us deeply when we are at risk of losing them. They are closely connected to human vulnerability, which is a central theme in this book, written by Michel Dückers, emphasizing the causes and human consequences of disaster vulnerability on mental health and service delivery. It is an essential body of work that fits within the research tradition of psychotraumatology, the study of psychological trauma. Psychotraumatology is a discipline which covers treatment, prevention and research of traumatic situations and people's reaction to them (Everly & Lating 1995). At the same time, the chapters in the book match the aim of health services research as defined by Bowling, to “produce reliable and valid research data on which to base appropriate, effective, cost-effective, efficient and acceptable health services” (1997). Dückers has focused on typical trauma-related mental health reactions such as post-traumatic stress disorder, mood and anxiety disorders and suicide. These reactions have been studied in relation to different types of exposure, and risk and protective factors at the level of individuals, communities and societies. From different angles he has explored what principles we should apply to the provision of post-disaster psychosocial services and the extent to which these norms are actually applied in practice. Dückers has even gone a step further and has attempted to assess and predict associations between the structure, process, outcome and the cultural and socio-economic context of service delivery across countries. This is where he has discovered the counter-intuitive finding that mostly determines the tone of this book. Contrary to patterns at the individual level, low vulnerability (which is linked to high levels of wealth)

at the country level is a risk factor for the development of mental health problems and is not protective. It is a saddening thought that populations in more wealthy societies have a higher risk of poor mental health. Could it be that we lost our armour to be prepared for misfortunes on the path of modernization, where our basic human needs such as safety, shelter and nutrition are guaranteed for many in an unprecedented way? Controversial findings like the vulnerability paradox definitely are appealing and deserve more research. They contribute to discussions within the fields of psychotraumatology and health services research. Indeed, we need to understand its underlying mechanisms and implications for everyday services. From a health services research perspective it encourages us to be extra critical in our attempts to decipher what appropriate, effective, cost-effective, efficient and acceptable health services are in the face of trauma, especially in the context of disasters and other events with a major impact on societies. We all know, reminded by history, that such events can happen and occasionally do happen. We can all imagine how they can confront people with life-threatening situations and heavy personal losses, taking them brutally away from the safety and certainties of normality.

This book contributes to the ongoing efforts of international research communities to better understand the impact and risks linked to disasters, together with potential areas where governments, professionals and community members can intervene. Things can go badly wrong and we need to be prepared. It is impossible to do this without knowledge based on earlier events and current risks. Furthermore, we need to position the knowledge effectively in networks where it is needed the most and invest in maintaining these networks. In this assignment, Arq and Nivel find each other as logical partners with complementary specialities and focal areas. We are very much aware that we can only build the necessary knowledge hubs and bridges in cooperation with our vital local, national and

international partners, including the National Institute for Public Health and the Environment (RIVM) and the Institute for Safety (IFV).

To use a Dutch saying, Lewis hit the nail on the head in his colourful reflection on what makes us vulnerable. Our vulnerability is entwined with the things we care about the most and cannot afford to lose. This insight is a strong driver to continue our interdisciplinary work, echoing the words of the legendary Sigmund Freud: “Out of your vulnerabilities will come your strength.”

Jan-Wilke Reerds, MBA, Msc

Chairman of the Executive Board of Arq Psychotrauma Expert Group

Prof. Cordula Wagner, PhD

Executive director of Nivel



Foreword

Historically, trauma research in the context of disasters has focused on individualistic concepts of psychopathology. The concept of resilience has gained importance in recent decades. However, resilience and its counterpart vulnerability have been utilized as individualistic (and contrasting) phenomena as well. More innovative approaches depict resilience and vulnerability as interdependent and multidimensional constructs. Michel Dückers' book *On the relativity of the mental health consequences of disasters* is an example of such an innovative approach to disaster research. Contrary to most studies in this area, which emphasize on individual psychopathology, Michel Dückers adds a community and society perspective and places accents on cultural and socio-economic factors. As such, justice is done to the idea that trauma-related mental health problems, including the concept of post-traumatic stress disorder, are embedded into a societal and cultural context, which is given and evolves as well. Furthermore, he redefines the multi-faceted concept of vulnerability and shows that what is seen as vulnerability in one context can be a resilience factor in another context. Michel Dückers' ideas about trauma and mental health contain important new insights that will influence future research in this field. I am very happy to have been part of the habilitation process.

Prof. Barbara Juen, PhD

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*The longer the journey between here and the world beyond is,
the more perceptible the tragic tension becomes.*

Paul Klee – Affected Place [betroffener Ort] (1922)

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Chapter 1

Introduction

1.1. Human consequences of disaster

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In the field of mental health research it is not uncommon to start a book with a case description of a woman or man with particular problems requiring therapy. Opening with a personal, real-life case can set the right tone for readers as it is a technique which captures the practical relevance of the topic they are about to explore. Media in the 21st century means that the news coverage of any ensuing disaster typically includes the personal situation of at least one or more of the affected. For example, after Hurricane Katrina in 2005, a desperate man walking the streets with his two young boys explained to a reporter how he and his family had been taken unawares by the rising water, how their house had flooded, and how he had lost his wife in the havoc. The man, in shock, was saying: “She’s gone. I held her head tight. She told me ‘you can’t hold me’ and she said ‘take care of the kids and the grandkids.’ (...) We have nowhere... I don’t know where I am going. I am lost. That’s all I had. That’s all I had.” It is at times like that the victims of disaster become more than a statistic – they are given an identity.

Although the focus of this book is on disasters and their human consequences, it does not place a direct emphasis on affected individuals and their stories. Nevertheless, though perhaps difficult to conceive by anyone who is used to living in a more or less structured and safe society, personal stories of survivors and others who have experienced human loss, illustrate the urgency behind why current and future civilizations need to find an answer to threats and the impact when events actually manifest themselves as true disasters.

What is a disaster?

Entire books have been devoted to the question of what a disaster is (e.g. Quarantelli 1998; Perry & Quarantelli 2005; Perry 2007). A common definition of a disaster is: “a serious disruption of the functioning of a community or a society on any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts” (UNISDR 2017). Effects can be immediate and localized, but are often widespread and can last for a long period of time. The effects may test or exceed the capacity of a community or society to cope using its own resources, necessitating therefore assistance from external sources (UNISDR 2017). Earthquakes, volcanic eruptions, floods and droughts, hurricanes and other extreme weather conditions, forest fires, industrial or transportation accidents, epidemics and zoonoses, terrorist attacks; the list of events, which could potentially result in the effects described in the definition of disaster given above, is extensive.

Mental health consequences of disaster

As stated, the human consequences of disasters play a central role in this book. Emphasis is placed on the well-being, functioning, and health (particularly mental health) of people exposed. Epidemiology and health research during the last decades has contributed greatly to knowledge of the health impact of exposure to disasters and major events (Bonanno et al. 2010; Bonde et al. 2016; Galea et al. 2006; Herbert et al. 2006; Kessler et al. 2008; Noji et al. 2000; Norris et al. 2002a; Norris & Elrod 2006; Reifels et al. 2017; Saulnier et al. 2017; Scott et al. 2013; Yzermans et al. 2009). Biological, psychological, or social determinants and mechanisms behind people's health problems, recovery processes, and the effectiveness of interventions have been studied extensively (see e.g. Brewin et al. 2000; Bonanno et al. 2010; Kearns et al. 2012; Forneris et al. 2013; North & Pfefferbaum 2013; Yehuda et al. 2015; Gillies et al. 2016; Yzermans et al. 2009). As such, this book can benefit from the rich research heritage of traditional health sciences such as medicine, psychology and epidemiology. Given that the book focuses on health as an outcome of the interplay between many determinants (including exposure to disasters, gender, social support, existing health problems), as well as post-disaster psychosocial service delivery (and its determinants linked to the social environment where services are planned and produced), other disciplines need to be engaged to weigh and understand psychosocial service norms and practices better. What should crisis managers and public leaders, professionals and volunteers do, individually or as part of broader programmes, to promote the health of people confronted with disasters and major crises in different contexts? Is this ambition and commitment common practice, and if not, how can differences in norms and practices for post-disaster health and service delivery be explained? The body of knowledge on disaster mental health and the resilience and vulnerability concepts described in section 1.2, are used to sharpen the research focus and to refine the research questions in section 1.3. Section 1.4 provides an overview of the structure of the book.

1.2. Resilience and vulnerability: two sides of the same coin

In modern-day disaster and crisis management thinking, it is almost impossible to approach response and recovery strategies without reference to resilience. Resilience is a concept that can be traced back centuries into different branches of arts and literature, historically evolving through scientific disciplines, including disaster risk reduction and climate adaptation (Alexander 2013). In the Merriam-Webster dictionary resilience is defined as “1. the capability of a strained body to recover

its size and shape after deformation caused especially by compressive stress; 2. an ability to recover from or adjust easily to misfortune or change” (Merriam-Webster 2018). A well-accepted definition in disaster research summarizes resilience as “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.” (UNISDR 2017).

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There is however, a second concept, closely linked to resilience that can be interpreted as the other side of the same coin: vulnerability. The Merriam-Webster dictionary defines vulnerability as “1. capable of being physically or emotionally wounded; 2. open to attack or damage” (Merriam-Webster 2018). Whereas in a disaster context resilience reflects the presence of capacities, vulnerability relates to the absence or inadequacy of capacities and protection. Moreover, like resilience, vulnerability has many different connotations, depending on the research orientation and perspective (Cutter et al. 2003; Alexander 2013). It is common to define vulnerability as “the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.” (UNISDR 2017). Vulnerability is the socially constructed potential for harm, expressed on a scale from no damage to total loss. Since losses vary geographically, over time, and among different social groups, vulnerability also varies over time and space (Cutter et al. 2003). This makes resilience and vulnerability dynamic concepts, which can only be understood in relation to their causes and consequences (Alexander 2012).

1.3. Research focus

The objective of this book is to gain a better understanding of the causes and consequences of human resilience and vulnerability from a disaster mental health perspective. Ultimately, this knowledge will be invaluable for the planning and delivery of high-quality psychosocial services to affected individuals and communities. An existing disaster vulnerability model entitled “the plexus of context and consequences” (Alexander 2012) is used as a starting point. This model will be explored and expanded in the content of this book.

Human vulnerability models

White presented a human vulnerability model in which physical events have an effect on human vulnerability, resulting in certain human consequences of disaster

(White 1974). Hewitt responded with a “radical critique” on this model by stating that human vulnerability has an effect on physical events that have an effect on vulnerability, and it is this combination which determines the human consequences (Hewitt 1983). Alexander formulated a third model in reaction to both earlier models: “The vulnerability of human socio-economic systems is acted upon by physical hazards (whether natural or anthropogenic), as well as cultural and historical factors. The plexus of the context and consequences of these associations is what determines the form, entity, and size of any ensuing disaster.” (Alexander 2012). This third model is shown in Figure 1.1.

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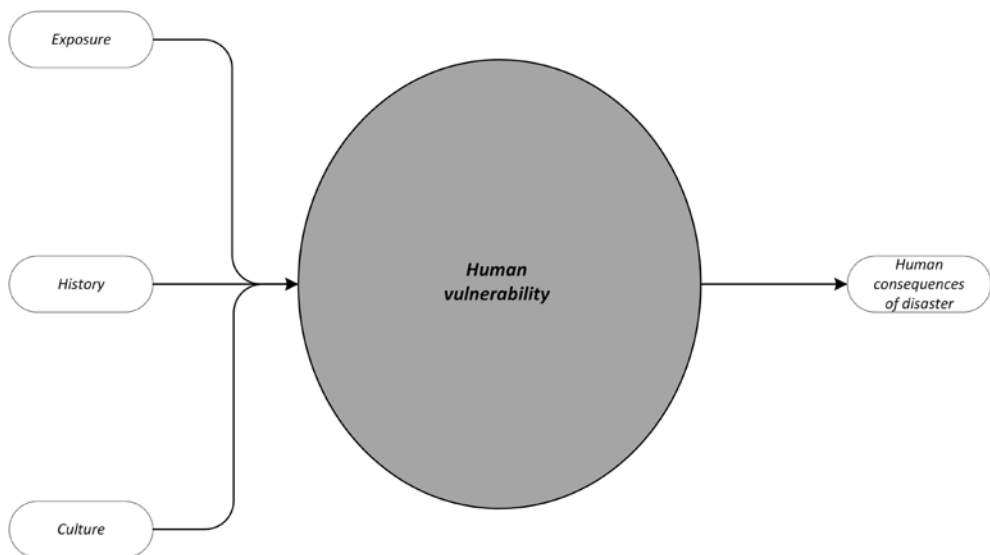


Figure 1.1. The plexus of context and consequences (Alexander 2012)

The plexus model considers the question what makes people resilient or vulnerable at a more fundamental level, in a time frame which exceeds the life cycle of individual incidents, individual people, even individual societies and possibly generations. It is a heuristic framework to study large and small-scale patterns from an interdisciplinary disaster risk reduction perspective. In this book, the model’s rationale has been adopted, yet disaster mental health requires a more specific perspective as well. When emphasis is placed on particular threats and their potential impact on affected individuals, the plexus model has its limitations.

Firstly, it does not provide detailed guidance on how to deal with the immediate and longer-term effects on individuals and groups of affected people when a disaster strikes. The time dimension of the model has not been sufficiently determined from a disaster mental health viewpoint.

Secondly, the concept of the human consequences of disasters needs to be further ascertained. On the one hand there are undesirable “health consequences” that are normally considered in terms of well-being, social functioning, and mental and physical health (WHO 1948; Huber et al. 2011). On the other hand, the human consequences of disasters are not exclusively linked to health consequences; there are also “service consequences”. Human vulnerability is characterized by the sufficient or insufficient capacity to provide psychosocial services to benefit the health of affected people under chaotic circumstances. In this book, health and services are both treated as human consequences of disaster in light of the plexus model.

Thirdly, the original model, as shown in Figure 1.1, ignores the multilevel structure of human systems where health and service consequences can be analysed at the level of individuals, communities, even societies. From the perspective of mental health research, it is relevant to make a distinction between levels as they can inhibit different explanatory factors that might be connected at and between different levels.

Interdisciplinary perspective

Using an interdisciplinary perspective is a way of analysing, harmonising, and synthesising the links between two or more disciplines. As described earlier, this book benefits from the knowledge base created by mental health sciences and epidemiology, and combines it with knowledge from other research disciplines. Under the umbrella of vulnerability science, multiple disciplines have begun to systematically analyse the factors that help make different social units, such as families and communities, avoid and withstand disaster impacts and make them capable of rapidly recovering from whatever events they experience (Tierney 2005). It is common to combine disciplines in disaster research in general (Rodriguez et al. 2007), in disaster mental health research (Norris et al. 2006), and in the study of crisis leadership (Boin et al. 2016). An obvious shortcoming of single disciplines, for instance psychology and sociology, is that distinct disciplines can find it difficult to provide more encompassing, coherent answers: “it is self-evident that psychology concentrates on the individual, albeit influenced by his or her social, cultural, and physical environment, while sociology is the science of social relations. With regard to research on disasters and crises, the overlap between the two disciplines has not

always produced harmonious views of the same phenomena.” (Alexander 2013).

In this book, insights from these and other disciplines are brought together with the ambition to contribute to an interdisciplinary disaster mental health vulnerability model, taking into account factors and processes at different levels. Moreover, because the optimization of services and the adequate management of crises are central topics, relevant frameworks and concepts have been borrowed in particular from the quality improvement and crisis leadership literature.

Research questions

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The focus of this book is on the causes and consequences of people’s resilience and vulnerability from a disaster mental health point of view. The book will answer a series of research questions, grouped in two clusters. In both clusters resilience and vulnerability are examined in relation to their causes (exposure and culture) and consequences (health and psychosocial services). The first cluster explores cross-national patterns in disaster vulnerability:

- 1.1 How are exposure and cultural characteristics related to vulnerability?
- 1.2 How is vulnerability linked to mental health?
- 1.3 How does vulnerability relate to the capacity to provide psychosocial services to affected people?

The second cluster is more normative and linked to the type of services that should be provided to adequately address the mental health impact of exposure:

- 2.1 Is there consensus on psychosocial service norms and are these norms applied in practice?
- 2.2 What type of activities are relevant for psychosocial service providers from a quality improvement perspective?
- 2.3 How can psychosocial service norms guide crisis management?

1.4 Structure of the book

The book is divided in different parts, corresponding to the two research question clusters. In Part I, “Cross-national patterns in disaster vulnerability”, several studies are brought together, dealing with international differences and similarities in disaster exposure, cultural and socio-economic characteristics, mental health prevalence, and the organization of psychosocial services. In chapter 2 the association between cultural dimensions at population level, exposure to natural hazards, and country vulnerability is tested based on data from 60 countries. The results of the analysis are used to interpret the findings from an additional series

of studies described in chapters 3 to 6, where the prevalence of mental health disorders is predicted using the exposure to traumatic events (including natural and human-made disasters) in general populations, together with the level of country vulnerability. In chapter 7 the association between country vulnerability in different areas of Europe and the capacity to provide post-disaster psychosocial services is examined. For this purpose, the variation in the developmental stage of planning and delivery is considered across different locations, countries and regions.

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The title of Part II is “The quality of psychosocial services in crisis”. Chapter 8 starts with the level of agreement on psychosocial support guidelines and guideline adherence among international experts and professionals. Based on implementation literature, a gap between norms and practices is to be expected. If this turns out to be the case for psychosocial services in Europe, it will imply that there is room for improvement when it comes to the practical implementation of guidelines. Next, the provision of post-disaster psychosocial support is addressed from a quality improvement perspective in chapter 9. This chapter provides an alternative vantage point on psychosocial service programmes after disasters, inspired by classic quality improvement models. Chapter 10 details the result of an initiative to measure the quality of post-disaster psychosocial support programmes, using information from 40 programmes designed and implemented in Europe and other regions of the world. The programmes’ building blocks (including the planning and delivery system studied in chapter 7) and their interrelations, as sketched in chapter 9, are used as a frame of reference. In chapter 11 the concept of psychosocial crisis management is described based on findings and models from the crisis leadership literature and post-disaster psychosocial support literature (including the guidelines described in chapter 8). This chapter offers a summarizing model and a reflection on practical implications and relevant issues for further research.

Part III, “Integration”, synthesizes the main findings and implications for research and practice. In chapter 12 a multi-layered psychosocial resilience framework is presented, combining insights from the cross-national comparisons in Part I with findings from literature on resilience, vulnerability, and risk and protective factors. The framework is discussed in relation to its potential value for crisis management. In chapter 13 information from the earlier chapters is brought together in one model, expanding the logic of the plexus model as mentioned earlier in this chapter. The research questions are answered in the final chapter and placed in a broader perspective.

Part I

Cross-national patterns in disaster vulnerability

Chapter 2

Exposure, culture and country vulnerability

This chapter is based on: Dückers, M., Frerks, G., & Birkmann, J. (2015). Exploring the plexus of context and consequences: An empirical test of a theory of disaster vulnerability. *International Journal of Disaster Risk Reduction*, 13, 85-95.

Abstract

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What determines the disaster vulnerability of countries? In this study a theoretical model was tested, linking disaster vulnerability to physical hazards and cultural and historical factors. Associations between the World Vulnerability Index and Hofstede's cultural dimensions scores were explored using quantitative methods, while taking exposure to natural hazards into account. Data of 60 countries could be matched. Less exposed countries in this sample are significantly less vulnerable. Culturally, particularly countries with a lower power balance and a higher level of individualism are less vulnerable as well; two features linked to higher levels of wealth. Approximately 70% of the variance in vulnerability could be explained in this way. These results should, however, be interpreted with some caution as longitudinal data were unavailable and disaster vulnerability itself may be seen as a cultural derivative, making it impossible to clarify causal mechanisms. Despite these and other limitations, the study points at interesting associations that, firstly, should be expanded and replicated in larger samples, allowing more advanced analysis, and secondly, encourage a more thorough examination of different local contexts and cross-level interactions than was possible in this exploratory endeavour.

2.1. Introduction

Increase in disaster vulnerability

Examining disasters through the lens of vulnerability confers real insights at the time when both the frequency and magnitude of such events are increasing. The total number of reported natural and technological disasters rose from 368 in 1992 to an average of about 650 per year for the period 2004–2013 (International Federation of Red Cross and Red Crescent Societies 2014). Likewise, the growth in the number of natural disasters over the last decade was over 50% compared to the previous decade. The number of affected people by disasters rose to an average of 200 million people per year for the years 2004–2013, mostly in Africa and Asia and the damage averaged about US\$ 167 billion annually. The average number of deaths per year is more or less stabilizing at 106,000 for the period 2004–2013 (International Federation of Red Cross and Red Crescent Societies 2014). There are of course huge variations: in 2012 the number of casualties was 15,585, much lower than the peaks of over 250,000 in 2004 (the year of the tsunami in the Indian Ocean) and over 300,000 in 2010 (the earthquake in Haiti). Fluctuations are interesting; more important however, is that the increase shown in the number and overall impact of natural and anthropogenic disasters is expected to continue as it is associated with the increased complexity and interdependency of societies (Oliver-Smith 2004), leading to cascading effects and mega-disasters (Helsloot et al. 2012). Moreover, urbanization, environmental degradation, climate change, mismanagement of natural resources, conflicts and state failure, and ‘bad’ governance are considered worldwide drivers for increased disaster vulnerability (Frerks 2010).

Understanding vulnerability

Disaster vulnerability has many different connotations, depending on the research orientation and perspective (Cutter et al. 2003). It is common to define vulnerability as “the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards” (UNISDR 2017). Vulnerability is usually a socially constructed potential for harm, expressed on a scale from no damage to total loss. Since losses vary geographically, over time, and among different social groups, vulnerability also varies over time and space (Cutter et al. 2003). This makes vulnerability a dynamic concept, which can only be understood in relation to its causes and consequences. White provides a convenient starting point. He employed a human ecology approach to study natural hazards, initially with a focus on flood

hazards where he realized that it is not only the hazard that should be adjusted but also the human exposure to the hazard (White 1974). The result is a linear model, portraying how the influence of physical events on the human consequences of disaster is mediated by human vulnerability. This first model however, does not explicitly recognize the viewpoint that the causes and the phenomenology of disasters are defined by social processes and structures as well. Thus it is not only a geo- or biophysical hazard, but also the social context that is necessary in order to understand “natural” disasters (Hewitt 1983). The so-called “radical critique” argues that, in the explanation of disaster, vulnerability carries more weight than hazard. As a result of feedback loops, hazard can be regarded as a trigger for the social processes that create vulnerability, which is the principal determinant of disaster potential (Alexander 2012). According to Alexander the increasing knowledge of disasters and the social processes involved, and the complexity of life in the early 21st century demand a new model: “the vulnerability of human socio-economic systems is acted upon by physical hazards (whether natural or anthropogenic), as well as cultural and historical factors. The plexus of the context and consequences of these associations is what determines the form, entity and size of any ensuing disaster” (Alexander 2012; Hoffman & Oliver-Smith 2002) (see Figure 1.1).

Study objective

Alexander’s model summarizes a complex interaction between elements, so broad and multifaceted that it can hardly be captured in words, let alone be measured. Nevertheless, the thought that the combination of culture, physical hazards and historical factors influences vulnerability serves as the point of reference for this study. Human societies can be analysed at different levels. The objective of this study is to test associations between elements of the model at the level of countries, operationalized using a combination of information from two sources: disaster vulnerability data and exposure data from the World Vulnerability Index (Birkmann et al. 2011; Welle et al. 2012) and Hofstede’s cultural dimensions scores (Hofstede 2001, 2011; Hofstede et al. 2010). A quantitative study of this type is rare and contributes to knowledge about the empirical associations between cultural features, exposure to natural hazards and disaster vulnerability.

The nature of the key concepts, the main data sources and a number of expected relations are described hereafter, followed by a description of the results of the analysis, some critical reflections on how to interpret the results, and the main conclusions.

2.2. Key concepts, data sources and expected relations

Disaster vulnerability

Considerable research attention has been focused since the 1960s on components of biophysical vulnerability and the vulnerability of the built environment. Relatively more recently, the social, historical and political aspects of vulnerability received scholarly attention. These aspects are sometimes ignored because of the greater difficulty in quantifying them (Cutter et al. 2003). A person's individual vulnerability is still quite easily described using individual characteristics (age, gender, income, race, education, employment, psychosocial resilience), but wider issues at the community level or derived from political economy or power relations (Wisner et al. 2004) are obviously often more difficult to grasp (see chapter 12). Social vulnerability is partially the product of social inequalities — those social factors that influence or shape the susceptibility of various groups to harm and that also govern their ability to respond (Bankoff et al. 2004).

To date, there has been little research effort focused on comparing the social vulnerability of one place to another. The vulnerability index by Cutter and colleagues is an important example of an assessment tool. At a global level the World Risk Index is the most comprehensive tool to assess the disaster risk that a society or country is exposed to by external and internal factors (Birkmann et al. 2011; Welle et al. 2012). The index is based on multiple indicators. Matrices are calculated for 173 countries; detailed information is publicly available and described in the World Risk Report 2012. The data collection required for its calculation is freely available and can be reliably accessed via the Internet, ensuring transparency and verifiability. In order to be mathematically aggregated into indices, the indicators are transformed in dimensionless rank levels between 0 and 1, i.e. they can be read as percentage values. The index illustrates that a country's disaster risk may depend on several factors, so that a country also has several means at its disposal to reduce risks (Birkmann et al. 2010). Disaster vulnerability comprises the components of susceptibility, lack of coping capacities and lack of adaptive capacities (Birkmann et al. 2011; Welle et al. 2012) which are further elaborated below.

Susceptibility

Susceptibility generally refers to the likelihood of harm, loss and disruption in an extreme event triggered by a natural or anthropogenic hazard. Thus susceptibility describes structural characteristics and framework conditions of a society. Several subcategories outlining the living conditions in a country have been chosen to

represent susceptibility in the vulnerability index: public infrastructure (share of population without access to improved sanitation and share of population without access to clean water), nutrition (share of population undernourished), poverty and dependencies (share of under 15- and over 65-year-olds in the working population and share of population living on less than USD 1.25 per day), and economic capacity and income distribution (gross domestic product per capita, purchasing power parity and the Gini index for income inequality). A fifth subcategory, housing conditions, is considered an important susceptibility factor; it has however not been included in the index so far due to a lack of global data.

Lack of coping capacities

Coping capacities comprise various abilities of individuals, societies and exposed elements (e.g. critical infrastructure such as nuclear power plants) to minimize negative impacts of natural and anthropogenic hazards through direct action and available resources. Coping capacities encompass measures and capabilities that are immediately available to reduce harm and damages in the occurrence of an event. Five subcategories of coping capacities are distinguished. Three of the subcategories are currently covered by data: government and authorities (Corruption Perceptions Index and Failed States Index), medical services (number of physicians per 10,000 inhabitants and number of hospital beds per 10,000 inhabitants), and material coverage (insurances, with life insurances excluded). The other two subcategories disaster preparedness and early warning as well as social networks are included in the coping capacities component. However, currently no global data referring to them is available. Hence it has not been possible thus far to give them a place in the index. The index does contain the opposite value, the lack of coping capacities, which results from the value 1 minus the coping capacities.

Lack of adaptive capacities

Adaptation is a long-term process that also includes structural changes (Birkmann et al. 2010; Lavell et al. 2012). Adaptation encompasses measures and strategies dealing with and attempting to address negative impacts of future natural hazards and climate change. Five subcategories are chosen for calculation, describing capacities for long-term adaptation and change within a society. For four subcategories suitable data is available: education and research (adult literacy rate and combined gross school enrolment), gender equity (gender parity in education and share of female representatives in the national parliament), environmental status/ecosystem protection (water resources, biodiversity and habitat protection, forest management, and agricultural management), and life expectancy at birth

and investments (public and private health expenditure). Owing to insufficient global data, the subcategory of adaptation strategies could not be integrated into the calculations. In analogy to the coping capacities, the lack of adaptive capacities is included in the index.

Exposure to natural hazards

The term exposure refers to entities such as populations, built-up areas, infrastructure components, and environmental areas, exposed to the effects of natural hazards (earthquakes, cyclones, droughts and floods). In the World Risk Report, exposure relates to the annual average number of individuals potentially exposed to hazardous events (Birkmann et al. 2011). The hazard frequency is also taken into account. Physical exposure data of the PREVIEW Global Risk Data Platform of the United Nations Environmental Program have been used to calculate exposure to earthquakes, cyclones, floods and droughts. These data include the number of people per approximately twenty square kilometres exposed on average to the natural hazards per country per year. Furthermore, the number of people who would potentially be affected by a one meter sea level rise are considered. This is based, firstly, on data from the Center for Remote Sensing of Ice Sheets at the University of Kansas. Secondly, the data are combined with population statistics of the Global Rural–Urban Mapping Project carried out by the Center for International Earth Science Information Network at Columbia University. This is aided by geographical information system data in order to establish the potential exposure of communities to rising sea level; only half of the people exposed to droughts and to sea level rise have been weighted and the drought calculation model bears some uncertainties (Peduzzi et al. 2009). An annual average exposure to sea level rise cannot be calculated, in spite of a considerable hazard potential being an issue affecting numerous coastal regions. In order to calculate the exposure index that describes the share of the population exposed per country, in the World Risk Report 2012 all exposed people per natural hazard have been added up and divided by the number of inhabitants per country. Important to note is that the reports provide an overview of vulnerability scores in combination with exposure rates for 173 countries (Birkmann et al. 2011).

The exposure rate is included in this study to measure the physical events as incorporated in Alexander's model. Based on interactions within the plexus of context and consequences, both a positive and a negative association between exposure and vulnerability can be expected, as exposure might be interrelated with cultural phenomena and historical developments, assuming that exposure rates are related with more or less stable geophysical circumstances. A positive association

implies that countries with higher exposure rates are more vulnerable. The exposure, in combination with certain cultural characteristics, could have prevented countries – more susceptible and with less coping and adaptive capabilities – to achieve a lower vulnerability level. A negative association implies that countries with higher exposure rates are less vulnerable, because their populations were confronted with a need to protect and reinforce themselves and nurture resilience. In that case exposure, throughout time, might have shaped the right cultural conditions.

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Cultural dimensions

Culture plays a central role in the phenomenology of vulnerability. Several authors point to the fact that vulnerability cannot exist without culture: “Vulnerable sites are those where people live, work and visit” (p. 6) (Edwards & Näslund-Landenmark 2007). Douglas and Wildavsky stated that what is seen as negative or damaged depends on cultural norms and patterns of interpretation (Douglas & Wildavsky 1982). At the same time culture is a complex and holistic concept. Numerous definitions of culture exist, some more essentializing than others. Tylor’s definition is classic: “culture or civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society” (p. 1) (Tylor 1874). Other authors emphasize that culture comprises characteristics that distinguish the members of one group or category of people from others (Benedict 1934; Hofstede 2011). Or it can be viewed as “problem-solving tool[s] that enable individuals to survive in a particular environment” (p. 43) (Schein 1999). However, these notions of culture as comprising rather permanent attributes have received serious criticisms. Culture is increasingly seen as a dynamic, interactive and contingent concept, being shaped by the agentic experience of reality while being at the same time the shaper of that reality. More recently, scholars, i.e. in post-colonial traditions, have critiqued the idea of culture as a fixed or solidified and territorialized (‘national’) feature. Here they highlight the constructed, negotiated and hybrid nature of the notion of culture that is considered subject to power dynamics and processes of contestation and negotiation, and which is increasingly difficult to locate in space (Gupta & Ferguson 1997). In accordance with the tenor of these criticisms whilst acknowledging that these views do nuance and go beyond the notion of culture as captured in the datasets employed in the current study, the results should be interpreted with some caution (later more on this). Also, further qualitative follow-up studies are recommended to more fully grasp the dynamics at work.

Disaster culture

In disaster research culture has received a considerable amount of attention, for instance by anthropologists like Oliver-Smith and Hoffman (Oliver-Smith & Hoffman 1999; Hoffman & Oliver-Smith 2002). A group of disaster scholars coined the notion of 'disaster culture', referring to "those adjustments, actual and potential, social, psychological and physical, which are used by residents of such areas in their efforts to cope with disasters which have struck or which tradition indicates may strike in the future" (p. 195) (Moore 1964). The concept was first used by Anderson (1965), while Wenger and Weller (1972; 1973; Wenger 1978) have further developed the notion and included an analytical framework to grapple with the different elements of disaster culture. Disaster subcultures can assume many forms (norms, values, knowledge and technology), and are viewed as organizational response patterns, socialization mechanisms and a blueprint for individual and group behaviour before, during, and after a hazard agent impacts a community. In this way, exposure to hazard shapes a human reaction pattern. As soon as such patterns influence vulnerability, disaster cultures become part of Alexander's plexus of context and consequences.

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Six dimensions

Defining culture is one thing, measuring it another. The data set used in this study finds its origin in large-scale survey research since the 1970s by Hofstede and colleagues. Their efforts resulted in a dataset containing cultural dimensions scores of many countries (Hofstede & Bond 1988; Hofstede 2001; Minkov 2007; Hofstede et al. 2010). The cultural dimensions are:

- Power distance, relating to the different solutions to the basic problem of human inequality;
- Uncertainty avoidance, relating to the level of stress in a society in the face of an unknown future;
- Individualism versus collectivism, relating to the integration of individuals into primary groups;
- Masculinity versus femininity, relating to the division of roles between women and men;
- Long-term versus short-term orientation, relating to the choice of focus for people's efforts: the future or the present and past;
- Indulgence versus restraint, relating to the gratification versus control of basic human desires related to enjoying life.

Recent validations of the six dimensions showed no loss of validity, indicating that the country differences these dimensions described, are indeed, basic and enduring (Hofstede 2011; also see Beugelsdijk et al. 2015). The dimensions are summarized hereafter on the basis of different publications by Hofstede and colleagues (Hofstede 2001; Hofstede et al. 2010; Hofstede 2011).

Power distance

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The power distance index measures the extent to which the less powerful members of organizations and institutions like the family accept and expect that power is distributed unequally. This represents inequality (more versus less) as defined from below, not from above, suggesting that a society's level of inequality is endorsed by the followers as much as by the leaders. In countries with a small power distance the use of power should be legitimate and is subject to e.g. moral criteria of 'good' and 'bad'. Such countries have pluralist instead of autocratic governments, based on majority vote and which transition peacefully. Hierarchy means inequality of role – not existential inequality – and is established for convenience. Corruption is rare, scandals end political careers and are not covered up. Income distribution is rather even. Religions stress the equality of believers. Countries with a large power distance score differently on all these aspects. Since several of the aforementioned associations refer to topics included in the vulnerability index, particularly in the constituting parts of susceptibility and lack of coping capacities, the hypothesis is that countries with a small power distance (or equal power distribution) are less vulnerable to disaster.

Uncertainty avoidance

This dimension indicates to what extent members of a culture feel either uncomfortable or comfortable in unstructured situations. Disasters are unstructured situations and thus unknown, surprising, and different from usual. Uncertainty-avoiding cultures try to minimize the possibility of such situations by strict laws and rules, safety and security measures, and on the philosophical and religious level by a belief in absolute truth. Weak uncertainty avoidance cultures are less rigid, which is reflected in e.g. lower stress and anxiety, higher self-control, higher scores on subjective health and well-being, tolerance of deviating persons and ideas, feeling comfortable with ambiguity and chaos, and dislike of written and unwritten rules. Religion, philosophy and science in cases of weak uncertainty avoidance are characterized by relativism and empiricism, not by grand theories and ultimate truths.

It is difficult to relate these characteristics to elements incorporated in the vulnerability index. Higher levels of self-control, tolerance and subjective health and well-being suggest that weak uncertainty avoidance is accompanied by lower vulnerability. Then again, laws, rules, safety and security measures are valuable for disaster preparedness and risk mitigation, if however, not too strict and in combination with a climate of psychological safety where people dare to discuss rules and practices. Based upon this logic, if a particular association is to be assumed, a lower degree of uncertainty avoidance is probably accompanied by lower vulnerability. Societies will then undertake pragmatic preparation activities to minimize the occurrence of unknown and unusual circumstances such as disasters, and will take precautionary measures to minimize disaster impact.

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Individualism versus collectivism

Collectivism, the degree to which individuals are integrated into groups, is the opposite of individualism. In individualistic societies the ties between individuals are loose – everyone is expected to take care of themselves and their immediate family. The purpose of education is learning how to learn, speaking one's mind is considered healthy, personal opinions are expected, and task prevails over relationship. In collectivistic societies people from birth onwards are integrated into strong, cohesive in-groups, often extended families which continue protecting them in exchange for unquestioning loyalty. The purpose of education is learning how to do, harmony should always be maintained, opinions are predetermined by in-groups, and relationship prevails over task.

Earlier research found an association between individualism, a lower power balance, and socio-economic country features (more on this later) (Hofstede 2001). Therefore a positive relation between individualism and vulnerability is likely to come out of the analysis.

Masculinity versus femininity

The fourth dimension has to do with the distribution of gender roles in a society. The assertive pole has been called masculine and the modest caring pole feminine. Hofstede found that the values of women differ less among societies than the values of men that, from one country to another, differ from highly assertive and competitive (and maximally different from feminine values) to modest and caring (and similar to feminine values). In masculine societies men decide about the number of children, the number of women in elected political positions is limited, boys do not cry but should fight, and the strong are admired. Femininity means that family size is decided by women, the portion of women in elected political positions is higher, fighting is disapproved, and there is sympathy for the weak.

It could be hypothesized that higher levels of masculinity are accompanied by, among others, a lower proportion of woman in national parliaments and gender parity in education, and thus, in a higher disaster vulnerability rate.

Long-term versus short-term orientation

A typical difference between cultures with a short-term or a long-term orientation is that most important events in life in a short-term oriented culture occurred in the past or take place now, while in a long-term oriented culture they will occur in the future. Long-term orientation means that people will adapt to circumstances and that what is good and bad depends on the situation, not on universal guidelines. The same is the case with traditions. In a short-term oriented culture traditions are sacred, in a long-term oriented culture traditions are adapted to changed circumstances. Moreover, a long-term oriented country is not too proud to try to learn from other countries. Resources are not spent and consumed directly. Because of the large savings quote, funds are available for investment.

Countries with a long-term orientation are likely to be less vulnerable because reducing disaster vulnerability requires anticipation of future hazards and long-term investments in capacity.

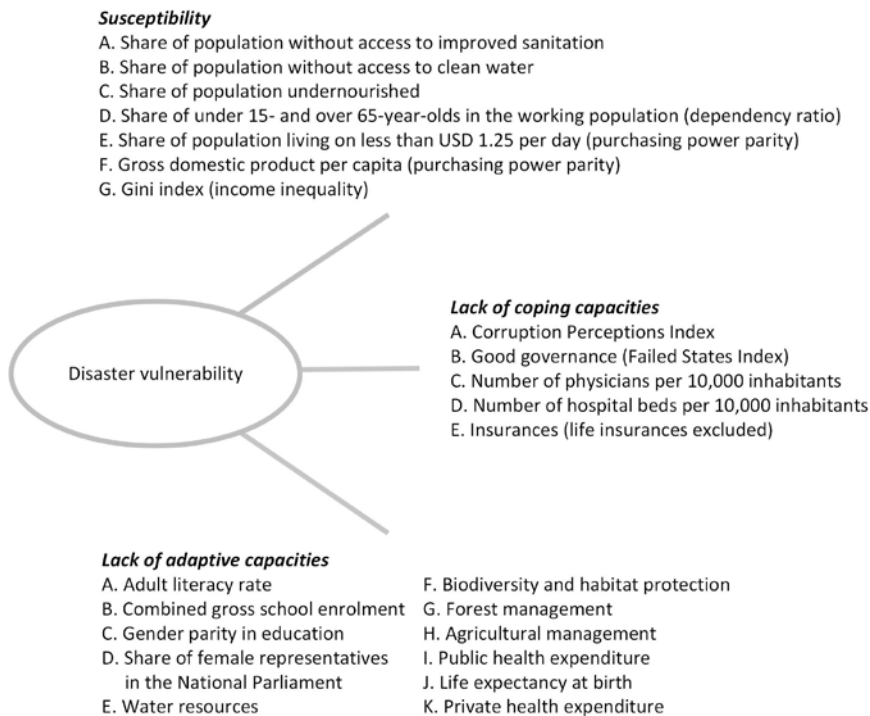
Indulgence versus restraint

Indulgence stands for a society that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Indulgent societies are characterized by a higher percentage of people declaring themselves very happy, a perception of personal life control (opposed to a perception of helplessness), freedom of speech is considered important and maintaining order is not given a high priority. Restraint stands for a society that suppresses gratification of needs and regulates it by means of strict social norms. A negative correlation was found between indulgence versus restraint and long-term versus short-term orientation. Indulgent societies can be expected to be less vulnerable because people are more optimistic and happy and have a personal sense of control. Happiness is linked to several aspects embedded in the vulnerability index, such as income equality and good governance (Alesina et al. 2004; Ott 2011).

2.3. Methods

In the previous section the main data sources were described. The disaster vulnerability data (see Figure 2.1), exposure to natural hazards and the cultural dimensions scores were collected and verified in previous research programmes.

All data is publicly accessible. By combining the data sets, the relation between the variables could be examined at the country level. Correlations were calculated. Next, a stepwise regression analysis was conducted with vulnerability as the dependent variable. The cultural dimensions scores were added one after the other, followed by the exposure rate (independent variables), to make their distinctive explanatory value and the changes in statistical outcomes transparent. This step was followed, firstly, by an exploratory factor analysis and, secondly, by comparing the composition of different country groups, ranking countries based on their vulnerability and cultural dimensions scores. Additional steps were taken to further explore patterns identified. The data can be found in the Appendix. All analyses were performed in IBM SPSS Statistics, version 21.



Source: World Risk Report 2012

Figure 2.1. Disaster vulnerability: overview of dimensions and components

2.4. Results

Describing the data

Disaster vulnerability and exposure data could be matched to the cultural dimensions scores of 60 countries. Since the vulnerability scores in the World Risk Report 2012 are computed using the combined indicators per component, the reliability of the scale could be confirmed in the current study sample (Cronbach's alpha 0.88). The sum of components is almost perfectly correlated with the vulnerability score in the World Risk Report 2012 ($r = .997$; $p = 0.01$). The vulnerability score is included in the further analysis.

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In Table 2.1 means, standard deviations, and minimum and maximum values of the sample are presented, as well as the correlations between the variables. Significant correlations are found between power distance and individualism versus collectivism, between power distance and indulgence versus restraint, between long-term versus short-term orientation and indulgence versus restraint, and between individualism versus collectivism and exposure to natural hazards. Vulnerability is correlated significantly with power distance, individualism versus collectivism, long-term versus short-term orientation, indulgence versus restraint, and the exposure to natural hazards.

Stepwise regression analysis

The next step is to determine the extent to which the cultural dimensions statistically explain the level of vulnerability. The six dimensions are added one after the other in the linear regression model. As a final step the exposure to natural hazards is included. This makes it possible to see how estimates change when additional variables are taken into account (Table 2.2). Model 1 shows how a increase in power distance is positively associated with higher vulnerability. In this model 37% of the variance is explained. An increase in uncertainty avoidance in model 2 has no significant effect on vulnerability; the percentage of explained variance is hardly affected. Adding individualism versus collectivism in model 3 boosts the level of explained variance up to 53%. Higher levels of individualism are accompanied by lower vulnerability rates. Because the effect size of power distance is halved, the influence of this dimension appears to be confounded by the level of individualism.

The fourth model does not add anything. Variation in masculinity versus femininity has no significant positive or negative effect on vulnerability and the percentage of explained variance is unchanged. In model 5 long-term versus short-term orientation is added, bringing the level of explained variance up to 59%. When

Table 2.1. Distributional information and correlations

	Distributional information				Correlations							
	N	Mean	SD	Min-Max	PDI	UAI	IVC	MVF	LVS	IVR	VUL	EXP
PDI	60	58.43	20.98	11-104	-							
UAI	60	67.55	22.99	8-112	0.22	-						
IVC	60	46.58	23.62	12-91	-0.65**	-0.23	-					
MVF	60	49.05	20.59	5-110	0.17	0.03	0.03	-				
LVS	60	48.85	22.49	13-100	0.03	-0.02	0.14	-0.03	-			
IVR	60	47.98	22.39	0-100	-0.30*	-0.11	0.14	0.08	-0.53**	-		
VUL	60	39.05	9.76	27-64	0.60**	0.02	-0.68**	0.09	-0.29*	-0.27*	-	
EXP	60	14.77	8.83	2-52	0.22	0.02	-0.26*	0.19	-0.07	0.06	0.28*	-

Legend: N = Number of cases (countries), SD = Standard deviation, PDI = Power distance, UAI = Uncertainty avoidance, IVC = Individualism versus collectivism, MVF = Masculinity versus femininity, LVS = Long-term versus short-term orientation, IVR = Indulgence versus restraint, VUL = Vulnerability score (based on susceptibility, lack of coping capacities and lack of adaptive capacities), EXP = Exposure.

* $p < 0.05$. ** $p < 0.01$.

Table 2.2. Regression estimates

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	<i>B</i> (SE; β)	<i>B</i> (SE; β)	<i>B</i> (SE; β)	<i>B</i> (SE; β)	<i>B</i> (SE; β)	<i>B</i> (SE; β)	<i>B</i> (SE; β)
Constant (Intercept)	22.63** (3.02; NA)	25.19** (3.88; NA)	45.48** (5.84; NA)	44.88** (5.93; NA)	47.40** (5.70; NA)	63.00** (6.16; NA)	61.46** (6.29; NA)
PDI. Power distance	0.28** (0.05; 0.60)	0.29** (0.05; 0.63)	0.14* (0.06; 0.30)	0.13* (0.06; 0.28)	0.15** (0.06; 0.33)	0.10 (0.05; 0.21)	0.11* (0.05; 0.24)
UAI. Uncertainty avoidance	-	-0.05 (0.05; -0.11)	-0.07 (0.04; -0.16)	-0.07 (0.04; -0.16)	-0.07 (0.04; -0.16)	-0.08* (0.03; -0.19)	-0.08* (0.03; -0.18)
IVC. Individualism versus collectivism	-	-	-0.22** (0.05; -0.52)	-0.22** (0.05; -0.54)	-0.19** (0.05; -0.47)	-0.19** (0.04; -0.47)	-0.17** (0.04; -0.41)
MVF. Masculinity versus femininity	-	-	-	0.03 (0.05; 0.07)	0.03 (0.04; 0.06)	0.06 (0.04; 0.12)	-
LVS. Long-term versus short-term orientation	-	-	-	-	-0.11** (0.04; -0.24)	-0.20** (0.04; -0.46)	-0.20** (0.04; -0.45)
IVR. Indulgence versus restraint	-	-	-	-	-	-0.18** (0.04; -0.41)	-0.18** (0.04; -0.40)
EXP. Exposure	-	-	-	-	-	-	0.12 (0.09; 0.11)
R^2 (R Square Change)	37% (37%)	38% (1%)	53% (15%)	53% (0%)	59% (6%)	70% (11%)	69% (-1%)

Legend: *B* = Unstandardized coefficient, SE = Standard error, β = Standardized coefficient, R^2 = Percentage of explained variance.
* $p < 0.05$. ** $p < 0.01$.

the long-term orientation score is higher, this has a negative effect on vulnerability. Model 6, moreover, includes indulgence versus restraint. Power distance and long-term versus short-term orientation are confounded by this last dimension. Higher indulgence scores have a negative effect on vulnerability. Explained variance is now 70%.

In the final model the redundant masculinity versus femininity dimension is replaced by the exposure to natural hazards. The statistical effect of an increase in exposure is insignificant in this model, and apparently confounded by cultural dimensions – a variant of model 1 with only the exposure variable reveals a significant effect on vulnerability when the exposure rate increases ($B = 0.30$; $SE = 14$; $\beta = 0.28$; $p = 0.05$); after adding cultural variables the effect size shrinks. In model 7 vulnerability is explained for 69%. Power distance, individualism versus restraint, uncertainty avoidance, long-term versus short-term orientation, and indulgence versus restraint all have a significant effect on vulnerability.

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Exploratory factor analysis

An exploratory factor analysis has been performed, based on all seven variables. Three constructs appear to exist within the data. Only the first construct, the strongest one, consists of three elements: disaster vulnerability; power distance; and individualism versus collectivism. Scale reliability is good (Cronbach's alpha 0.79; individualism versus collectivism has a negative loading and was therefore recoded by extracting the maximum dimension score from the score of each country). The exploratory factor analysis confirms the pattern revealed by the regression analysis. More vulnerable countries have a more unequal power distribution and a more collectivistic culture.

Group comparison

Next, the 60 countries were divided into three groups based on their disaster vulnerability score. Equal groups of 20 countries were not possible because the vulnerability scores of South Korea, Slovenia, Spain and the United States are the same:

- Group 1 (18 countries): Finland, Norway, Sweden, Switzerland, Austria, Denmark, Netherlands, Germany, Japan, Luxembourg, New Zealand, Australia, Belgium, France, Canada, Great Britain, Ireland, Singapore;
- Group 2 (21 countries): South Korea, Slovenia, Spain, United States, Czech Republic, Estonia, Greece, Italy, Portugal, Lithuania, Poland, Slovak Republic, Malta, Uruguay, Croatia, Hungary, Latvia, Bulgaria, Argentina, Chile, Russia;

- Group 3 (21 countries): Romania, Serbia, Trinidad and Tobago, Brazil, Malaysia, Mexico, Turkey, Thailand, Venezuela, China, Iran, Colombia, Peru, Vietnam, El Salvador, Philippines, Morocco, Indonesia, India, Bangladesh, Pakistan.

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Group analysis supports the pattern found in the regression analysis. In Figure 2.2 the average group scores are displayed. Power distance and individualism versus collectivism show the strongest relation. The association between vulnerability and the other cultural dimensions is less clear. What the bar chart also shows is that there is hardly a perceivable difference in scores on masculinity versus femininity between the three groups.

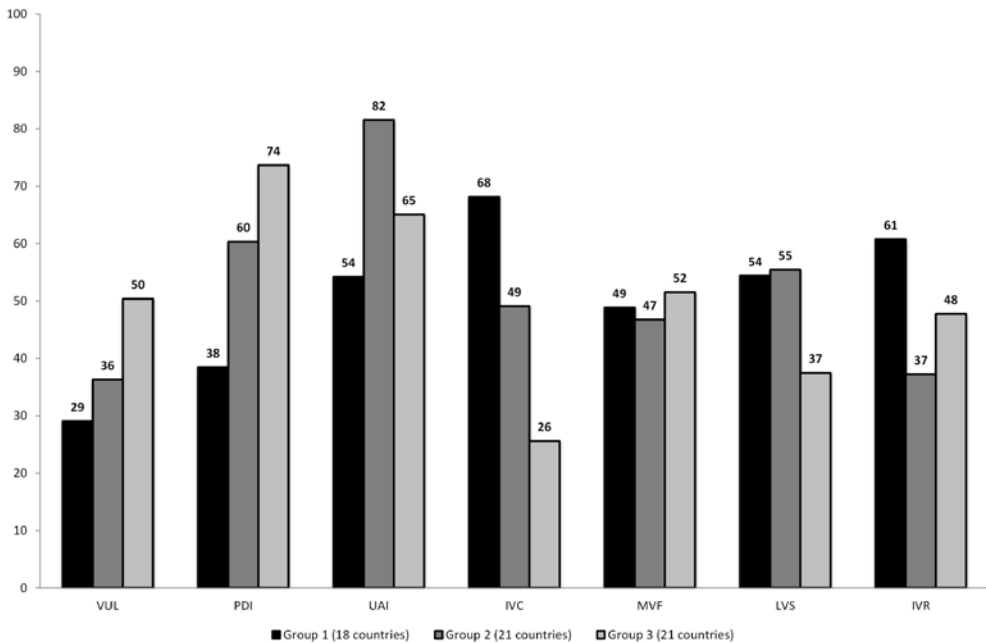


Figure 2.2. Disaster vulnerability and cultural dimensions scores

Note. Average disaster vulnerability and cultural dimensions scores (60 countries are divided into three groups based on the disaster vulnerability score). Legend: VUL = Vulnerability score, PDI = Power distance, UAI = Uncertainty avoidance, IVC = Individualism versus collectivism, MVF = Masculinity versus femininity, LVS = Long-term versus short-term orientation, IVR = Indulgence versus restraint.

2.5. Discussion

Before presenting the main conclusions, several reasons are discussed why the results of this study should be interpreted with caution.

Operationalization of the theoretical model

Alexander's model was operationalized only partly. It served as a vantage point to explore the relation between culture and disaster vulnerability at the country level, while taking into account the exposure to natural hazards. Multiple statistical associations were found, but they are not necessarily causal. Long-term data on culture, exposure (natural as well as anthropogenic), and disaster vulnerability are not available at the moment. This is also why one of the remaining elements of the model was omitted in the analysis: history. The current exercise does not allow disentanglement of potential interrelations between culture, physical events and history. Indeed, it might be that exposure is more or less constant on the longer term – although climate change is considered to generate higher prevalence rates (Birkmann & Von Teichman 2010; IPCC 2013). In that case history is possibly embedded in exposure rates. Also, the cultural data might, at least partly, reflect the (history of) physical events in each country. Besides indications of confounding effects between exposure and culture, the dataset is not really suited to test moderating or mediating effects between culture, physical events, history, and vulnerability. Empirically, the “context and consequences” map of the model still contains some terra incognita. Research devoted to mechanisms at different levels and cross-level interactions through time is highly welcome.

Difficulties in studying culture and vulnerability

Some scholars consider the best way to study cultures is through cross-cultural comparisons. At the same time others are reluctant to accept this approach as it premises that one could distinguish where one culture ends and the other begins and by that deny cross-cultural flows and influences. Hofstede recognizes the issue of cultural borders. The averages of a country do not equate to individuals of that country. Even though this model has proven to be quite often correct when applied to the general population, one must be aware that not all individuals or even regions with subcultures fit into the mould. It is to be used as a guide to understanding the difference in culture between countries, not as law set in stone (Kirkman et al. 2006).

Although the study focuses on national culture, patterns at individual or local group level can be strikingly different from what is found at the national level and may need a different interpretation. It is questionable whether general patterns provide enough basis to formulate theories on how individual citizens deal with matters of vulnerability. After all, one of the weaknesses of much cross-cultural research is not recognizing the difference between analysis at the societal and individual level; this not only amounts to confusing anthropology and psychology,

but also leads to errors of interpretation and application (Kirkman et al. 2006). It is necessary to be on guard for ecologic and individualistic fallacies – the inaccurate attribution of group features to the individual and vice versa. Moreover, some “disaster cultures”, the specific culture – typified by knowledge, norms, artefacts and behaviour – developed by certain societies and groups in order to respond or adapt to disasters, may reflect national characteristics and may be derived from national culture, but disaster cultures or subcultures can also be based on very localized conditions and have a more sub-national or local nature (Engel et al. 2014).

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Of further note is that the cultural dimensions data have been collected through questionnaires, which have their own limitations. In some cultures the context of the question asked is as important as its content. Especially in group-oriented cultures, individuals might tend to answer questions as if they were addressed to ‘their’ group. While on the other hand in an individualistic culture like the United States, the answers will most likely be answered and perceived through the eyes of that individual.

Another issue is whether disaster vulnerability, as operationalized here, can be considered a cultural feature itself. The various datasets used represent what can be called cultural resultants and outcomes like public health expenditure, corruption, good governance, income equality, gender parity in education, and literacy. Hofstede’s cultural dimensions reflect something else, namely norms, values and ideas. The variables are both linked to culture or influenced by it; they are however undeniably different. Then there is the question about whose culture should be the reference point for any cross-country study on culture and disaster risk. At the global level culture can acquire a connotation of domination. Bankoff for example criticizes the very concept of vulnerability being a western notion representing the values and principles of western culture. According to Bankoff, the ultimate aim underlying the concept is to depict large parts of the world as dangerous and hostile, providing justification for interference and intervention (Bankoff 2003). A suitable reference point is preferably neutral or unprejudiced, and at a minimum transparent. The six dimensions of national cultures were adopted here as a reference point, or a “thermometer”, under the assumption that these criteria are met. Norms, values and beliefs were measured at individual level in different countries using the same approach. Aggregated scores vary between countries on continuums that appear descriptive, not normative. Yet, one always has to be a bit careful with such assumptions.

And there is another luring misunderstanding to avoid. The vulnerability index embodies elements such as corruption, good governance, a national parliament with female representatives, et cetera. This fits with Bankoff’s criticism of

vulnerability as being a concept reflecting western culture. By no means should the study be seen as an encouragement to revisit the modernization debate of the 1960s and 1970s, where several theorists framed underdevelopment as a fundamentally cultural phenomenon rather than a historical structural one. Banfield, for example, stated that in order to realize a high degree of economic development and democratic political order in a human society, a high degree of organization is needed. He positioned culture as “the limiting factor which determines the amount and character of organization and therefore of progress in the less developed parts of the world” (p. 9) (Banfield 1958). Propositions like these and critique of them reflect academic debate, but draw attention away from the concepts and associations studied. The question to what extent elements of vulnerability and cultural dimensions can or cannot be influenced, exceeds the scope of this study which covers one slice of a timeline – a timeline that can be viewed as a historical process in which factors such as culture, physical events, and history influence vulnerability. Many interesting phenomena, serving as a possible influential factor, are integrated in the process and visible in the isolated slice, like wealth, for instance. The vulnerability index reflects national wealth, which explains the confirmed association between vulnerability, and individualism and low power balance. “All wealth-related phenomena tend to correlate with both these dimensions. Differences in national wealth can be considered a more parsimonious explanation of these other phenomena than differences in culture. In correlation with the cultural dimensions, it is therefore advisable to always include the wealth variable. After controlling for national wealth, correlations with culture usually disappear (p. 8).” (Hofstede 2011). Hofstede’s advice is relevant for researchers of particular country characteristics. Still, the study of disaster vulnerability is inconclusive without wealth. Alexander accentuated that, “although poverty and vulnerability to disasters are not perfectly synonymous, they are nearly so, and conversely, wealth can be equated with protection and safety. This simple balance, however, does not reduce the potential for massive financial losses in areas where both hazards and physical capital are heavily concentrated” (p. 2) (Alexander 2012).

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Limitations of the vulnerability index

In addition to limitations and concerns already addressed, some limitations of the World Vulnerability Index must be mentioned. A wide array of datasets from different sources are used to bring together social and economic dimensions and natural hazard analysis (Alliance Development Works 2012). When data was missing, robust statistical imputation techniques were conducted to cover the missing data (Templ et al. 2006). The properties and validity of the datasets present

a limitation towards the homogeneity of the data. The homogeneity across all countries varies since countries differ from each other, especially large countries in comparison with small (e.g. the difference between China and Luxembourg) (Alliance Development Works 2012).

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The datasets used are not designed for this purpose; they are incorporated simply because they are available (Heesen et al. 2014). In the vulnerability index indicators have been assigned to three constructs. The reliability coefficient is good and the index has been thoroughly tested (Alliance Development Works 2012). Other solutions are possible, but in this study the existing index was used, without alterations. Although the index is at present a helpful source to understand disaster risk internationally, the statistical work is still work in progress and there is scope for follow-up work covering more relevant data.

Conclusions

In summary, this study is an examination of associations at the level of countries between the exposure to natural hazards, cultural characteristics and the vulnerability of countries, in the context of a theoretical model. Countries less exposed to natural hazards are significantly less vulnerable. Besides masculinity, each of Hofstede's cultural dimensions contributed significantly to explaining the encountered variance in disaster vulnerability in a sample of 60 countries. Particularly countries with a small power distance and higher degrees of individualism are found to be less vulnerable to disaster, which is in line with earlier research pointing at an association between both cultural aspects and socio-economic country features. Statistically, approximately 70% of disaster vulnerability variance at country level could be explained. Associations are not the same as causal relations and there are other advisable precautions in interpretation. Nevertheless, the results of the statistical analysis are robust and significant. They corroborate earlier conceptual and qualitative work in, among others, the anthropology of disaster and on disaster cultures and subcultures.

Appendix. Country culture and disaster vulnerability data

#	Country	Cultural dimensions scores						World Risk Report				
		PDI	UAI	IVC	MVF	LVS	IVR	VUL	SUS	LCC	LAC	EXP
1	Argentina	49	86	46	56	20	62	40	22	62	36	10
2	Australia	36	51	90	61	21	71	30	14	42	35	15
3	Austria	11	70	55	79	60	63	28	14	36	33	14
4	Bangladesh	80	60	20	55	47	20	64	43	87	61	32
5	Belgium	65	94	75	54	82	57	30	15	43	32	12
6	Brazil	69	76	38	49	44	59	45	25	68	42	10
7	Bulgaria	70	85	30	40	69	16	39	17	59	41	12
8	Canada	39	48	80	52	36	68	31	14	45	34	10
9	Chile	63	86	23	28	31	68	40	21	58	40	31
10	China	80	30	20	66	87	24	49	29	72	46	14
11	Colombia	67	80	13	64	13	83	50	30	77	43	14
12	Croatia	73	80	33	40	58	33	38	17	60	36	12
13	Czech Republic	57	74	58	57	70	29	34	14	52	36	11
14	Denmark	18	23	74	16	35	70	28	14	39	32	11
15	El Salvador	66	94	19	40	20	89	52	29	77	50	33
16	Estonia	40	60	60	30	82	16	35	18	52	34	7
17	Finland	33	59	63	26	38	57	27	15	38	30	8
18	France	68	86	71	43	63	48	30	15	42	33	9
19	Germany	35	65	67	66	83	40	29	15	39	33	11
20	Great Britain	35	35	89	66	51	69	31	16	46	33	12
21	Greece	60	112	35	57	45	50	35	17	52	36	21
22	Hungary	46	82	80	88	58	31	38	16	55	41	16
23	India	77	40	48	56	51	26	61	41	82	60	12
24	Indonesia	78	48	14	46	62	38	55	35	82	49	19
25	Iran	58	59	41	43	14	40	49	18	80	48	10
26	Ireland	28	35	70	68	24	65	31	15	42	34	15
27	Italy	50	75	76	70	61	30	35	16	55	33	14
28	Japan	54	92	46	95	88	42	29	17	36	36	46
29	Korea South	60	85	18	39	100	29	33	14	46	39	15
30	Latvia	44	63	70	9	69	13	38	21	58	35	9
31	Lithuania	42	65	60	19	82	16	36	20	53	36	9
32	Luxembourg	40	70	60	50	64	56	29	12	41	35	9
33	Malaysia	104	36	26	50	41	57	45	21	70	43	15
34	Malta	56	96	59	47	47	66	37	14	54	43	2
35	Mexico	81	82	30	69	24	97	46	24	72	43	14
36	Morocco	70	68	46	53	14	25	54	29	76	58	13
37	Netherlands	38	53	80	14	67	68	28	14	39	30	31
38	New Zealand	22	49	79	58	33	75	29	16	40	30	15
39	Norway	31	50	69	8	35	55	27	14	38	29	9
40	Pakistan	55	70	14	50	50	0	64	39	87	65	11
41	Peru	64	87	16	42	25	46	50	31	75	44	14
42	Philippines	94	44	32	64	27	42	53	34	83	43	52

#	Country	Cultural dimensions scores						World Risk Report				
		PDI	UAI	IVC	MVF	LVS	IVR	VUL	SUS	LCC	LAC	EXP
43	Poland	68	93	60	64	38	29	36	17	55	35	10
44	Portugal	63	104	27	31	28	33	35	17	49	39	11
45	Romania	90	90	30	42	52	20	43	22	64	43	16
46	Russia	93	95	39	36	81	20	41	21	60	42	9
47	Serbia	86	92	25	43	52	28	43	19	68	40	18
48	Singapore	74	8	20	48	72	46	32	14	47	36	8
49	Slovak Republic	104	51	52	110	77	28	36	14	57	38	10
50	Slovenia	71	88	27	19	49	48	33	14	51	33	12
51	Spain	57	86	51	42	48	44	33	15	51	34	10
52	Sweden	31	29	71	5	53	78	27	14	37	30	8
53	Switzerland	34	58	68	70	74	66	27	14	37	31	10
54	Thailand	64	64	20	34	32	45	47	22	76	43	14
55	Trinidad and Tobago	47	55	16	58	13	80	44	19	71	42	18
56	Turkey	66	85	37	45	46	49	46	20	70	49	12
57	United States	40	46	91	62	26	68	33	17	48	33	12
58	Uruguay	61	100	36	38	26	53	37	21	51	39	11
59	Venezuela	81	76	12	73	16	100	47	23	75	42	13
60	Vietnam	70	30	20	40	57	35	51	29	77	47	25

Legend: PDI = Power distance, UAI = Uncertainty avoidance, IVC = Individualism versus collectivism, MVF = Masculinity versus femininity, LVS = Long-term versus short-term orientation, IVR = Indulgence versus restraint, VUL = Vulnerability score (based on SUS, LCC and LAC), SUS = Susceptibility, LCC = Lack of coping capacities, LAC = Lack of adaptive capacities, EXP = Exposure.

Data sources: Hofstede Cultural Data and World Risk Report 2012.

Chapter 3

Country vulnerability and mental health: PTSD

This chapter is based on: Dückers, M.L.A., Alisic, E., & Brewin, C.R. (2016). A vulnerability paradox in the cross-national prevalence of post-traumatic stress disorder. *British Journal of Psychiatry*, 209, 300-305.

Abstract

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Determinants of cross-national differences in the prevalence of mental illness are poorly understood. Objective of this study was to test whether national PTSD rates can be explained by (a) rates of exposure to trauma, and (b) countries' overall cultural and socio-economic vulnerability to adversity. We collected general population studies on lifetime PTSD and trauma exposure, measured using the WHO Composite International Diagnostic Interview (DSM-IV). PTSD prevalence was identified for 24 countries (86,687 respondents) and exposure for 16 countries (53,038 respondents). PTSD was predicted using exposure and vulnerability data. PTSD is related positively to exposure but negatively to country vulnerability. Together, exposure, vulnerability, and their interaction explain approximately 75% of variance in the national prevalence of PTSD. Contrary to expectations based on individual risk factors, we identified a paradox whereby greater country vulnerability is associated with a decreased, rather than increased, risk of PTSD for its citizens.

3.1. Introduction

While a considerable amount is known about individual-level risk factors for PTSD, which include trauma exposure and indices of vulnerability such as social and educational disadvantage (Brewin et al. 2000; Brewin & Holmes 2003; Ozer et al. 2003), there has been little research into country-level predictors. Initial concerns that PTSD was a specifically Western formulation of response to trauma have been allayed by cross-national research indicating that, although there is some cultural patterning of symptoms, the condition occurs around the world (Yehuda 2002). Despite this evidence for cross-cultural validity, however, there are relatively large unexplained variations in PTSD rates across countries, with lifetime prevalence in general populations ranging from zero to more than six percent (Kessler & Üstün 2008). Our objective was to test whether national differences in lifetime PTSD prevalence can be explained by countries' rates of exposure to trauma and their vulnerability, both singly and in interaction. The interaction has been suggested, for instance, by Cutter: "Vulnerability is the likelihood that an individual or group will be exposed to and adversely affected by a hazard. It is the interaction of the hazards of place (risk and mitigation) with the social profile of communities." (Cutter 1993). The specific vulnerability of nations to major disturbances such as disasters has recently been captured in a comprehensive combination of cultural and socio-economic country features (Welle et al. 2013). There is consistent evidence that within countries more disadvantaged groups have higher prevalence levels of PTSD in response to trauma exposure (Hobfoll et al. 2010). These approaches suggest that more vulnerable countries should have higher prevalence rates, and that trauma exposure interacts with group vulnerability to increase PTSD prevalence.

3.2. Methods

Country-level data on prevalence of lifetime PTSD and exposure to trauma

In order to ensure quality and standardise measurement of trauma and PTSD we selected studies using the Composite International Diagnostic Interview (CIDI). The CIDI is a widely-used structured diagnostic interview, validated cross-culturally and designed to be used by trained lay interviewers (WHO 1997; Kessler & Üstün 2004). It was the main measure of the World Mental Health (WMH) surveys. Trauma exposure is measured using detailed lists of events including, among others, combat or war experience, natural disaster, physical or sexual assault, physical abuse as a child, motor vehicle accident, unexpected death or life-threatening illness of a loved one, and witnessing a potentially traumatic event (Scott et al. 2013; Kessler et al. 2014).

We searched Medline, EMBASE, PsycINFO and PILOTS for prevalence studies on lifetime PTSD and exposure to trauma, conducted in representative samples with a CIDI-based assessment of PTSD according to the DSM-IV criteria. The literature databases were searched in the second half of January 2015 using the following combination of search terms: a) trauma-related (e.g. PTSD, post-traumatic stress, post-traumatic stress, traumatic, trauma) and b) prevalence in all fields, together with c) “lifetime” and d) “Clinical International Diagnostic Interview” or “CIDI” in title and abstract. We did not apply restrictions regarding language, publication type or date of publication. Reference lists were inspected to identify other potentially relevant studies. Studies focusing solely on 12-month PTSD prevalence, using older DSM versions, or not using the CIDI, were excluded. Where we found more than one dataset for any country meeting the inclusion criteria we selected the most recent one.

Country vulnerability

In the annual World Risk Report, produced by Alliance Development Works, the UN University and the University of Bonn, a broad collection of datasets is brought together and combined into a vulnerability index, reflecting a variety of social and economic country features. In the 2013 report, the vulnerability of 173 countries was summarized using 23 indicators, divided into three components, and measured using worldwide and publicly accessible data (Welle et al. 2013). *Susceptibility* describes a country’s structural characteristics and framework conditions that can sustain harm. For example, indicators involve malnutrition, access to sanitation, income equality and gross domestic product per capita. *Lack of coping capacities* refers to the ability of a country to minimise negative impacts of events and includes indicators such as number of physicians and hospital beds per 10,000 inhabitants and the Corruption Perceptions Index. *Lack of adaptive capacities* refers to conditions supporting long-term, structural change. Example indicators include the adult literacy rate, combined gross school enrolment, forest management, and public and private health expenditure. More background information on the index, its composition and analysis can be found in the World Risk Report of 2013 (Welle et al. 2013; also see chapter 2).

Analysis

We calculated correlation coefficients and tested four linear regression models with lifetime PTSD as dependent variable. Models with one predictor, exposure or vulnerability, were followed by a model with both predictors and a final model to test whether the relation between exposure and PTSD was moderated by a country’s

level of vulnerability. We verified that associations were not affected by survey response rates. All analyses were performed in IBM SPSS Statistics, version 20.

3.3. Results

We found 24 studies meeting our inclusion criteria (86,687 respondents):

1. Australia (Chapman et al. 2012);
2. Belgium (Bruffaerts et al. 2008);
3. Brazil (Viana & Andrade 2012);
4. Bulgaria (Okoliyski et al. 2010);
5. Canada (Van Ameringen et al. 2008);
6. China (Huang et al. 2008);
7. Colombia (Posada-Villa et al. 2008);
8. France (Arbabzadeh-Bouchez et al. 2008);
9. Germany (Alonso & Kessler 2008);
10. Iraq (Alhasnawi et al. 2009);
11. Israel (Levinson et al. 2008);
12. Italy (Carmassi et al. 2014);
13. Japan (Kawakami et al. 2014);
14. Lebanon (Karam et al. 2008);
15. Mexico (Borges et al. 2014);
16. Netherlands (De Vries & Olf 2009);
17. New Zealand (Oakley-Browne et al. 2008);
18. Nigeria (Gureje et al. 2006);
19. Romania (Florescu et al. 2014);
20. South Africa (Atwoli et al. 2013);
21. South Korea (Cho et al. 2007);
22. Spain (Haro et al. 2008);
23. Ukraine (Bromet et al. 2008);
24. United States (Kessler et al. 2005).

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Exposure to trauma could be determined for 16 countries (53,038 respondents).

All studies were published between 2005 and 2014, based on surveys administered between 2001 and 2007, with an average response rate of 70.9%. Most of them were conducted using CIDI version 3.0 (87.5%). The highest PTSD prevalence rates were found in Canada, the Netherlands, and Australia, the lowest in Nigeria, China, and Romania (Figure 3.1). Exposure to trauma was the highest in the Netherlands, Colombia, and the United States and the lowest in Romania, Spain, and Italy.

The most vulnerable countries were Nigeria, Iraq, and Colombia, and the least vulnerable were the Netherlands, Germany, and Belgium.

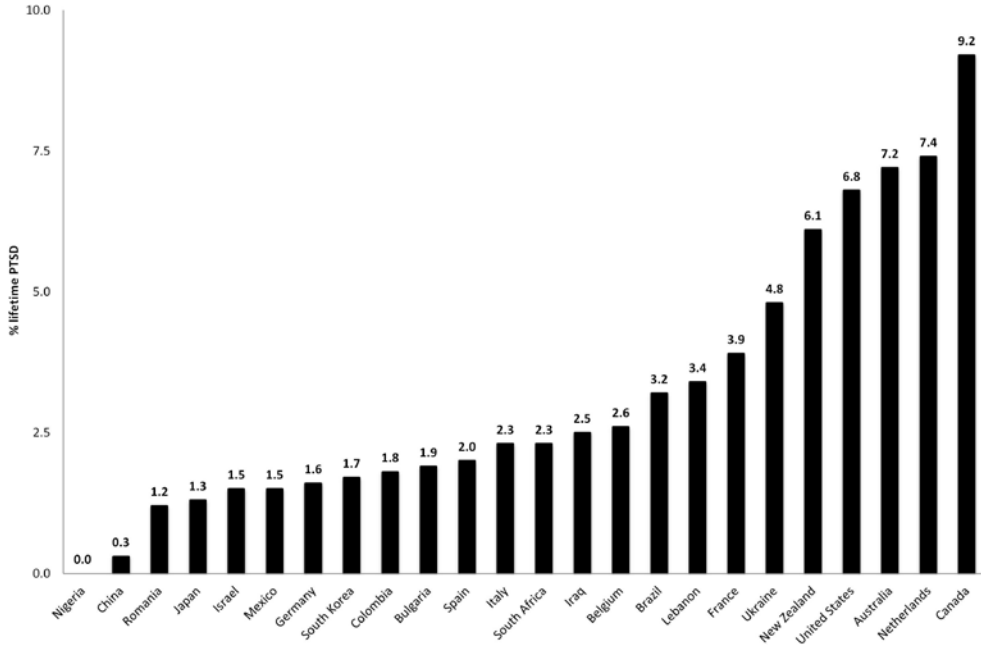


Figure 3.1. Lifetime PTSD prevalence in 24 countries

Table 3.1 shows distributional and correlational information for the study variables. Lifetime PTSD in the various country samples was correlated positively with exposure to trauma and negatively with vulnerability. Exposure and vulnerability were not related.

Table 3.1. Distributional information and correlations between study variables

	Number of studies	Distributional information				Correlations	
		Mean	Median	IQR	Min-Max	% lifetime PTSD	% exposure to trauma
% lifetime PTSD	24	3.21	2.30	3.18	0.00- 9.20	-	
% exposed to trauma	16	67.14	70.30	18.43	41.50-80.70	.60*	-
Vulnerability score	24	39.34	36.63	15.50	28.39-68.99	-.49*	.05

Legend: IQR = Interquartile Range.

* $p < 0.05$.

The results of the regression analyses are visualized in Table 3.2 and Figure 3.2. Exposure to trauma was a significant positive predictor for PTSD, accounting for approximately one third of the variance (model 1; 16 countries). In contrast, country vulnerability was a significant negative predictor, explaining roughly a quarter of the variance (model 2; 24 countries). When both variables were included simultaneously in model 3 (16 countries), the effects of each remained significant and the explained variance increased to around 60%. Model 4 (16 countries) showed that, in addition to the main effects, the relation between trauma exposure and lifetime PTSD was significantly moderated by vulnerability such that high exposure was only associated with high PTSD prevalence when country vulnerability was low. About 75% of the variance in PTSD was explained in the final model.

Table 3.2. Results of regressions predicting lifetime PTSD prevalence

	Model 1 (exposure)	Model 2 (vulnerability)	Model 3 (exposure and vulnerability)	Model 4 (exposure, vulnerability and interaction)
Coefficients				
Intercept	-5.470 (CI: -12.470--1.530)	7.715** (CI: 4.075-11.354)	0.669 (CI: -6.487-7.825)	-39.068* (CI: -68.610--9.526)
Exposure	0.136* (CI: 0.033-0.238)	-	0.142** (CI: 0.059-0.225)	0.701** (CI: 0.288-1.114)
Vulnerability	-	-0.115* (CI: -0.205--0.26)	-0.181* (CI: -0.311--0.051)	0.903* (CI: 0.106-1.701)
Exposure*Vulnerability	-	-	-	-0.015* (CI: -0.026--0.004)
Predictor importance				
Exposure	100%	-	60%	48%
Vulnerability	-	100%	40%	21%
Exposure*Vulnerability	-	-	-	31%
N	16	24	16	16
R^2 (Adjusted R^2)	37% (32%)	25% (21%)	62% (57%)	78% (73%)

Legend: CI = 95% Confidence Interval.

* $p < 0.05$. ** $p < 0.01$.

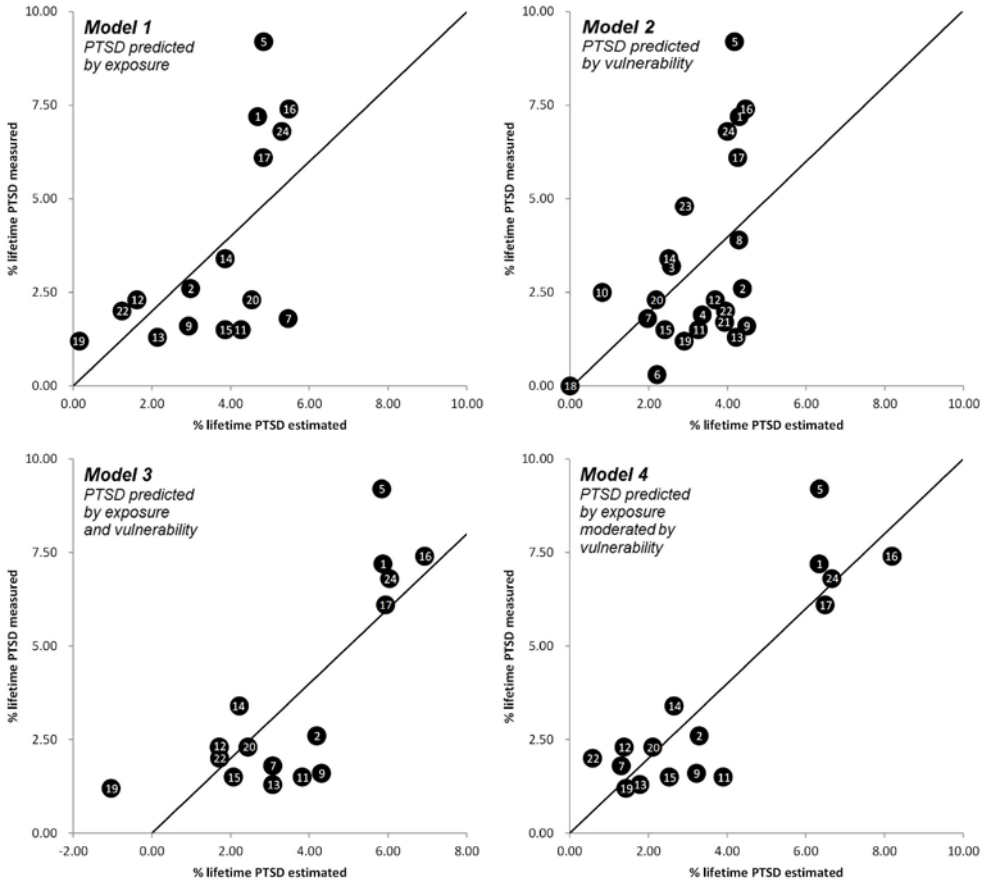


Figure 3.2. Lifetime PTSD predicted in four models

Note. The four models tested in this study are shown in four quadrants, each displaying the association between observed lifetime PTSD prevalence (y-axis) and predicted lifetime PTSD prevalence (x-axis). The predicted prevalence is based on (model 1) exposure, (model 2) vulnerability, (model 3) exposure and vulnerability, and (model 4) exposure moderated by vulnerability.

Legend: 1 = Australia; 2 = Belgium; 3 = Brazil; 4 = Bulgaria; 5 = Canada; 6 = China; 7 = Colombia; 8 = France; 9 = Germany; 10 = Iraq; 11 = Israel; 12 = Italy; 13 = Japan; 14 = Lebanon; 15 = Mexico; 16 = Netherlands; 17 = New Zealand; 18 = Nigeria; 19 = Romania; 20 = South Africa; 21 = South Korea; 22 = Spain; 23 = Ukraine; 24 = United States.

Survey response rates were not correlated with PTSD or exposure rates, but strongly correlated with vulnerability ($r = .71$; $p < 0.01$); more vulnerable countries had higher response rates. Inclusion of response rates in the regression models did not affect the results.

The average trauma exposure and vulnerability rates of the 16 countries are 67.14 and 36.23 respectively. Based on these averages countries can be divided into four groups (Fig 3.3). As the pattern found in model 4 indicates (Figure 3.2), Australia, Canada, the Netherlands, New Zealand, and the United States have a fairly high average lifetime PTSD of 7.34%. These five countries were characterized by higher rates of exposure and lower vulnerability levels.

	High vulnerability (> 36.23)	Low vulnerability (< 36.23)
High exposure (> 67.14)	Group A Colombia, Israel, Lebanon, Mexico, South Africa <i>Average prevalence: 2.1%</i>	Group B Australia, Canada, Netherlands, New Zealand, United States <i>Average prevalence: 7.34%</i>
Low exposure (< 67.14)	Group D Romania <i>Average prevalence: 1.2%</i>	Group C Belgium, Germany, Italy, Japan, Spain <i>Average prevalence: 1.96%</i>

Figure 3.3. Average lifetime PTSD in four country groups

The other 11 countries clustered together around a lower PTSD average, but their exposure and vulnerability profiles were not homogeneous. Belgium, Germany, Italy, Japan and Spain were characterized by lower exposure and vulnerability with a PTSD average of 1.96%. A third group of five countries had an equivalent PTSD average of 2.1% and were characterized by higher exposure and vulnerability: Colombia, Israel, Lebanon, Mexico and South Africa. With its fairly low exposure and high vulnerability profile Romania did not belong with any of the other countries.

In the scatterplots based on models 1 and 2 (Figure 3.2), we see that exposure and vulnerability as single predictors underestimated lifetime PTSD in “high exposure-low vulnerability” populations. A prediction based on exposure alone overestimated lifetime PTSD in case of “high exposure-high vulnerability”. The prediction based on vulnerability appeared to overestimate lifetime PTSD in “low exposure-low vulnerability” populations. The model with both predictors yielded a more accurate estimate, although Romania’s predicted negative lifetime PTSD rate was unrealistic. The interaction term corrected this in the final model.

3.4. Discussion

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The current study replicated the individual-level positive relation between exposure to trauma and PTSD prevalence at the country level but identified a “vulnerability paradox”: whereas higher vulnerability is associated with increased PTSD at individual (Brewin et al. 2000) and group (Bonanno et al. 2010) levels, it shows the opposite association at a country level. The average lifetime PTSD in “low exposure-low vulnerability” and “high exposure-high vulnerability” populations are similar. Average PTSD prevalence in “high exposure-low vulnerability” countries is more than three times as high.

Before we further explore the relevance of these findings it is important to emphasise the need for caution in interpreting the pattern found and to encourage replication. Beyond doubt, comparing population studies from different countries is methodologically challenging as language issues, and demographic and cultural properties can affect the validity and comparability of measurements that reflect an isolated moment in time. For example, the vulnerability effect could be biased by language: four of the five “high exposure-low vulnerability” countries are English-speaking. Steel et al. (2014) identified high lifetime rates of mental illness in English-speaking countries. However, we found other population studies from non-English-speaking countries that, although they did not meet our inclusion criteria, reveal PTSD prevalence and exposure rates conforming to the pattern identified in our analyses. Three studies (not using the CIDI) fall within the “high exposure-low vulnerability” group and reported similarly high rates of PTSD: Portugal (PTSD 7.9%, exposure 74.2%, vulnerability 34.77%; De Albuquerque et al. 2003), Sweden (PTSD 5.6%, exposure 80.8%, vulnerability 28.4%; Frans et al. 2005), and Denmark (adolescents: PTSD 7.7%, exposure 78%, vulnerability 28.5%; Elklit & Frandsen 2014).

Apart from the language issue we checked whether alternative available datasets corroborated the findings. An earlier general population survey found that the lifetime PTSD prevalence in the Netherlands was 4.0 (De Graaf et al. 2008), with an exposure rate of 61.9 (Scott et al. 2013). Both lifetime PTSD and exposure were lower than those reported by De Vries and Olf (2009), whose study was included in our analysis. However, when repeating the analysis using this earlier population sample, the effects remained unaltered and significant. We followed the same procedure with earlier survey data from the United States which pointed to a slightly different lifetime PTSD prevalence score of 7.8% in the general population (DSM-III) (Kessler et al. 1995). Using the older percentage did not result in a different outcome either.

All in all, our findings cannot readily be accounted for by explanations applied to observed differences in the cross-national prevalence of mental disorders, such as limitations in Western-based diagnostic instruments (i.e., the CIDI) or differences in the age structure of populations (N.B. life expectancy in more vulnerable countries is lower) (Steel et al. 2014). The possible role of cultural and psychological factors should be taken seriously. Burri and Maercker, for instance, succeeded in explaining substantial levels of variance in cross-national PTSD in 12 European countries (not using the CIDI) after including cultural value orientations (Burri & Maercker 2014). Moreover, based on an analysis of data from 60 countries, it has recently been suggested that over two-thirds of the variance in national vulnerability can be explained by cultural factors: less vulnerable countries are inhabited by more individualistic cultures with a more equal power balance, less uncertainty avoidance, a more long-term orientation, higher indulgence, and less restraint (see chapter 2). While these factors may impact responses to diagnostic instruments such as the CIDI, it is conceivable that such cultures may be lacking aspects of social capital such as community engagement and support that could help victims of trauma repair their resources and rebuild their lives (Durant 2011). This contrasts with the expectation that less vulnerable countries should be better equipped to anticipate a higher burden of disease, and should be more favourably placed to overcome barriers on the path to equitable care (see chapter 7).

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Another explanation for a higher conditional PTSD prevalence in low vulnerability countries might be that the relative impact of a traumatic event on long-term goals is greater, because there is more expectation of achieving such goals. This account is consistent with classic research linking greater status striving and aspiration–achievement discrepancies to mental illness (Kleiner & Parker 1963). Our findings may also be related to theories that PTSD represents an overturning of basic assumptions about self-worth, and about the meaningfulness, predictability and benevolence of the world (Janoff-Bulman 1992). Countries high in vulnerability may foster conditions that minimise comforting illusions and reduce the contradictions brought about when cherished assumptions are invalidated by traumatic events.

We believe that more detailed investigation of the vulnerability paradox and its possible theoretical interpretations may not only throw light on the nature of PTSD but also proffer important clues about the nature of resilience to trauma that could be harnessed for general benefit. Specifically, it raises the possibility that vulnerability as measured through deprivation may be an index of greater resilience rather than lesser resilience as is commonly assumed.

Strengths and weaknesses

64 It is one of the strengths of this study that researchers everywhere in the world can access the national surveys as well as the vulnerability data. We applied a stepwise approach to make the changes in predicted PTSD in each successive step transparent. Since the main predictors – exposure and vulnerability – are unrelated, confounding is unlikely. We also demonstrated that the results were not specific to a single set of surveys or to the PTSD diagnosis alone, and ruled out various other potential confounding factors such as English versus non-English speaking status and differential response rates. The analysis was nevertheless based on only 24 countries with information on lifetime PTSD and a subsample of 16 countries with available exposure data. This enjoins caution in drawing inferences from the data, especially because the average vulnerability of the 16 countries (36.23) is lower than the worldwide average of the 173 countries in the 2013 World Risk Report (48.56; range 27.30-75.41). The limited sample makes an extensive assessment of particular vulnerability characteristics or other country features problematic.

Another issue to keep in mind in interpreting the findings is that one CIDI-based measure of overall trauma exposure was used. This can be seen as a strength, yet in reality countries vary in their types of exposure, and exposure types vary substantially in the likelihood that they will lead to PTSD. Therefore, two countries that have the same level of exposure but different types of exposure underlying the total percentage exposed measure might have a different risk of PTSD. With only five publications included in our study containing information on different types of exposure to trauma rigorous comparisons were not possible.

When it comes to the PTSD and exposure data, several advantages of the CIDI have been addressed. At the same time, the absence of PTSD in Nigeria is puzzling and it is worthwhile considering the explanations for a possible underrepresentation provided by Gureje et al. One of their explanations is that in a setting where mental illness is still highly stigmatized, symptoms of such illness might be embarrassing and so more likely to be denied. A second explanation could be that respondents might not feel comfortable disclosing their symptoms to a lay interviewer and thus keep important information to themselves (Gureje et al. 2006). Stigma and reservations might, and this could apply to any and all the countries, form a stronger explanation in more vulnerable countries that are, again, more collectivistic and with a less equal power balance (chapter 2). It would be interesting to combine country vulnerability with population data on stigma in relation to mental health problems and to explore this association (e.g. the Stigma in Global Context – Mental Health Study; see Pescosolido et al. 2013).

Although the dataset is based on thousands of respondents, we were limited to using aggregated individual scores at country level, and could not work with the original datasets. Unfortunately, we were unable to examine individual, group and country level characteristics simultaneously with more advanced analysis techniques incorporating a multilevel approach (also see the argument put forward by McNally 2018), while taking factors such as gender, age, socio-economic or marital status into account. It could be informative to bring the original datasets together and further assess the variance in PTSD at different levels in relation to other health issues, types of exposure and risk and protective factors.

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Finally, some limitations of the vulnerability index must be mentioned. An array of datasets from different sources is used to bring together social and economic dimensions of countries in one index. The datasets used are not designed for this purpose; they are incorporated simply because they are available (Heesen et al. 2014). That said, indicators have been assigned to three constructs with a good reliability coefficient and the index has been thoroughly tested (Alliance Development Works 2012). Although the index is a helpful source to understand disaster risk internationally, the statistical work on it is still in progress and there is scope for a follow-up analysis covering more relevant data. The correlation between the vulnerability scores in the 2012 (Welle et al. 2012) and the 2013 report is almost perfect ($r = .998$; $N = 173$), suggesting that the vulnerability index is stable. This might be important given the gap between the years of data collection for the trauma prevalence rates and the later created vulnerability construct. Changes over time in country vulnerability might affect its relationship to the prevalence of lifetime PTSD.

Conclusions

In this study we tested multiple models to explain the prevalence of lifetime PTSD in different countries. The analysis suggests that the effect of exposure on PTSD is moderated by the level of vulnerability. Paradoxically, in the context of high trauma exposure, the populations of less vulnerable countries with more resources and better health care have higher chances of developing PTSD in their lifetime.

Chapter 4

Country vulnerability and mental health: any disorder

This chapter is based on: Dückers, M.L.A., & Brewin, C.R. (2016). A paradox in individual versus national mental health vulnerability: Are higher resource levels associated with higher disorder prevalence? *Journal of Traumatic Stress*, 29, 572-576.

Abstract

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An earlier study found that countries with greater social and economic resources were characterized by a higher lifetime prevalence of post-traumatic stress disorder (PTSD). Here, we present a similar analysis of national population survey data to examine this vulnerability paradox in relation to other disorders. We predicted the lifetime prevalence of any mental health disorder (i.e. anxiety, mood, substance, and externalizing disorders) in 17 countries based on trauma exposure and country vulnerability data. A substantial proportion of variance in all disorder categories, 32.9% to 53.9%, could be explained by trauma exposure. Explained variance increased by 5 and up to 40 percentage points after adding the variable of vulnerability to the equation. Higher exposure and lower vulnerability levels were accompanied by a higher prevalence in any mental disorder, with the largest effect size in mood disorders ($R^2 = .76$). The interaction between exposure and vulnerability did not explain significant additional variance as it did for PTSD. Because a PTSD diagnosis links psychological, physical, and functional symptoms explicitly to trauma exposure, this might mean that populations in less vulnerable countries are more likely to attribute health complaints to exposure. The results of this study suggest that country-level data can help to better explain the multi-layered mechanisms of resilience and vulnerability in the context of trauma.

4.1. Introduction

Resilience and vulnerability are popular concepts in many contemporary branches of policy, research, and practice. Numerous definitions have been formulated, with analyses variously at the levels of individuals, communities, and systems (Olsson et al. 2015). Mental health research typically focuses on the presence or absence of potential individual or public problems, their development through time, and the role of risk and protective factors (Bonanno et al. 2010; Brewin et al. 2000). Although resilience and vulnerability have been depicted as layered constructs (Bryant 2015; Cicchetti 2010), the study of interactions between different levels of analysis is only beginning, and national level aspects are poorly understood.

Of relevance here is that we recently identified a “vulnerability paradox” – a counter-intuitive association between mental health and the resources of countries measured using a broad collection of socio-economic datasets (chapter 3). We predicted the lifetime prevalence of post-traumatic stress disorder (PTSD) in different countries using data from the World Risk Index (Welle et al. 2012) capturing countries’ overall cultural and socio-economic vulnerability to adversity in one index. Although at an individual level the possession of greater resources is protective against PTSD (Brewin et al. 2000), we found that countries with greater wealth and equality, better health care and education, and longer life expectancy are characterized by a higher lifetime prevalence of PTSD (chapter 3). In this chapter, we present a similar analysis of national population survey data to verify whether the vulnerability paradox is apparent for other disorders.

4.2. Methods

Our secondary analysis is based on data derived from a combination of earlier studies, depending heavily on the heritage of the World Health Organization (WHO) World Mental Health Surveys. Kessler and colleagues (2009) presented the lifetime prevalence of any anxiety disorder (AAD: including agoraphobia, adult separation anxiety disorder, generalized anxiety disorder, panic disorder, PTSD, social phobia, and specific phobia), any mood disorder (AMD: including bipolar disorders, dysthymia, and major depressive disorder), any substance disorder (ASD: including alcohol or drug abuse with or without dependence), and any externalizing disorder (AED: including attention-deficit/hyperactivity disorder, oppositional-defiant disorder, conduct disorder, and intermittent explosive disorder) in the populations of 17 countries based on the WHO CIDI instrument (Kessler et al. 2009; the background, methodology and other findings from the WHO World

Mental Health Surveys are described in Kessler and Üstün 2008). The prevalence data, including the lifetime prevalence of any disorder (AD), are shown in Table 4.1.

Lifetime trauma exposure rates were available from another publication (Benjet et al. 2016). Benjet and colleagues (2016) reported the prevalence of trauma exposure associated with a number of forms of violence, including collective violence (e.g. being a civilian in a war zone, relief worker in a war zone, refugee), causing or witnessing serious bodily harm to others (e.g. purposely injuring, torturing or killing someone; combat experience), interpersonal violence (e.g. beaten up by a caregiver as a child, witnessed physical fights at home as a child, beaten up by someone other than a romantic partner), intimate partner or sexual violence (e.g. physically assaulted by a romantic partner, raped, sexually assaulted), accidents and injuries (e.g. natural disasters, automobile accidents), unexpected death of a loved one, mugged or threatened with a weapon, and man-made disaster (Benjet et al. 2016).

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Table 4.1. Lifetime prevalence of mental health disorders in 17 countries

Country	Disorder categories				
	Any anxiety disorder (%)	Any mood disorder (%)	Any substance disorder (%)	Any externalizing disorder (%)	Any disorder (%)
Nigeria	6,5	3,3	3,7	0,3	12,0
China	4,8	3,6	4,9	4,3	13,2
Israel	5,2	10,7	5,3		17,6
Japan	6,9	7,6	4,8	2,8	18,0
Italy	11,0	9,9	1,3	1,7	18,1
Spain	9,9	10,6	3,6	2,3	19,4
Germany	14,6	9,9	6,5	3,1	25,2
Lebanon	16,7	12,6	2,2	4,4	25,8
Mexico	14,3	9,2	7,8	5,7	26,1
Belgium	13,1	14,1	8,3	5,2	29,1
South Africa	15,8	9,8	13,3		30,3
Netherlands	15,9	17,9	8,9	4,7	31,7
Ukraine	10,9	15,8	15,0	8,7	36,1
France	22,3	21,0	7,1	7,6	37,9
Colombia	25,3	14,6	9,6	9,6	39,1
New Zealand	24,6	20,4	12,4		39,3
United States	31,0	21,4	14,6	25,0	47,4

Note. For Israel, South Africa, and New Zealand no lifetime externalizing disorders prevalence is provided (Kessler et al. 2009).

Vulnerability data for the 17 countries were taken from the World Risk Report of 2015 (Welle & Birkmann 2015a). The vulnerability of 171 countries was summarized using 23 indicators, divided into three components, and measured using worldwide and publicly accessible data. *Susceptibility* describes a country's structural characteristics and conditions that can sustain harm. For example, indicators of susceptibility involve malnutrition, access to sanitation, income equality and gross domestic product per capita. *Lack of coping capacities* refers to the inability of a country to minimize negative impacts of events and includes indicators such as number of physicians and hospital beds per 10,000 inhabitants and level of public sector corruption. *Lack of adaptive capacities* refers to conditions that fail to support long-term, structural change. Example indicators include the adult literacy rate, combined gross school enrolment, forest management, and public and private health expenditure. Country vulnerability scores are calculated on a scale, ranging theoretically from 0 (minimum) to 100 (maximum), and can be interpreted as percentage values. More background information on the vulnerability index, its composition and analysis can be found in the World Risk Report (e.g. Welle & Birkmann 2015a; also see chapter 2).

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We calculated correlation coefficients and tested three linear regression models with the lifetime prevalence of the disorders treated as dependent variables. In the first model, exposure was entered as predictor, followed by the second model including exposure and vulnerability, and the third model including an interaction term to test whether a country's level of vulnerability moderated the relation between exposure and the disorders. We defined effect sizes as small ($r \geq .1$), medium ($r \geq .3$), large ($r \geq .5$) or very large ($r \geq .7$; Rosenthal 1996). All analyses were performed in IBM SPSS Statistics (version 20) and G*Power (version 3.0.10).

4.3. Results

After we examined the data for outliers, we excluded the lifetime prevalence of AAD and AED in the United States (which were 31% and 25%, respectively). Distributional information for the variables and the correlations between them are shown in Table 4.2. Trauma exposure correlated significantly and positively with rates of AAD ($r = .57$), AMD ($r = .60$), ASD ($r = .64$), AED ($r = .70$), and AD ($r = .73$), all with large to very large effect sizes. In line with the paradox, the correlations between country vulnerability and rates of mental disorders were all negative in sign. Effect sizes varied from small (AAD and ASD), to medium (AD), and large (AMD). Only the correlation between vulnerability and AMD was significant.

Table 4.2. Distributional information and correlations

Variable	Distributional information				Correlations					
	N	M	Min-Max	IQR	EXP	VUL	AAD	AMD	ASD	AED
Lifetime EXP (%)	17	69.98	52.50-84.60	17.05	1					
Vulnerability score (0-100)	17	37.54	26.32-67.39	16.45	.12	1				
Lifetime prevalence AAD (%)	16	13.61	4.80-25.30	8.85	.57*	-.22	1			
Lifetime prevalence AMD (%)	17	12.49	3.30-21.40	7.35	.60*	-.56*	.76**	1		
Lifetime prevalence ASD (%)	17	7.61	1.30-15.00	6.75	.64**	-.13	.44	.59*	1	
Lifetime prevalence AED (%)	13	4.65	0.30- 9.60	4.10	.70**	-.06	.68*	.67*	.78**	1
Lifetime prevalence AD (%)	17	27.43	12.00-47.40	18.95	.73***	-.34	.88***	.90***	.79***	.88***

Note. N = Number of countries, Min-Max = Minimum and maximum value, IQR = Inter-Quartile Range, EXP = Exposure to trauma, VUL = Vulnerability, AAD = Any anxiety disorder, AMD = Any mood disorder, ASD = Any substance disorder, AED = Any externalizing disorder, AD = Any disorder.

* $p < .05$. ** $p < .01$. *** $p < .001$.

The regression analyses (see Table 4.3) confirmed that trauma exposure explained a significant proportion of variance in all mental health disorders (R^2 ranged from 33% to 54%: Model 1). After adding vulnerability in Model 2, the level of variance explained increased from 5 up to 40 percentage points. An increase in vulnerability had a significant negative effect on the predicted prevalence for AD ($\beta = -.43$) and AMD ($\beta = -.64$). The interaction between exposure and vulnerability—which led to a better-fitting model in previous research concerning the prediction of PTSD (chapter 3) did not explain significant additional variance in the present data in AAD, AMD, ASD, AED, or AD (Model 3).

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4.4. Discussion

In this study we identified another example of the vulnerability paradox and found that higher exposure and lower vulnerability levels were significantly related to a higher AD prevalence, with the effect largely being accounted for by AMD. Inclusion of the interaction between exposure and vulnerability did not improve the explained variance in any of the disorder categories.

Although the disorder prevalence and trauma exposure rates studied here were based on thousands of respondents in each country and the vulnerability index comprised numerous different national datasets that are updated periodically, the low number of countries included limits the generalizability of the findings and the statistical power available to detect differences. Nevertheless, the sample size was large enough to confirm a significant negative relationship between vulnerability and AMD, with the correlation of $-.56$ indicating a large effect size. For a study of this design, the preferred sample size to test a medium effect would be 64 cases and the small effect size for ASD would require a considerably larger sample of countries. We consider it likely that the associations of vulnerability with other disorders would be significant in a larger sample, although they are apparently less strong, indicating that ASD and AED prevalence depends less than AMD – and to a certain extent AAD – on socio-economic country characteristics.

We have hypothesized previously (chapter 3) that trauma has relatively more impact in a safe, stable, well-resourced, and well-organized environment, where people are more individualistic with lower levels of protective social support, high expectations about their prospects in life, and susceptibility to unanticipated obstacles in long-term goal-realization. Also, we have suggested that mental health problems are less stigmatized in less vulnerable countries, with the result that individuals are more willing to admit to them. These explanations may be applicable to the other negative associations between vulnerability and mental disorders found in this study.

Table 4.3. Summary of regression analysis for variables predicting lifetime prevalence in mental disorders

Disorder	Variable	Model 1			Model 2			Model 3		
		B	SE	β	B	SE	β	B	SE	β
Any anxiety disorder ^a	Constant	-11.89	9.84	-	-7.24	9.79	-	-4.25	50.25	-
	Exposure	0.37	0.14	0.57*	0.41	0.14	0.63*	0.36	0.75	0.56
	Vulnerability				-0.19	0.12	-0.34	-0.27	1.27	-0.47
	Exposure*Vulnerability							0.00	0.02	0.16
	R^2 (F for change in R^2)	.33 (6.86*)			.44 (2.53)			.44 (0.00)		
Any mood disorder ^a	Constant	-9.98	7.87	-	-0.91	5.34	-	-20.81	24.82	-
	Exposure	0.32	0.11	0.60*	0.36	0.07	0.68***	0.66	0.36	1.22
	Vulnerability				-0.32	0.07	-0.64***	0.20	0.64	0.41
	Exposure*Vulnerability							-0.01	0.01	-1.24
	R^2 (F for change in R^2)	.36 (8.32*)			.76 (23.25***)			.77 (0.68)		
Any substance disorder ^a	Constant	-10.93	5.78	-	-8.61	6.15	-	-43.03	27.65	-
	Exposure	0.27	0.08	0.64**	0.28	0.08	0.67**	0.78	0.41	1.89
	Vulnerability				-0.08	0.08	-0.21	0.82	0.71	2.14
	Exposure*Vulnerability							-0.01	0.01	-2.79
	R^2 (F for change in R^2)	0.41 (10.48**)			0.46 (1.15)			0.52 (1.63)		
Any externalizing disorder ^b	Constant	-7.68	3.84	-	-6.63	3.90	-	-25.46	24.99	-
	Exposure	0.18	0.06	0.70**	0.20	0.06	0.76**	0.49	0.38	1.86
	Vulnerability				-0.06	0.05	-0.25	0.41	0.61	1.78
	Exposure*Vulnerability							-0.01	0.01	-2.55
	R^2 (F for change in R^2)	0.49 (10.54**)			0.55 (1.28)			0.58 (0.58)		
Any disorder ^a	Constant	-23.79	12.36	-	-12.41	10.61	-	-41.59	49.93	-
	Exposure	0.73	0.18	0.73**	0.78	0.14	0.79***	1.21	0.73	1.22
	Vulnerability				-0.40	0.13	-0.43**	0.37	1.29	0.39
	Exposure × Vulnerability							-0.01	0.02	-0.98
	R^2 (F for change in R^2)	0.54 (17.51***)			0.72 (9.25**)			0.73 (0.36)		

Note. N = Number of countries. The predicted disorder prevalence is based on: Model 1: exposure; Model 2: exposure and vulnerability; Model 3: exposure moderated by vulnerability.

^a% Lifetime prevalence N = 17 (any anxiety disorders N = 16). ^b% Lifetime prevalence N = 13.

* p < .05. ** p < .01. *** p < .001.

There may well be other processes involved in the paradox, however. In a previous study, we found an interaction between trauma exposure and country vulnerability in predicting the prevalence of PTSD. Unlike other mental disorders, the diagnosis of PTSD links psychological, physical, and functional symptoms explicitly to a cause, which is trauma exposure. Disaster researchers have stressed the need for more knowledge about causal attributions given that they play a complicated role in accounting for the health effects of exposure (Yzermans et al. 2009). The findings we presented earlier led us to posit that the interaction effect – the effect of exposure being modified by the level of country vulnerability (i.e. a larger exposure effect in less vulnerable countries) – might be due to populations in less vulnerable countries being more likely to attribute health complaints to trauma exposure. Similar interactions were not found for any of the disorders in the current study, possibly because they are less associated in the public mind with trauma exposure.

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We emphasize the need to further investigate and replicate the vulnerability paradox. Also, we recognize the potential problems in working with country-level datasets. Issues of methodology, language, and cultural validity complicate international comparisons (chapter 3). However, in our view the patterns found after combining country data on health problems and socio-economic aspects were intriguing and should contribute to a more comprehensive vulnerability theory. Looking at interactions between phenomena and factors at and between different levels of analysis, including those at the national level, may help us to better understand the multi-layered mechanisms of resilience and vulnerability in the context of trauma. It is a promising starting point for hypothesis development and testing.

Chapter 5

Country vulnerability, gender and mental health: PTSD

This chapter is based on: Dückers, M.L.A., & Olf, M. (2017). Does the vulnerability paradox in PTSD apply to women and men? An exploratory study. *Journal of Traumatic Stress*, 30, 200-204.

Abstract

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Recent research suggests that greater country vulnerability is associated with a decreased, rather than increased, risk of mental health problems. Because societal parameters may have gender-specific implications, our objective was to explore whether the “vulnerability paradox” equally applies to women and men. Lifetime post-traumatic stress disorder (PTSD) prevalence data for women and men were retrieved from 11 population studies ($N = 57,031$): Australia, Brazil, Canada, France, Lebanon, Mexico, Netherlands, Portugal, Sweden, Switzerland, and United States. We tested statistical models with vulnerability, gender, and their interaction as predictors. The average lifetime PTSD prevalence in women is at least twice as high as it is in men and the vulnerability paradox exists in the prevalence data for women and men ($R^2 = .70$). We could not confirm the possibility that gender effects are modified by socio-economic and cultural country characteristics. Issues of methodology, language, and cultural validity complicate international comparisons. Nevertheless, this international sample points at a parallel paradox: the vulnerability paradox was confirmed for both women and men. The absence of a significant interaction between gender and country vulnerability implies that possible explanations for the paradox at country-level do not necessarily require gender-driven distinction.

5.1. Introduction

The lifetime risk for post-traumatic stress disorder (PTSD) in women is at least twice as high as the risk in men, a gender disparity that has received attention from several authors (Christiansen & Hansen 2015; Ditlevsen & Elklit 2010; Olff et al. 2007; Tolin & Foa 2006). Research suggests that greater exposure to trauma cannot account for the increased risk of PTSD in women (Yehuda et al. 2015). Although men might experience higher levels of exposure in general (often war-related exposure types), it is the type of trauma (such as sexual violence) to which women are more exposed rather than the level of exposure that has been associated with a higher conditional prevalence of PTSD in women. Many other psychological, social, and biological factors can potentially explain the greater vulnerability to PTSD in women compared to men (Olff et al. 2007).

To date, research has primarily focused on individual or group-level risk and protective factors against PTSD (Brewin et al. 2000; Ozer et al. 2003). Only a few empirical studies have examined the relevance of country-level factors. Recently we identified a “vulnerability paradox” – a counterintuitive association between mental health and the resources of countries, measured using a broad collection of socio-economic datasets (chapter 3). We predicted the lifetime prevalence of post-traumatic stress disorder (PTSD) in different countries using data from the World Risk Report, capturing various countries’ overall cultural and socio-economic vulnerability to adversity in 1 index (Welle & Birkmann 2016). Although at an individual person’s level the possession of greater resources is protective against PTSD, we found that countries with greater wealth and equality, better health care and education, and longer life expectancy are characterized by a higher lifetime prevalence of PTSD (chapter 3). An additional study confirmed that higher exposure and lower vulnerability levels are accompanied by a higher prevalence in any mental disorder, with the largest effect size in mood disorders (chapter 4). There are few explanations for this so far, but we can hypothesize that exposure has a relatively greater impact in a safe, well-resourced, well-organized environment, where people are more individualistic, less hindered by stigma and taboos, have high expectations about their prospects in life, and find it difficult to deal with the consequences of unanticipated obstacles in long-term goal realization (chapters 3 and 4).

In this chapter, we took gender differences in PTSD into account and sought to answer the following question: Does the vulnerability paradox apply to women and men? We hypothesized that it would. However, if we consider that some of the societal parameters may have gender-specific implications (e.g. access to the

protective factor social support that women are known to be more likely to seek out) and may not be as commonplace in less vulnerable, individualistic countries, the effect in women might be stronger than in men (Olf et al. 2007; Olf 2012; chapter 3). Vulnerability would in that case modify the effect of being female on PTSD prevalence.

5.2. Methods

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We retrieved lifetime PTSD prevalence data for both women and men from 11 population studies ($N = 57,031$):

1. Australia (Chapman et al. 2012);
2. Brazil (Viana & Andrade 2012);
3. Canada (Van Ameringen et al. 2008);
4. France (Husky 2014; Husky et al. 2015);
5. Lebanon (Karam et al. 2008);
6. Mexico (Borges et al. 2014);
7. Netherlands (De Vries & Olf 2009);
8. Portugal (De Albuquerque et al. 2003);
9. Sweden (Frans et al. 2005);
10. Switzerland (Perrin et al. 2014);
11. United States (Kessler et al. 2005).

In all of the studies, PTSD was assessed in representative samples according to the Diagnostic and Statistical Manual of Mental Disorders (4th ed.; DSM-IV; American Psychiatric Association [APA] 2000) criteria. In the case of Switzerland, a random sample was taken from an urban area ($N = 3,691$; Perrin et al. 2014). Most of the population studies were based on the Clinical International Diagnostic Interview (CIDI) (for example, see Kessler & Üstün 2008). The population studies in Switzerland, Sweden, and Portugal applied the Diagnostic Interview for Genetic Studies with the Schedule for Affective Disorders and Schizophrenia—lifetime and anxiety disorder version (SADS-LA), the PTSD Checklist (PCL) and the Short Screening Scale (SSC) respectively (De Albuquerque et al. 2003; Frans et al. 2005; Perrin et al. 2014).

Vulnerability data for the 11 countries were taken from the World Risk Report of 2016 (Welle & Birkmann 2016). In this report, the vulnerability of 171 countries was summarized using 23 indicators, divided into 3 categories (susceptibility, lack of coping capacities, and lack of adaptive capacities), and measured using worldwide and publicly accessible data. “Susceptibility” describes a country’s structural

characteristics and conditions that can sustain harm. For example, indicators of susceptibility involve malnutrition, access to sanitation, income equality, and gross domestic product per capita. “Lack of coping capacities” refers to the inability of a country to minimize negative impacts of events and includes indicators such as the number of physicians and hospital beds per 10,000 inhabitants and the level of public sector corruption. “Lack of adaptive capacities” refers to conditions that fail to support long-term, structural change. Example indicators include the adult literacy rate, combined gross school enrolment, forest management, and public and private health expenditure. Country vulnerability scores are calculated on a scale, ranging theoretically from 0 (minimum) to 100 (maximum), and can be interpreted as percentage values. More background information on the vulnerability index, its composition, and analysis can be found in the World Risk Report (Welle & Birkmann 2016; also see chapter 2).

The current analysis was conducted in three steps in IBM SPSS, version 20. In the first model we tested whether lifetime PTSD in women is higher than in men. In the next step country vulnerability was added to determine the presence of the paradox. The third model also included the interaction between gender and vulnerability.

5.3. Results

Distributional information for the variables and the correlations between them are shown in Table 5.1. The average lifetime PTSD prevalence in men is 3.2% ($N = 11$) and in women 7.8% ($N = 11$). Vulnerability correlated strongly with lifetime PTSD prevalence in women ($r = -.60$, $R^2 = .36$, $p = .051$) and men ($r = -.79$, $R^2 = .63$, $p = .004$).

In the first linear regression model (Table 5.2), female gender increases the chances of developing PTSD ($p < .001$). In the second model this gender effect is maintained ($p < .001$) after adding country vulnerability ($p = .002$). The explained variance increases from 49.3% to 69.8%. The interaction term in the third model does not significantly explain additional variance. The vulnerability paradox exists in the prevalence data for women and in the prevalence data for men (see Figure 5.1). The slope in the data for women seems a bit steeper, however we could not statistically confirm the possibility that gender effects are modified by socio-economic and cultural country characteristics. Figure 5.1 shows that the variation in estimated PTSD in women is higher than in men which is reflected in a lower percentage of explained variance (although the effect size is large in both gender groups: $r \geq .50$; Rosenthal 1996).

Table 5.1. Distributional information and correlations

Variable	N	Distributional Information				Correlations	
		M	Min	Max	IQR	PTSD in Women	PTSD in Men
Lifetime PTSD prevalence in women (%)	11	7.80	2.30	12.80	3.90	1	
Lifetime PTSD prevalence in men (%)	11	3.21	0.50	5.30	3.10	.93***	1
Vulnerability score (0-100)	11	32.48	26.94	44.99	15.98	-.60	-.79**

Note. PTSD = post-traumatic stress disorder; N = number of countries; M = mean, Min = minimum value; Max = maximum value; IQR = interquartile range.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 5.2. Summary of regression analysis for variables predicting lifetime PTSD

Variable	Model 1			Model 2			Model 3		
	B	SE	β	B	SE	β	B	SE	β
Constant	3.21***	0.74	-	9.99***	1.97	-	8.76**	2.77	-
Gender ^a	4.59***	1.04	0.70	4.59***	0.82	0.70	7.05	3.92	1.08
Vulnerability				-0.21**	0.06	-0.45	-0.17	0.08	-0.37
Gender*Vulnerability							-0.08	0.12	-0.39
R ² (F for change in R ²)	49.3% (19.45***)			69.8% (12.92**)			70.5% (0.41)		

Note. PTSD = post-traumatic stress disorder; SE = standard error. The predicted PTSD prevalence in women and men in 11 countries (N = 22) is based on: Model 1: gender; Model 2: gender and vulnerability; Model 3: gender moderated by vulnerability.

^a Dummy variable (women compared to men).

* p < .05. ** p < .01. *** p < .001.

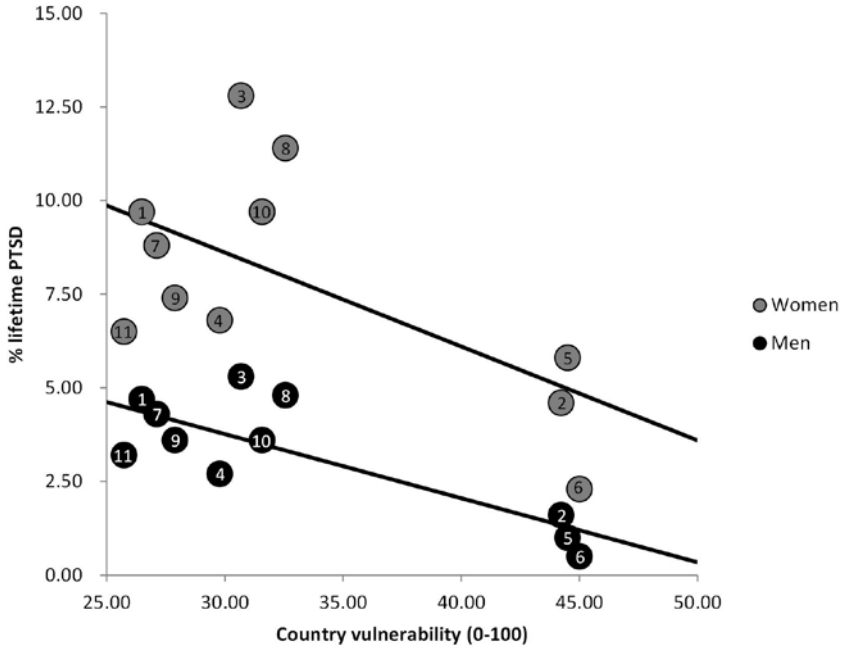


Figure 5.1. Vulnerability paradox in PTSD in women and men

Note. 1 = Australia, 2 = Brazil, 3 = Canada, 4 = France, 5 = Lebanon, 6 = Mexico, 7 = Netherlands, 8 = Portugal, 9 = Sweden, 10 = Switzerland, 11 = United States.

5.4. Discussion

This international country sample points at a parallel paradox: the vulnerability paradox was confirmed for women and men. A higher level of country vulnerability appears to be accompanied by lower levels of PTSD and vice versa in both gender groups. The absence of a significant interaction between gender and country vulnerability implies that possible explanations for the paradox at country level do not necessarily require gender-driven distinction.

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At the same time, the comparison of prevalence data is complicated and requires caution. It is important to recognize the potential problems in working with country datasets. Issues of methodology, language, and cultural validity complicate international comparisons (chapter 3). We are aware of the possibility that national variation in mental health prevalence is affected by measurement error, country differences in stigma, and potential gender differences therein. Moreover, another issue to consider is that the vulnerability index, with its composition of social and economic datasets, also contains gender-sensitive country characteristics, particularly in the two “gender parity” components clustered in lack of adaptive capacities (gender parity in education and share of female representatives in the National Parliament), and probably in components such as life expectancy at birth and purchasing power parity.

Unfortunately, we were unable to analyse the original population datasets and worked with aggregated prevalence data that can be influenced by regional variation and oversampling of risk-factor subgroups within populations (although measures were taken in the original studies to enhance representativeness). Despite the fact that the combined material is based on thousands of respondents, the national-level sample size was reduced to women and men in 11 countries: 22 PTSD estimates based on different sample sizes (the minimum sample consisted of 1,087 respondents). Furthermore, the studies on Portugal, Sweden, and Switzerland used an alternative diagnostic instrument. Excluding these 3 countries from the analysis did not change the results. All the estimated effects in the first two models (Table 5.2) remained significant ($N = 16$; $p < .01$). When only the Swiss urban sample was removed the results are unaffected as well ($N = 20$; $p < .01$).

What mostly hinders a broader assessment and replication of the vulnerability paradox is the lack of recent, representative, and comparable health population studies, in particular the absence of studies carried out in more vulnerable countries and considering factors such as the degree and nature of exposure. The findings from an earlier study, where exposure to trauma explained one-third of the variance in PTSD as a single predictor, over half of the variance in combination with country

vulnerability, and approximately three-quarters when moderated by vulnerability, imply, for instance, that it is better to include both exposure and vulnerability as predictors because as single predictors they tend to underestimate lifetime PTSD in “high exposure-low vulnerability” populations (chapter 3). In the current analysis exposure was not included and the robustness of the pattern indeed seems somewhat negatively affected by Switzerland: a low vulnerability country with a low exposure level (Perrin et al. 2014), plausibly explained by not having been actively involved in warfare for 150 years and not having been confronted with major natural disasters in several decades (Hepp et al. 2005). Adding information on exposure to trauma among women and men is likely to improve the type of analysis presented here.

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Besides these and other limitations an important strength is that the vulnerability index has proven to be robust so far. The stability of the index is important given the gap between the years of data collection for trauma prevalence and the vulnerability construct. Changes over time in country vulnerability might affect its relationship with the prevalence of lifetime PTSD. The original vulnerability paradox study (chapter 3) reports that the correlation between the vulnerability scores in the 2012 and 2013 World Risk Report is almost perfect ($r = .998$, $N = 173$). We checked the World Risk Report of 2015 (Welle & Birkmann 2015a) and the vulnerability data used in this study, extracted from the 2016 report (Welle & Birkmann 2016), and found a similar correlation ($r = .991$; $N = 11$), suggesting that the vulnerability index is stable.

With these limitations and strengths in mind, the main conclusion emerging from the present exploratory study is that a higher level of country vulnerability seems to be accompanied by lower levels of PTSD and vice versa in women as well as in men. It is a challenging finding that needs to be further explored as it may help us to better understand the role of gender in the multi-layered mechanisms of resilience and vulnerability in the context of trauma.

Chapter 6

Country vulnerability, gender and mental health: suicide

This chapter is based on: Dückers, M.L.A., Reifels, R., De Beurs, D.P., & Brewin, C.R. (2019). The vulnerability paradox in global mental health and its applicability to suicide. *British Journal of Psychiatry*. In press.

Abstract

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Previous research identified a vulnerability paradox in global mental health: contrary to positive associations at the individual level, lower vulnerability at the country level is accompanied by a higher prevalence in a variety of mental health problems in national populations. However, the validity of the paradox has been challenged, specifically for being biased by modest sample sizes and reliance on a survey methodology not designed for cross-national comparisons. Objective of this study was to verify whether the paradox applies to suicide using data from a sizable country sample and coming from an entirely different data source. We combined data from the 2014 WHO suicide report and the country vulnerability index from the 2016 World Risk Report. Suicide was predicted in different steps based on gender, vulnerability and their interaction, World Bank income categories, and suicide data quality. A negative association between country vulnerability and suicide prevalence in both women and men was found. Suicide rates were higher for men, regardless of country vulnerability. The model predicting suicide in 96 countries based on gender, vulnerability, income and data quality had the best goodness-of-fit compared to other models. The vulnerability paradox is not accounted for by income or data quality, and exists across and within income categories. The study underscores the relevance of country-level factors in the study of mental health problems. The lower mental disorder prevalence in more vulnerable countries implies that living in such countries fosters protective factors that more than compensate for the limitations in professional health care capacity.

6.1. Introduction

Suicide is a global mental health problem, with 800,000 incidents a year (WHO 2014). The World Health Organization (WHO) made suicide prevention a global imperative and urged interventions at the individual, relational and societal level. A plethora of risk and protective factors are known to delineate the context in which suicidal ideation and behaviour in women and men develop, and account for differences in prevalence between groups of individuals and communities (Forte et al. 2018; Hawton et al. 2013; Helbich et al. 2018; Nock et al. 2008; O'Connor & Kirtley 2018; Oyesanya et al. 2015; Philips et al. 2002; Qin et al. 2002; WHO 2014). Less studied are country-level factors that can provide insights and new ideas regarding the management of suicide. This study investigated whether the vulnerability paradox, the tendency for vulnerability to predict greater disorder risk at the individual level but less risk at the country level, contributes to explaining differences in suicide prevalence across 100 countries.

A standard measure of the vulnerability or risk attributable to different countries is updated annually and freely available (see for instance Welle & Birkmann 2015; chapter 2). Each country receives an overall score based on publicly available metrics such as income equality, good governance, access to professional health care providers, public and private health expenditure, life expectancy at birth, literacy, and access to clean water and nutrition. The vulnerability index was used in recent cross-national comparison studies which reported that, contrary to expectations based on studies of individual risk, lower vulnerability levels at the country level are accompanied by a higher prevalence of mental health problems, especially when populations experience a higher exposure to traumatic events. This counter-intuitive “vulnerability paradox” was first identified for post-traumatic stress disorder (PTSD) in 24 countries (chapter 3). Similar findings have been reported for substance and anxiety disorders and, most markedly, for mood disorders in 17 countries (chapter 4). The paradox in PTSD was shown to apply equally to women and men in a sample of 11 countries (chapter 5).

Although the report of a vulnerability paradox has sometimes met with a sceptical response (Vermetten et al. 2016), McNally has commented that such scepticism is likely an example of the “ecological fallacy”. This arises when “one assumes that associations between variables at the ecological (group or aggregate) level necessarily apply to associations between these variables at the level of the individual” (McNally 2018). Moreover, there are already reasons to believe the vulnerability paradox could apply to suicide. When countries are clustered according to World Bank income categories (high income, upper-middle income,

lower-middle income and low income), suicide rates are higher in countries with higher income levels (WHO 2014). These data contrast with within-country studies of economic factors that demonstrate recessions, and the associated increase in unemployment and indebtedness, are linked to a rise in suicide rates, particularly in high income countries such as European states and the USA (Oyesanya et al. 2015).

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Although the studies above support the notion of a vulnerability paradox in the cross-national prevalence of mental health problems, they all suffer from the same limitations, namely a relatively small sample size and a reliance on the instruments and methodological heritage of the WHO World Mental Health Survey Initiative (i.e. clinical interviews with thousands of adults from representative household samples, using the Composite International Diagnostic Interview) (Kessler & Üstün 2004; Kessler & Üstün 2008). They were not designed for the purpose “to optimize examination of the reasons for cross-national differences” but “to search for patterns of central tendency and to highlight the most stable of such patterns across countries” (Kessler et al. 2018, p. 33). Additionally, we were not able to ascertain whether the findings were attributable to a simpler metric such as broad differences in average income levels. In the current study, focused on explaining cross-national differences in suicide rates, we aimed to verify the existence of the vulnerability paradox using data from a substantially larger country sample and coming from an entirely different source.

6.2. Methods

Data sources

In 2014 the WHO published a report containing the estimated age-standardized suicide rates of women and men (per 100,000 people) in 2012 in 172 countries that were used as a primary data source for the current study. In the report four data quality levels are distinguished: Level 1: Comprehensive vital registration with at least five years of data; Level 2: Vital registration with low coverage, a high proportion of indeterminate causes or no recent results; Level 3: Sample registration of national population; Level 4: No vital registration. Of the countries for which estimates were made, 60 have good-quality vital registration data (Level 1) that can be used directly to estimate suicide rates. The estimated suicide rates in the other 112 countries are based on modelling methods (Levels 2, 3 and 4). More detailed information on the four data quality levels is not given in the report. The WHO report emphasizes that the problem of poor-quality mortality data is not unique to suicide, yet given the particular sensitivity of suicide, religious and social prohibitions and the illegal status of suicidal behaviour in some countries, under-

reporting and misclassification are considered more likely problems for suicide prevalence estimates than for most other death causes. Suicide registration is a complicated, multilevel procedure that includes medical and legal concerns and involves multiple responsible authorities that can differ between countries. The report reminds its readers that the wide range in estimated suicide rates reported for different countries might be an artefact of different reporting and recording practices. Nevertheless, they are the best empirical material available. Moreover, regional differences have persisted despite decades of work on improving the accuracy of country-specific mortality data. The possibility that a considerable part of these observed differences are, in fact, real differences must also be considered (WHO 2014). In view of these potential data limitations, we controlled for data quality in our study, using only suicide data from countries meeting data quality levels 1 and 2, and omitting data from countries with sample registration or without vital registration.

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Country vulnerability data were taken from the World Risk Report of 2016 (Welle & Birkmann 2016). The vulnerability of 171 countries was summarized using 23 indicators, divided into three components, and measured using worldwide and publicly accessible data. *Susceptibility* describes a country's structural characteristics and conditions that can sustain harm. For example, indicators of susceptibility involve malnutrition, access to sanitation, income equality (Gini index) and gross domestic product per capita. *Lack of coping capacities* refers to the inability of a country to minimize negative impacts of events and includes indicators such as number of physicians and hospital beds per 10,000 inhabitants and level of public sector corruption. *Lack of adaptive capacities* refers to conditions that fail to support long-term, structural change. Example indicators include the adult literacy rate, combined gross school enrolment, and public and private health expenditure. Country vulnerability scores are calculated on a scale, ranging theoretically from 0 (minimum) to 100 (maximum), and can be interpreted as percentage values. The five least vulnerable countries in 2016 were Switzerland (24.79), Austria (24.93), Norway (25.55), Germany (25.87), and Belgium (26.28). The five most vulnerable countries were Haiti (71.85), Afghanistan (72.12), Chad (72.86), Eritrea (74.23), and Central African Republic (74.80). The vulnerability index has been confirmed to be a stable measure over years in the earlier studies (chapters 3 and 4). The correlation between the vulnerability scores in the 2016 World Risk Report and the 2013 scores used in the PTSD study, for instance, is almost perfect ($r = .991$, $N = 171$). Background information on the vulnerability index can be found in the World Risk Report (Welle & Birkmann 2016).

As mentioned earlier, we also aimed to examine the explanatory strength of the World Bank income groups in this study in relation to the vulnerability index. The World Bank income division entails a rough wealth rating, which is also integrated in the vulnerability score together with the index's 22 other indicators because economic wealth is a relevant dimension of vulnerability (Alexander 2012; chapter 2). In this study we planned to use vulnerability and income separately and together as determinants. We categorized countries using the World Bank list of economies of December 2016. All World Bank member countries (189) and other economies with populations of more than 30,000 are divided among income groups according to 2015 gross national income per capita, calculated using the World Bank Atlas method. The groups are: low income: \$1,025 or less; lower-middle income: \$1,026–4,035; upper-middle income: \$4,036–12,475; and high income: \$12,476 or more (World Bank 2016).

Analysis

Because suicide data commonly do not follow the shape of a normal distribution, researchers apply count models like Poisson. However, the assumption behind the Poisson distribution that the mean and variance are equal is not correct for our sample. Instead of using Poisson regression, we conducted negative binomial regression analyses to resolve the problem of overdispersion. The analyses were performed in multiple steps in Stata, version 13. A Likelihood Ratio test (LR test) was used to compare the goodness-of-fit of each model with an earlier model. In model 1 we tested whether the prevalence of suicide in men is higher than in women. In model 2 country vulnerability was added to determine the presence of the paradox – which would be reflected in negative correlation coefficients between suicide and vulnerability and in negative regression coefficients: lower suicide is accompanied by higher country vulnerability. Model 3 included an interaction term to verify whether the effect of vulnerability is moderated by gender. From these three models we selected the one with the best goodness-of-fit, adding the World Bank income categories in model 4 and, together with suicide data quality, in model 5.

6.3. Results

A dataset was created with complete information from 100 countries on the suicide prevalence in women and men, the vulnerability score, World Bank income categories (high: 48 countries; upper-middle: 37 countries; lower-middle: 14 countries; low: 1 country), and suicide data quality (Level 1: 60 countries; Level 2:

40 countries) (see [link to open access data repository leading to full dataset]). The data on national suicide rates in women and men in 100 countries have an asymmetric, right-skewed distribution. The observation count decreases gradually from low to high suicide prevalence. Over 60% of national suicide prevalence rates in men are equal to or higher than 10 per 100,000 inhabitants, while 95% of national suicide prevalence rates in women are lower than 10 per 100,000 inhabitants.

After having explored the data for outliers (values lower than the first quartile or exceeding the third quartile by more than 1.5 times the inter-quartile range), we excluded four national records in which women had a suicide prevalence higher than 11.8 (per 100,000): Guyana, South Korea, Sri Lanka and Surinam. Similarly, four records in which male suicide was higher than 43.2 (per 100,000) were excluded: Guyana, Lithuania, Sri Lanka and Surinam. Distributional information for country vulnerability and suicide and the correlations between these variables are shown in Table 6.1. The average suicide prevalence in men in this country sample was approximately four times higher than in women. Country vulnerability and suicide were correlated significantly and negatively in women and men with a medium effect size (Spearman's $\rho = -.32$ and $-.38$ respectively). The correlation between suicide in women and men across countries was significant and strong (Spearman's $\rho = .81$).

We conducted negative binomial regression analyses to determine the effect of different predictor variables on suicide prevalence (women and men in 96 countries; $N = 192$). In model 1 the suicide prevalence in men was significantly higher than in women ($B = 1.30$; $p < 0.001$). In model 2 this gender effect was maintained ($B = 1.29$; $p < 0.001$) after adding country vulnerability ($B = -0.02$; $p < 0.001$). The explained variance increased from 10% to 12%. The improvement in log-likelihood between model 1 and model 2 was significant ($p < 0.001$). The interaction term in model 3 was not significant, did not enhance model fit nor did it significantly explain additional variance. We also tested the three models using the dataset including the eight outlier records and found similar effects.

In model 4 the World Bank income categories were added to model 2, the model with gender and vulnerability, which resulted in an improvement (Table 6.2). The suicide prevalence in lower-income countries was lower compared to high-income groups. Vulnerability was correlated with income (N.B. When vulnerability in model 2 was replaced by income this did not improve the goodness-of-fit compared to model 1 with gender alone; $p > 0.05$). In model 5 we found a similar effect after adding data quality: suicide prevalence is lower in countries with a lower suicide data quality, which were more vulnerable countries, grouped in lower World Bank income categories. We further examined the influence of data quality by checking

Table 6.1. Distributional information and correlations

	Distributional information				Correlations		
	N	Mean	Min-Max	IQR	Vulnerability	Suicide in women	Suicide in men
Vulnerability score (0-100)	97	38.74	24.79-71.85	13.91	1		
Suicide prevalence in women (per 100,000)	96	3.81	0.2-10.1	3.3	-.32**	1	
Suicide prevalence in men (per 100,000)	96	13.98	0.6-41.07	12.55	-.38***	.81***	1

Note. N = Number of countries, Min-Max = Minimum and maximum value, IQR = Inter-Quartile Range. (Source: Vulnerability score: Welle & Birkmann 2016; Suicide prevalence: WHO 2014).

* $p < .05$. ** $p < .01$. *** $p < .001$.

whether the results of model 2 and model 4 were different when the two models were tested using the suicide data from the 58 countries with the highest data quality level (Level 1). In both models the results were similar with higher levels of explained variance (Model 2, with gender and vulnerability: Pseudo $R^2 = .15$; Model 4, with gender, vulnerability and income: Pseudo $R^2 = .16$).

Table 6.2. Summary of negative binomial regression analysis for variables predicting suicide prevalence with control variables

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	Model 4 (Model 2 + World Bank income categories)			Model 5 (Model 4 + Data quality)		
	B	SE	CI	B	SE	CI
Constant	2.63***	0.24	2.15- 3.11	2.62***	0.24	2.15- 3.08
Gender	1.29***	0.09	1.11- 1.47	1.29***	0.09	1.11- 1.47
Vulnerability	-0.05***	0.01	-0.07- -0.03	-0.03***	0.01	-0.06- -0.01
Income (World Bank)	0.34***	0.11	0.13- 0.55	0.30**	0.11	0.09- 0.51
Data quality				-0.33**	0.11	-0.55- -0.10
/Lnalpha	-1.44	0.16	-1.75- -1.13	-1.52	0.16	-1.84- -1.20
Alpha	0.24	0.04	0.17- 0.32	0.22	0.04	0.16- 0.30
Pseudo R^2 (LR chi2)		0.13 (9.93**)			0.13 (7.85**)	

Note. $N = 192$ (women and men in 96 countries). CI = 95% Confidence Interval.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6.3. Summary of negative binomial regression analysis for variables predicting suicide prevalence in World Bank income country groups

	High income countries			Upper-middle income countries			Lower-middle income countries		
	B	SE	CI	B	SE	CI	B	SE	CI
Constant	2.63***	0.42	1.81- 3.45	4.32***	0.77	2.80- 5.83	2.38	1.25	-0.07- 4.83
Gender	1.31***	0.12	1.07- 1.56	1.28***	0.16	0.97- 1.60	1.27***	0.25	0.78- 1.76
Vulnerability	-0.04**	0.01	-0.06- -0.01	-0.07***	0.02	-0.11- -0.04	-0.02	0.03	-0.07- 0.03
/Lnalpha	-1.57	0.23	-2.03- -1.12	-1.35	0.26	-1.85- 0.84	-1.46	0.44	-2.31--0.60
Alpha	0.21	0.05	0.13- 0.33	0.26	0.07	0.16- 0.43	0.23	0.10	0.10- 0.55
Pseudo R^2		0.13			0.13			0.12	
N		94			70			26	

Note. $N = 190$ (women and men in 95 countries; Haiti, a low income country, was not included). CI = 95% Confidence Interval.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 6.3 contains the results of a sensitivity analysis conducted within those World Bank income category country groups with sufficient data. Since Haiti was the only low-income country with available data the category of low income could not be included in the sensitivity analysis. In each of the high ($p < 0.01$), upper-middle ($p < 0.001$) and lower-middle ($p > 0.05$) income countries model 2 resulted in a negative vulnerability coefficient with about 13% of the variance attributable to gender and vulnerability (Pseudo $R^2 = .12 - 0.13$).

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Figure 6.1 illustrates the vulnerability paradox in suicide in women and men as identified in model 2. In both gender groups an increase in vulnerability is accompanied by lower suicide rates. The slope in men (at the right) appears to be slightly steeper, however in model 3 we could not statistically confirm the modification of vulnerability by gender. The variation in suicide between countries is higher in men than in women. From left to right different colours schemes are used to distinguish the World Bank income categories across the vulnerability continuum. High income countries are displayed in black (47 countries), upper-middle income in dark grey (35 countries), lower-middle income in light grey (13 countries) and low income (1 country) in white.

6.4. Discussion

In this study we discovered that the vulnerability paradox in suicide exists in both women and men, and across and within the World Bank income groups. The results corroborate the findings from the previous studies which were conducted in smaller samples and using a different data source. The association we found between country vulnerability and suicide in 96 countries (Spearman's rho = $-.32 - .38$) was not as strong as the correlation between vulnerability and PTSD in 24 countries ($r = -.49$) and any mood disorder in 17 countries ($r = -.56$), but larger than the correlations between vulnerability and any anxiety disorder ($r = -.22$) in 16 countries and any substance disorder ($r = -.13$) in 17 countries (chapters 3 and 4). Consequently, we consider it less likely that the earlier findings, despite being consistent, are an artefact of the classification schemes and measures used in the epidemiological surveys. Again, mental health problems seem to be more prevalent in less vulnerable countries, even when subgroups based on gender and World Bank income categories are analysed.

The results contribute to emerging literature focusing on risk factors, exceeding the level of the individual. Recent studies ascertained the effect of risk factors such as living in a less green environment, single and repeat exposure to natural and human-made disasters and income equality on suicide in populations (Helbich et al.

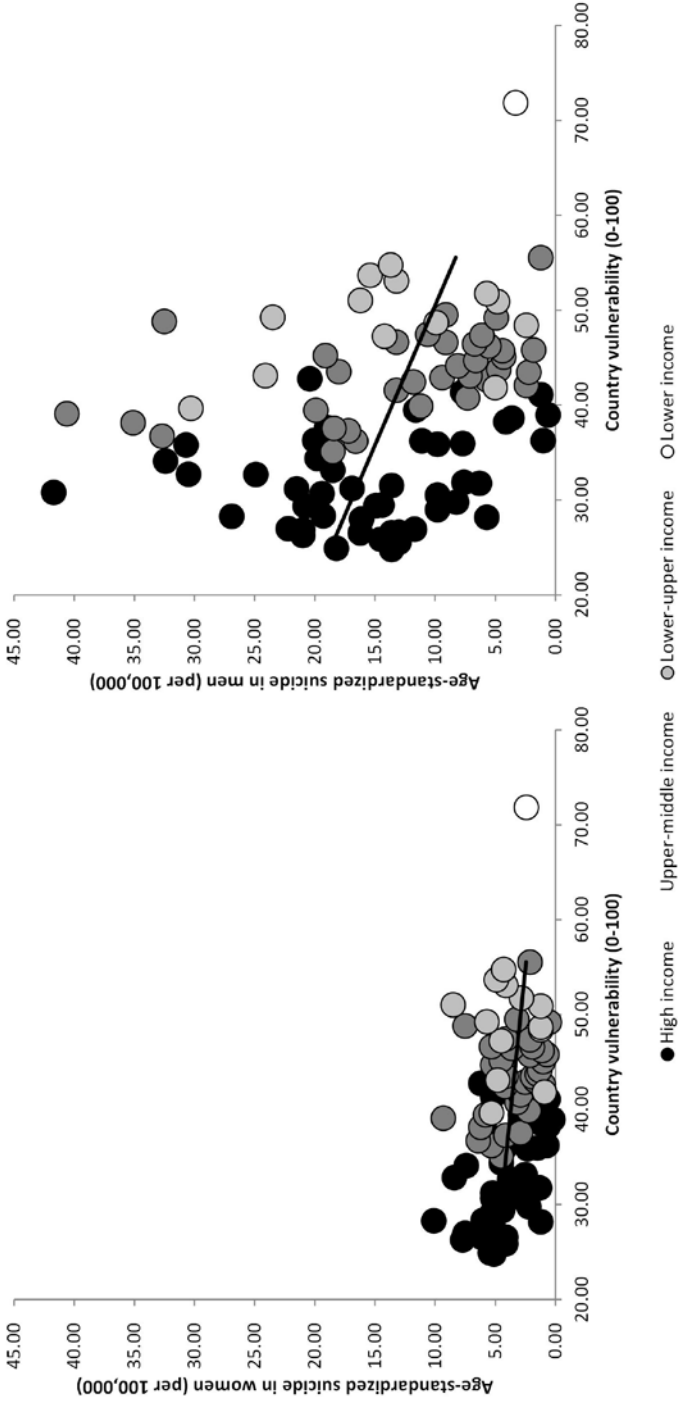


Figure 6.1. Association between suicide prevalence in women and men and country vulnerability across World Bank income groups

2018; Lorant et al. 2018; Reifels et al. 2018). The review by Oyesanya and colleagues suggests that economic changes, recessions specifically, create a risk for suicide, particularly in high-income countries (Oyesanya et al. 2015). What our analysis adds is the confirmation that living in a less vulnerable, high-income country is a risk factor itself. This conclusion is supported by findings from other recent studies, comparing mental health problems in different World Bank income groups, assessing the prevalence of generalized anxiety disorder in 26 countries and adult attention deficit hyper-activity disorder in 20 countries (Ruscio et al. 2017; Fayyad et al. 2017).

Explaining the vulnerability paradox

Confirming an inverse association between country vulnerability and mental health is one thing, explaining it is another. Some of the explanations described in the initial paradox paper identified cultural factors that might increase the risk associated with living in a less vulnerable country (chapter 3). In terms of Hofstede's classification of cultural dimensions (Hofstede 2011), less vulnerable, more affluent countries are characterized by higher levels of individualism, a more equal distribution of power and greater indulgence within society (chapter 2). Consequently it was hypothesized that members of populations with higher levels of individualism, more equal distribution of power and less restraint in pursuing basic human desires, engender a greater sensitivity to social failure and the hampered realization of aspirations. The blocking of personal aspirations and goals might be coupled, furthermore, with lower levels of protective social support and less hindrance by stigma when it comes to expressing emotions, discussing personal problems including mental health, and expressing a need for help (chapter 3).

Another possible explanation given was that variation in the availability and accessibility of professional mental health services between countries might affect the likelihood of being diagnosed with mental disorders. Moreover, it is conceivable that the lower availability of institutional and professional health capacities and systems in more vulnerable countries is accompanied, or even compensated for, by alternative supportive aspects of social capital such as community engagement and social support within people's personal networks (see chapter 7).

Whether these explanations are more or less applicable to suicide remains to be determined. However, a study by Webster Rudmin and colleagues, based on 33 countries, found that higher levels of individualism, a more equal distribution of power, less uncertainty avoidance, and low masculinity were accompanied by more suicide (Webster Rudmin et al. 2003). We interpret these results as a confirmation of the relevance of cultural characteristics in the cross-national analysis of suicide

rates. Although addressed by Durkheim's seminal early sociological work on suicide (Durkheim 1897), it is arguably a major lacuna in contemporary knowledge that the interaction of cultural factors with better-established risk and protective factors remains poorly understood. In the international strategy and recommendations to address suicide globally put forward by the WHO, for instance, cultural aspects are mentioned several times but – apart from religious, legal and social prohibitions – without a detailed clarification of what exactly they are, why they are important, and how they can be influenced (WHO 2014).

What the explanations have in common is that they reflect interpretations of associations between a myriad of country-level factors based on cross-sectional datasets. Exploration or testing of associations between mental health and other factors – unrelated to the cultural and socio-economic country factors already discussed – will produce different explanations. We want to encourage researchers to unravel causal mechanisms. The reason why we did not add country characteristics besides the vulnerability index, income and data quality is because these factors were linked to our replication objective. In the light of other theories or research questions it remains meaningful to keep exploring the relevance of the index and its distinct constitutive elements, as well as of specific country-level characteristics left unaccounted for. This is necessary in order to better understand cross-national differences in mental health independently of the cultural and socio-economic factors addressed in this study through the lens of vulnerability.

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Limitations

The cross-national analysis of PTSD and other mental disorders considered the exposure to traumatic events in the general adult population (chapters 3 and 4). It was possible to test several models with trauma exposure and country vulnerability as single predictors, in combination, and with an interaction term. Unfortunately, trauma exposure data were unavailable for the countries in the current study. We consider this a limitation because trauma exposure proved to be an important predictor of disorder prevalence at the country level, independently explaining even more variance in mental problems than country vulnerability – with the latter amplifying the effect of trauma exposure on PTSD (chapter 3).

The most important limitations of this study have to do with the suicide data. The analysis showed that prevalence is influenced by data quality, which is linked to vulnerability and income. We restricted ourselves to the quality levels 1 and 2 but this does not ensure that the complicated registration process is free of flaws, including misclassifications (WHO 2014).

Another fundamental limitation is that we are still not in the position to conduct multilevel analyses to examine mental health of populations using large-scale datasets that contain information on individuals, the demographic groups they belong to, nested in countries and larger regions, over a longer time period.

Conclusion

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What the current study demonstrates is that cultural and socio-economic country-level factors matter. Not only do public health problems differ between countries, so do the risk and protective factors and the capacity to adequately address them. Global mental health strategies need to be tailored to individual country contexts as they provide the background where mental problems develop and they may require different solutions. Perhaps different socio-economic country groups can learn from each other's strategies to identify and utilize protective factors, particularly given the lower likelihood of developing mental health problems in more vulnerable countries. We only are at the beginning of understanding cross-national differences in mental health, their explanations and relation to explanatory factors and mechanisms, and their implications for policy-makers and practitioners.

Chapter 7

Country vulnerability and psychosocial service delivery

This chapter is based on: Dückers, M.L.A., Witteveen, A.B., Bisson, J.I., & Olf, M. (2017). The association between disaster vulnerability and post-disaster psychosocial service delivery across Europe. *Administration and Policy in Mental Health and Mental Health Services Research*, 44 470-479.

Abstract

This study confirms that the developmental stage of post-disaster psychosocial support planning and delivery systems in Europe is associated with countries' level of disaster vulnerability. Lower vulnerability is accompanied by more evolved planning and delivery systems. Countries in north, west and central regions have more developed planning and delivery systems and lower vulnerability levels than those in the south, southeast and east. The highest proportion of variance in vulnerability is located at the regional level, most of the variance in planning and delivery systems is at the individual level. Possible implications and chances for the optimization of psychosocial services are discussed.

7.1. Introduction

Disasters form a continuing risk for human societies all over the world (Birkmann et al. 2011; Welle et al. 2012; International Federation of Red Cross and Red Crescent Societies 2012; 2013; 2014). Besides potentially large-scale devastation and damage to vital infrastructures and objects of interest, disasters and major incidents threaten the safety, well-being, health and functioning of people (Noji 2000; Shoaf & Rottman 2000; Herbert et al. 2006; Norris & Elrod 2006; Moline et al. 2006).

In this context, post-disaster psychosocial support has received increased attention in disaster preparedness in the last two decades (e.g. Weaver 1995; Norris et al. 2002b; Hobfoll et al. 2007; Reifels et al. 2013; Gouweloos et al. 2014). Different authors have deepened essential principles (such as the need to promote a sense of safety, hope, calming, connectedness to others, and self- and group-efficacy), the importance of timely detection of health complaints, provision of social support, stress-reduction and effective treatment of trauma-related disorders, or elaborated the quality of psychosocial support as a concept (Hobfoll et al. 2007; Benedek & Fullerton 2007; Te Brake et al. 2009; Bisson et al. 2010; North & Pfefferbaum 2013; Dückers 2013; Reifels et al. 2013; also see chapter 9).

Despite differences in focus, this body of work reflects a certain level of consensus on the preferred nature of psychosocial support, and acknowledges that the current state of knowledge is mostly based on expert consensus in the absence of strong scientific evidence (Bisson et al. 2010; North & Pfefferbaum 2013; Gouweloos et al. 2014). Moreover, there are indications that adherence to guidelines concerning psychosocial support in Europe is low. A gap exists between guidance and practice (chapter 8) and there is variation in guideline compliance in different areas of Europe (Witteveen et al. 2012). Witteveen et al. concluded that countries across Europe are currently providing suboptimal psychosocial services to people exposed to disasters. They emphasized the urgent need for some countries to abandon non-effective interventions and others to develop more evidence based and effective services to facilitate the care of those involved in future disasters.

Essentially, this can be seen as a plea to implement the evidence-based practice paradigm, not only in the traumatic stress field (Bisson 2013), but also to expand and integrate it into the fields of disaster preparedness and emergency management. A set of principles, in this chapter referred to as a “planning and delivery system”, can play an important role in achieving this.

Planning and delivery system

When it comes to dealing with psychosocial consequences of disasters, the likely scale of the event means that societies are challenged to organize a well-planned response and recovery capacity. In a disaster setting a plethora of care providers and other people are involved in efforts to detect needs and problems of an affected population, and to intervene when necessary. Ideally, in practice they will operate as a multidisciplinary, multi-layered network, initially under the responsibility of crisis managers, and later under the responsibility of public health authorities. Planning, coordination and adaptation are considered crucial in the context of disaster and crises management (Boin & 't Hart 2011; Boin & Bynander 2015; Comfort 2007). This is also true for psychosocial services, with the particular challenge of integrating state of the art guidelines in to the planning and delivery of services by all involved (Reifels et al. 2013; chapters 8 and 9).

An integrated, post-disaster psychosocial support approach should incorporate: (1) cooperation between professionals, trained volunteers and authorities belonging to different organizations, (2) coordination of planning and delivery, (3) organizations adhering to evidence-informed guidelines, (4) integration in disaster plans, (5) facilitation by government legislation, and (6) regular testing of the plans. Elements such as these are embedded in evidence-informed guidelines (TENTS 2009; Bisson et al. 2010; also see Te Brake et al. 2009 and Suzuki et al. 2012). Despite their relevance, the elements of a planning and delivery system have not been studied extensively. The starting point for the current study is the assumption that such a system is helpful in guaranteeing a high quality level in psychosocial service delivery, but that little is known about the factors that explain whether or not an integrated system is adopted.

Relation with disaster vulnerability

Dücker and Thormar (2015) postulated that some countries and regions are in a better position to serve communities and individual citizens because they are better equipped in terms of, for instance, education, access to general practitioners and hospitals, higher levels of public and private health expenditure, a lower proportion living in poverty, higher levels of income equality, and lower corruption (chapter 9). These are only a few of the indicators the United Nations University and Alliance Development Works included in the development of the World Vulnerability Index. Country characteristics can be divided into three categories: (1) susceptibility: the likelihood of harm, loss and disruption, (2) lack of coping capacities: minimization of negative impacts of hazards through direct action and available resources, and (3) lack of adaptive capacities: measures and strategies dealing with and attempting to

address negative impacts of hazards (Birkmann et al. 2011; Welle et al. 2012). This index can be used to illustrate that some countries are more vulnerable than others in terms of disaster impact and response and recovery potential.

It is likely that the quality of psychosocial support planning and delivery systems is linked to the vulnerability level. One might even view the system as a particular manifestation of the level of vulnerability. Less vulnerable countries with good governance, less corruption, better health care, et cetera are then hypothesized to provide a more fertile environment for well-organized psychosocial support in reaction to adversity. The association has never been tested.

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Objective

The objectives of this study are to determine whether post-disaster psychosocial support planning and delivery systems vary across Europe, to verify if more evolved systems are accompanied by lower vulnerability and vice versa, and to identify elements, at different levels, that can inform improvement planning.

7.2. Methods

The study was conducted using existing data sets. The psychosocial support planning and delivery system was operationalized using data from The European Network for Traumatic Stress (TENTS) mapping survey (Witteveen et al. 2012). Disaster vulnerability was measured using the World Vulnerability Index (Welle et al. 2012).

Measuring planning and delivery systems

In the context of the TENTS project, funded by the European Union, a web-based survey was developed. Drafts of the survey were circulated for consultation to achieve optimal face and content validity. It was subsequently piloted, adjusted and re-tested before being integrated in the website. The survey included dichotomous, multiple choice and open-ended questions which were divided into different sections (details can be found in Witteveen et al. 2012).

The survey was translated (and back translated) into seven local languages (i.e., Turkish, Finnish, Hungarian, Polish, Spanish, Swedish and French) and administered between May and December 2008. An invitation e-mail was sent to 652 individuals who were identified as a source of information within a particular country. They were invited to complete the survey for their affiliated organization. Nearly half of them ($N = 286$; 44%) completed the questionnaire. Most participants were providers of psychosocial services (50.3%) and/or (mental health care)

managers (30.1%). The rest were researchers (18.5%), educators (15.7%), policy makers (8%) or a combination of those. Around half of all participants reported that their affiliated organization had one main function, for example being a hospital or clinic. 82.2% of all participants indicated that their organization was involved in some kind of psychosocial support or care, 55.2% in both psychosocial service delivery and its planning and coordination, while 10.8% reported that their affiliated organization was only involved in planning and coordinating the post-disaster psychosocial response. Another 10% indicated that they were involved in something else unrelated to psychosocial services or planning and coordination of the disaster response, such as trauma research.

Although the mapping tool contains several sections, only the section “planning and delivery systems” was used to measure the status of the planning and delivery system. Responses to the following questions were coded into binary variables (‘Yes’ into 1; ‘No’, ‘Don’t know’, and ‘Not applicable’ into 0):

1. Does your organization cooperate with other organizations in the planning and delivery of psychosocial support/care for victims of disaster or major emergency situations?
2. Is there some form of central coordination for the planning and delivery of psychosocial services for victims of disasters or major emergency situations in your organization or region?
3. Is psychosocial care a topic covered in this multi-organization or multi-agency coordination for disaster-victims?
4. Does your organization follow specific post-disaster guidelines?
5. Are these guidelines incorporated in a specific disaster-plan (contingency plan/emergency response plan)?
6. Is the disaster plan supported by any legislation, laws or governmental regulation?
7. Is the disaster plan tested on a regular basis?

A post-disaster psychosocial support planning and delivery system score was calculated by adding up these seven items and dividing the total by seven (Cronbach’s alpha: 0.90; no items were removed because that would lead to a lower reliability coefficient), resulting in a maximum value of one and a minimum value of zero.

Measuring disaster vulnerability

Disaster vulnerability can be defined as: “the conditions determined by physical, social, economic and environmental factors or processes which increase the

susceptibility of an individual, a community, assets or systems to the impacts of hazards” (UNISDR 2017). Vulnerability is usually a socially constructed potential for harm, expressed on a scale from no damage to total loss. Since losses vary geographically, over time, and among different social groups, vulnerability also varies over time and space (Cutter et al. 2003).

At a global level the United Nation’s World Vulnerability Index is the most comprehensive tool to assess the disaster risk that a society or country is exposed to by external and internal factors (Birkmann et al. 2011; Welle et al. 2012). The index is based on multiple indicators. Matrices were calculated for 173 countries; detailed information is publicly available and described in the World Risk Report 2012. The data collection required for its calculation is freely available and can be accessed via the internet, which ensures transparency and verifiability. Robust statistical imputation techniques were conducted to cover missing data (Templ et al. 2006). In order to be mathematically aggregated into indices, the indicators were transformed in dimensionless rank levels between 0 and 1, i.e. they can be read as percentage values. The index illustrates that a country’s disaster risk may depend on several factors, so that a country also has several means at its disposal to reduce risks (Birkmann et al. 2010). As mentioned in the previous section, disaster vulnerability comprises the components of susceptibility, lack of coping capacities and lack of adaptive capacities (Birkmann et al. 2011); these are further elaborated below.

Susceptibility. Susceptibility generally refers to the likelihood of harm, loss and disruption in an extreme event triggered by a natural or man-made hazard. Thus susceptibility describes structural characteristics and framework conditions of a society. Several subcategories outlining the living conditions in a country have been chosen to represent susceptibility in the vulnerability index: public infrastructure (share of population without access to improved sanitation and share of population without access to clean water), nutrition (share of population undernourished), poverty and dependencies (share of under 15- and over 65-year-olds in the working population and share of population living on less than USD 1.25 per day), and economic capacity and income distribution (gross domestic product per capita, purchasing power parity and the Gini index for income inequality). A fifth subcategory, housing conditions, is considered an important susceptibility factor, however, it has not been included in the index so far due to a lack of global data.

Lack of coping capacities. Coping capacities comprise various abilities of individuals, societies and exposed elements (e.g. critical infrastructure such as nuclear power plants) to minimize negative impacts of natural and man-made hazards through direct action and available resources. Coping capacities encompass measures and abilities that are immediately available to reduce harm and damage

if an event occurs. Five subcategories of coping capacities are distinguished. Three of the subcategories are currently covered by data: government and authorities (Corruption Perceptions Index and Failed States Index), medical services (number of physicians per 10,000 inhabitants and number of hospital beds per 10,000 inhabitants), and material coverage (insurance and life insurance excluded). The other two subcategories covering disaster preparedness and early warning, along with social networks, are included in the coping capacities component. However, currently no global data referring to them is available. Hence it has so far not been possible to give them a place in the index. The lack of coping capacities index value is derived by subtracting the coping capacities value from one.

Lack of adaptive capacities. Adaptation is a long-term process that includes structural changes (Birkmann et al. 2010; Lavell et al. 2012). Adaptation encompasses measures and strategies dealing with and attempting to address negative impacts of future natural hazards and climate change. Five subcategories are included to generate a value describing capacities for long-term adaptation and change within a society. Besides life expectancy at birth, four subcategories of suitable data are available: education and research (adult literacy rate and combined gross school enrolment), gender equity (gender parity in education and proportion of female representatives in the national parliament), environmental status/ecosystem protection (water resources, biodiversity and habitat protection, forest management, and agricultural management), and investments (public and private health expenditure). Owing to insufficient global data, the subcategory of adaptation strategies could not be integrated into the calculations. As with coping capacities, a lack of adaptive capacities value is included in the index.

Analysis

The data were used to calculate a psychosocial support planning and delivery system, and disaster vulnerability score for each region. The expected association between disaster vulnerability and the planning and delivery system is shown in Figure 7.1, with lower vulnerability to disaster (lower susceptibility, higher coping and adaptive capacity) accompanied by a higher system score. Differences between regional scores and the association between system and vulnerability at the regional level were assessed using non-parametric tests in SPSS 22. Regional differences were examined using Kruskal-Wallis tests and Mann-Whitney U tests, the association between system and vulnerability with Spearman's rho.

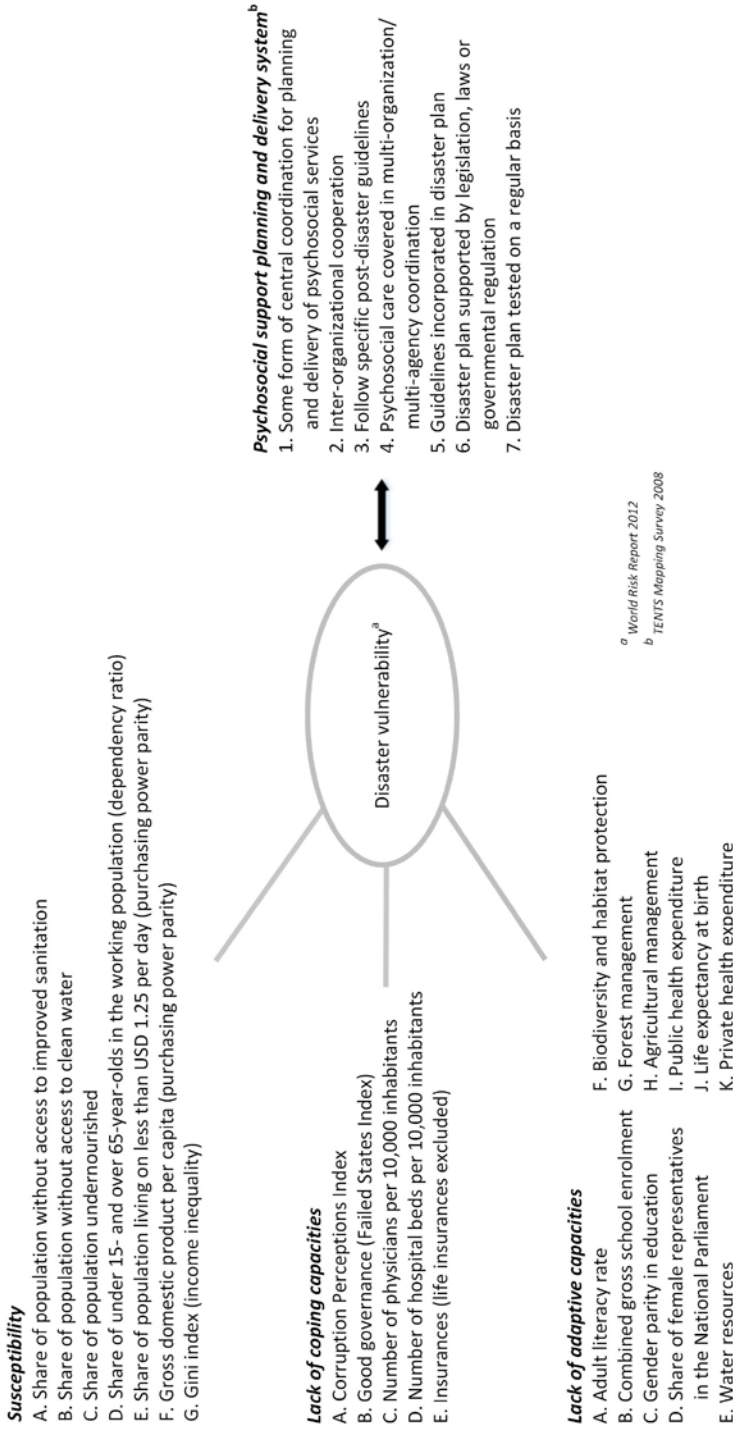


Figure 7.1. Expected association between disaster vulnerability and psychosocial support planning and delivery system

Additionally, multilevel analyses were applied to take the hierarchical structure of the data into account. Disaster vulnerability country data is nested in six regions (two levels). Psychosocial support planning and delivery system data was obtained from individual respondents, nested in countries within regions (three levels). These levels might be meaningful: units in the same cluster can be more similar to each other than to others. To control for this possibility, an intercept was estimated in MLwiN 2.31 for both variables, together with the intercept variance at the different levels. The planning and delivery system and disaster vulnerability were analysed in different steps. Levels were added one by one in order to understand the difference between models with one, two or three levels. A deviance test was used to compare each model with its predecessor; deviance can be regarded as a measure of lack of fit between model and data, the larger the deviance (-2 loglikelihood; IGLS), the poorer the fit to the data. The deviance test is a tool to assess whether each subsequent model leads to a substantial reduction in deviance.

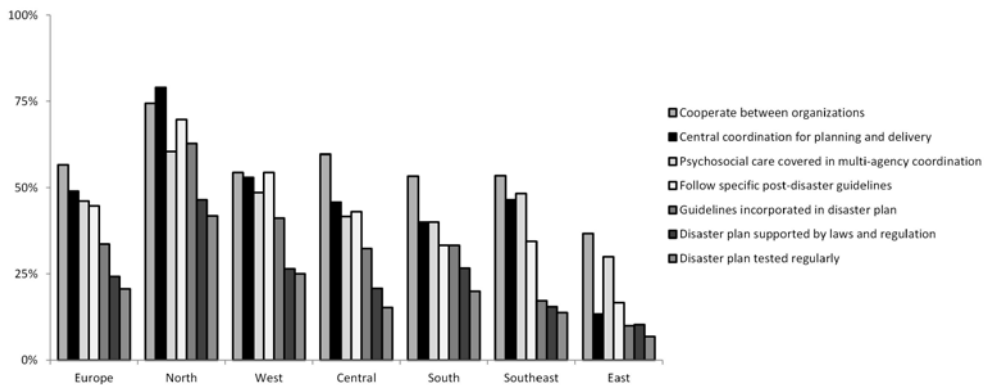
7.3. Results

Two patterns of the extent to which participants of the TENTS mapping survey perceived the items concerning a psychosocial support planning and delivery system present in their own setting are shown in Figure 7.2. Overall, the most common elements of the planning and delivery system were, in descending order, cooperation between organizations, some sort of central coordination for planning and delivery, psychosocial care coverage in multi-agency coordination, presence of specific post-disaster guidelines, the incorporation of these guidelines in a disaster plan, support of the disaster plan by government laws and regulation, and regular testing of the disaster plan. There were significant differences in terms of presence of the elements across the regions of Europe; the highest presence was in the north, with a gradually decline, through west, central, south and southeast Europe to the east.

Table 7.1 contains general descriptive information on the data (i.e. mean, median, inter-quartile range, minimum and maximum values) and the regional average planning and delivery system and disaster vulnerability scores. The European average for the planning and delivery system was 0.39. The highest averages were found in north, west and central Europe. South, southeast and east Europe had the lowest averages. The pattern in the disaster vulnerability score was similar; the lowest value was in the west, the highest in the southeast.

Figure 7.3 shows a scatterplot with the regional planning and delivery system score on the y-axis and disaster vulnerability on the x-axis. System score and

disaster vulnerability differ significantly between the six regions (Kruskal-Wallis test; $p < 0.001$) and between north-west-central and south-southeast-east (Mann-Whitney U test; $p < 0.001$). The non-parametric correlation between regional planning and delivery system, and vulnerability averages is .89 (Spearman's rho; $p < 0.05$).



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Figure 7.2. Psychosocial support planning and delivery system: elements present according to respondents

Table 7.1. Psychosocial support planning and delivery system and disaster vulnerability: distributional information and regional averages

	Distributional information				European regions					
	Mean	Median	IQR	Min-Max	North	West	Central	South	Southeast	East
Psychosocial support planning and delivery system	0.39 (284)*	0.43	0.71	0-1.00	0.62 (43)	0.43 (68)	0.37 (71)	0.35 (15)	0.33 (58)	0.18 (29)
Disaster vulnerability	34.51 (36)**	34.70	8.94	26.87- 47.31	27.34 (5)	29.81 (6)	27.79 (3)	34.97 (4)	40.98 (11)	36.10 (7)

Note. IQR = Inter-quartile range, Min = Minimum, Max = Maximum.

Countries per region (+ = country with disaster vulnerability data but not represented in TENTS mapping survey): **North:** Denmark, Finland, Iceland⁺, Norway, Sweden; **West:** Belgium, France, Ireland⁺, Luxembourg⁺, Netherlands, United Kingdom; **Central:** Austria, Germany, Switzerland; **South:** Italy, Spain, Portugal; **Southeast:** Bulgaria, Bosnia-Herzegovina, Croatia, Cyprus, Former Yugoslavian Republic of Macedonia, Georgia, Greece, Romania, Serbia, Slovenia, Turkey; **East:** Czech Republic, Estonia⁺, Hungary⁺, Latvia, Lithuania, Poland, Slovakia.

* Between parentheses, total number of respondents TENTS mapping survey (Witteveen et al. 2012).

** Between parentheses, total number of countries (data obtained from World Risk Report 2012).

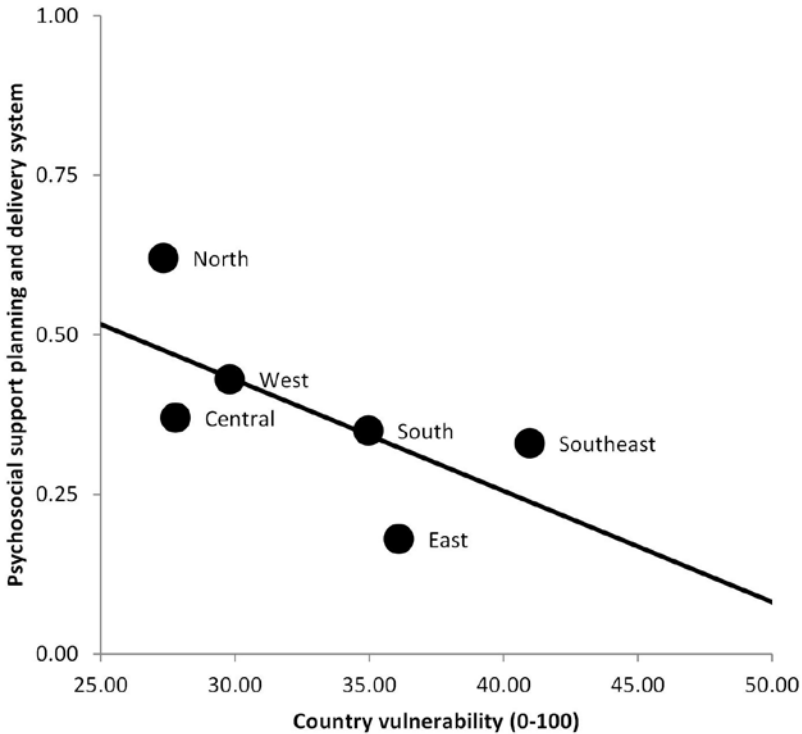


Figure 7.3. Scatterplot regional averages

In Table 7.2 the results of the multilevel analysis are shown. In three models the average planning and delivery system score (intercept; fixed effects) is estimated together with the variance at different levels (random effects). A model with one level (individual respondents) is presented, followed by a two-level model (individuals in regions), and then a three-level model (individuals in countries, nested in regions). The results of the two-level model illustrate that 90% of the variance is found at the individual level, and 10% at the regional level. After including the country level in the three-level model, the individual level variance drops back to 80%. The results shows that, besides regional differences, variation exists at the country level. According to the deviance tests, each subsequent model represents a significant improvement compared to the previous one. The three-level model fits the data best.

Table 7.2. Multilevel models: estimated intercepts and variance at different levels

	Psychosocial support planning and delivery system			Disaster vulnerability	
	Model 1	Model 2	Model 3	Model 1	Model 2
	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)	Estimate (SE)
Fixed effects					
Average (intercept)	0.39 (0.02)	0.39 (0.05)	0.40 (0.06)	34.51 (0.99)	32.92 (2.04)
Random effects					
Intercept variance at:					
Level 1 (Individual)	0.14 (0.01)	0.13 (0.01)	0.12 (0.01)	NA	NA
Level 2 (Country)	-	-	0.02 (0.01)	35.27 (8.31)	8.79 (2.27)
Level 3 (Region)	-	0.01 (0.01)	0.01 (0.01)	-	23.21 (14.39)
Percentage of variance at:					
Level 1 (Individual)	100%	90%	81%	NA	NA
Level 2 (Country)	-	-	11%	100%	27%
Level 3 (Region)	-	10%	8%	-	73%
N	284			36	
-2 loglikelihood (IGLS)	246.677	233.275	225.891	230.432	196.914
Deviance test	Reference	$p < 0.001$	$p < 0.01$	Reference	$p < 0.001$

Note: SE = Standard error, NA = Not applicable, IGLS = Iterative Generalized Least Squares.

Five models are tested in sequential steps. The average psychosocial support planning and delivery system score is estimated in three models: (1) individuals, (2) individuals nested in regions, and (3) individuals nested in countries, nested in regions. The average disaster vulnerability score (intercept) is estimated in two models: (1) countries and (2) countries nested in regions). In all five models the intercept variance at different levels is estimated.

The columns in the right of Table 7.2 display the results for disaster vulnerability. The average vulnerability score (fixed effects) and the total variance in vulnerability at the country and regional level (random effects) were estimated in two models. The deviance test indicates that adding the regional level leads to a significant improvement in fit. In contrast to the variance in planning and delivery system, most of the variance in vulnerability was situated at the higher level of the region, not at the country level. In this sample of 36 countries, the region accounts for approximately three quarters of the variance in disaster vulnerability.

7.4. Discussion

A first important finding from this study is that, at the level of European regions, the status of post-disaster psychosocial support planning and delivery systems is strongly related to the capacity of countries to absorb, respond to and recover

from the impact of disaster, i.e. the components of disaster vulnerability. Secondly, both planning and delivery systems and disaster vulnerability vary significantly between six European regions, with more differences between countries and individuals when it comes to planning and delivery systems, and primarily regional variation, with less country level variation, when it comes to vulnerability. North, west and central Europe differ significantly from south, southeast and east Europe in planning and delivery systems, and vulnerability. Thirdly, some regions are definitely more advanced when it comes to the developmental stage of the planning and delivery system than others. This is reflected in a higher prevalence of the various system elements and, hence, in a higher average system score. It is also visible in the type of system elements. The limited presence or absence of integration of guidelines in disaster plans, supportive legislation and periodic testing of plans, all lowered the overall system score in each of the regions.

Implications

These findings have several implications. The variation in planning and delivery systems at the level of regions, countries and individual respondents suggests that there is room for improvement.

Starting with the regional level, the strong relation with vulnerability is meaningful in this respect, with the remark that the plotted trend line in Figure 7.3 is somewhat inaccurate. On the high-system-score side at the left side of the graph a ceiling effect is likely: at a certain point lower vulnerability levels are probably no longer accompanied by higher system scores. Also, it is likely that the line in the low-system-score quarter would bend steeply to the right if the scatterplot included more vulnerable countries.

Although associations are not the same as causality, in the case of disaster vulnerability, it is more plausible that vulnerability influences planning and delivery systems than the other way around. Vulnerability consists of aspects that can be seen as exogenous variables, and it has already been shown that these aspects are strongly interrelated at the national level (Birkmann et al. 2011). Additionally, the findings of the multilevel analysis point at homogeneity in vulnerability in Europe at the regional level. What would be expected from attempts to enhance planning and delivery systems indirectly via vulnerability characteristics at the country or regional level? This would require long-term investments with an uncertain outcome. What is more, at these levels the expected improvement rate is relatively small as most of the variance is found at the individual respondent level. Optimization strategies should, therefore, focus directly on enhancing planning and delivery systems and their components locally, with implementation

strategies, tailored not only to the context of different regions and countries but, most importantly of all, to local settings. This is a bit paradoxical given the focus placed on vulnerability in this study, but then again, the findings should be seen as encouragement to look beyond vulnerability features at higher levels. Researchers and policy makers should carefully consider local key people and processes. Importantly, they should also contribute to incorporating capacity and knowledge into the collaborative development, testing and dissemination of quality improvement strategies and instruments. This is where real progress can be made, at the level where services are provided in interaction with people confronted by adversity.

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When all the elements are present, planning and delivery systems should stimulate the various network partners to integrate guidelines in their joint, local, and frequently updated planning routine. In this manner, planning and delivery systems could accommodate guideline implementation and evidence-based work in disaster settings. Some regions, countries and local networks are better equipped to run a post-disaster psychosocial support programme for an affected population than others. Further research into programmes run after different events and in different circumstances would be welcome and would be of interest to those who seek to optimize the quality of psychosocial support at different levels in Europe and the rest of the world. New forms of intervention with a potentially large public health impact, such as mobile health approaches, may be a way to reach those areas that are less well equipped to administer post-disaster psychosocial support programmes (Olf 2015; Olf et al. 2015).

The variation within Europe is informative; at the same time the countries assessed are concentrated in a relatively low zone of the world-wide disaster vulnerability distribution. The findings cannot be generalized to those countries that would score significantly higher like, for example, Haiti, Bangladesh and the Philippines (see the country data in the World Risk Report). It would be interesting and informative to extend the mapping survey to these and other areas of the world. This is especially important as it has the potential to further develop insight into the cultural dimensions of country vulnerability and post-disaster psychosocial service delivery. It has, for instance, been suggested in chapter 2 that over two-thirds of the variance in national vulnerability can be explained by cultural factors: less vulnerable countries are inhabited by more individualistic cultures with a more equal power balance, less uncertainty avoidance, a more long-term orientation, higher indulgence, and less restraint. The implications for planning and delivery systems require further inquiry. It is conceivable that the lower availability of institutional and professional capacities and systems in more vulnerable countries –

as found in this study – is accompanied, or even compensated, by aspects of social capital such as community engagement and support that in turn might serve as an alternative route to the realization of psychosocial principles. Research into these and other issues can help clarify the meaning of concepts such as vulnerability or resilience at the societal level, both in a theoretical as well as a practical sense.

Limitations

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Although the best data available was used, this study does have some limitations. Firstly, the TENTS mapping survey had a non-response of over 50 per cent. The survey mapped only the availability of certain psychosocial services, and not the extent or frequency of delivery of these psychosocial services to people confronted with disaster. Differences between areas in function or types of organization represented may have influenced the mapping results (Witteveen et al. 2012). Specific questions were selected to operationalize the psychosocial support planning and delivery system. Since an existing data set was used, this limited the options to capture more details or employ other potentially relevant components such as available resources and training programmes for professionals and volunteers in line with the requirements identified by Pearce and colleagues (2012).

Secondly, some limitations of the vulnerability index must be mentioned. An array of datasets from different sources is used to bring together social and economic dimensions of countries in one index. The datasets used are not designed for this purpose; they are incorporated simply because they are available (Heesen et al. 2014). That said, indicators have been assigned to three constructs with a good reliability coefficient and the index has been thoroughly tested (Alliance Development Works 2012). Although the index is a helpful source to understand disaster risk internationally, the statistical work on it is still work in progress and there is scope for a follow-up analysis covering more relevant data.

Conclusion

In this study the variation in post-disaster psychosocial support planning and delivery systems and disaster vulnerability was examined at different levels. The association between both concepts was assessed at the regional level. Lower vulnerability was accompanied by more evolved systems. The multilevel perspective found that disaster vulnerability is apparently a country trait with regional variability. It also confirmed that psychosocial support planning and delivery systems differ at the level of region and country, but are most of all local combinations of elements, helping or hindering individual experts and professionals involved in the practice of post-disaster psychosocial service delivery. More

extensive assessments and comparisons at the local, national, and international level are vital for a better understanding of psychosocial aid in the response and aftermath of disasters, in particular, its determinants, nature, working mechanisms, and contribution to well-being, health and other outcomes.

Part II

The quality of psychosocial services in crisis

Chapter 8

Consensus on psychosocial service norms and degree of implementation

This chapter is based on: Te Brake, J.H.M., & Dückers, M.L.A. (2013). Early psychosocial interventions after disasters, terrorism and other shocking events: Is there a gap between norms and practice in Europe? *European Journal of Psychotraumatology*, 4, 19093.

Abstract

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In the last two decades, several initiatives have been undertaken to develop post-disaster psychosocial support standards. With the Dutch national multidisciplinary guidelines for early psychosocial interventions as a point of reference, this study investigated the level of consensus on the grounding principles of early psychosocial interventions, and examined whether these principles are translated into mental health care practice. The analysis was carried out during the EU project EUTOPA, an acronym for “European guideline for target-group oriented psychosocial aftercare”. The Dutch guidelines were used for two reasons: firstly, these guidelines were the first evidence-based psychosocial support guidelines within Europe that were developed nationally in cooperation with professionals and other end-users; which is important because the chances of successful guideline implementation increase if targeted end-users are involved. Secondly, the Dutch guidelines are in line with source material and recommendations in other guidelines. Experts and health care professionals from 24 European countries discussed the Dutch guidelines at an international seminar. They filled out a questionnaire to assess the extent to which they consider the guidelines’ scope and recommendations relevant to, and part of, regular practice in their own country. The responses suggest overall agreement on the standards, although many of the recommendations do not appear to be embedded in everyday practice. The study concludes that, despite a high level of consensus on standards for early psychosocial support, a chasm between norms and practice appears to exist in Europe, stressing a general need for investment in guideline development and implementation.

8.1. Introduction

Although research shows that most people confronted with disasters, terrorism or other shocking events recover on their own, a significant number of them develops long-term disaster-related problems (Norris et al. 2002a; Bonanno et al. 2010). Against this background, several initiatives have been undertaken over the last decades to develop post-disaster psychosocial support standards by collecting and weighing available scientific evidence. In 2001, Seynaeve and colleagues published a policy paper on psychosocial support in mass emergency situations (Seynaeve 2001). The National Institute for Health and Care Excellence, a non-departmental public body of the United Kingdom Department of Health (NICE, formerly known as the National Institute for Health and Clinical Excellence), developed guidelines to deal with post-traumatic stress disorder (PTSD) (National Institute for Clinical Excellence 2005). Other examples are the NATO-guidelines on psychosocial support for people affected by disasters and major incidents (NATO Joint Medical Committee 2008), the “mental health first aid guidelines” on how members of the public can support people affected by a traumatic event (Kelly et al. 2010), the PTSD guidelines from the Australian Centre for Posttraumatic Mental Health (ACPMH; Forbes et al. 2007), and the “multidisciplinary guidelines on early psychosocial interventions after disasters, terrorism, and other shocking events”, the Dutch national guidelines (Te Brake et al. 2009).

The European Union funded two projects to establish psychosocial support standards in European countries: TENTS, which stands for The European Network for Traumatic Stress and EUTOPA, an acronym for “European guideline for target group oriented psychosocial aftercare”. The ambition of TENTS was to develop European-wide networks of expertise on psychosocial support and post-traumatic stress management. TENTS used a Delphi-method to arrive at consensus-based recommendations (Bisson et al. 2010; Witteveen et al. 2012; also see Suzuki et al. 2012). This chapter describes the results of the EUTOPA project, which also sought to develop a European perspective on post-disaster psychosocial support based on expert consensus. In contrast to the TENTS project, the starting point in EUTOPA was an existing set of guidelines. The Dutch guidelines were used for two reasons: firstly, these guidelines were the first evidence-based psychosocial support guidelines within Europe that were developed nationally in cooperation with professionals and other end-users, which is important because the chances of successful guideline implementation increase if targeted end-users are involved (Eccles et al. 2012). Secondly, the Dutch guidelines are in line with source material and recommendations in other guidelines (Taal 2010). Box 8.1 contains information on the development of the guidelines.

The objective of this study is to determine the level of consensus on the grounding principles of early psychosocial interventions, and to examine whether these principles have been translated into mental health care practice. The study gives us an opportunity to explore whether a typical phenomenon in evidence-based service provision – the gap between norms and practice (Grol 2001) – also exists in the European field of post-disaster psychosocial support.

Box 8.1. Dutch national guidelines

The Dutch national guidelines were developed in accordance with the official methodology for multidisciplinary guideline development in mental health care and under the auspices of the Dutch National Steering Committee on Multidisciplinary Guideline Development (Te Brake et al. 2009). The development was financed by the Dutch Ministry of Health, Welfare and Sport and the process was coordinated by Impact, the Dutch national knowledge and advice centre for post-disaster psychosocial support.

The systematic procedure is similar to the procedure described by Forbes et al. (2010). According to Eccles et al. guideline development involves both a technical process (systematic reviews of relevant evidence) and a social process (interpretation of the results of the systematic review and development of recommendations). The successful introduction of a guideline requires that all key disciplines contribute to its development to ensure "ownership" and support, and that there is a broad international consensus that guideline development groups should be multidisciplinary with representation from key stakeholder groups (Eccles et al. 2012).

In the case of the Dutch guidelines the development of recommendations was based on available evidence from a systematic review of the literature. Experts interpreted and discussed the results (taking into account aspects such as the preferences of affected people, costs, availability or measures and interventions, and organizational issues). A multidisciplinary national panel of experts was set up to develop the guidelines, consisting of 21 members from key organizations involved in the provision of psychosocial support, including: Mental Health Care Nursing Federation; Netherlands Psychiatric Association; Dutch Association for Psychotherapy; Netherlands Institute of Psychologists; Dutch College of General Practitioners; Dutch Association of Primary Care Psychologists; Military Mental Health Care Institute of the Ministry of Defence; Netherlands Association of Policy, Management and Research Physicians; Netherlands Association of Social Workers; Netherlands

Association of Fire and Disaster Control Services; Netherlands Society of Physicians in Occupational Health; Dutch Association of Behavioural and Cognitive Therapy; Institute for Psycho Trauma; Immediate Relief and Aftercare; Victim Support; Council of Regional Medical Officers; Regional Department of Emergency and Disaster Medicine Preparedness; Police Academy of the Netherlands.

A total of 36 recommendations were made. Te Brake et al. (2009) provided a detailed description of the development process and the recommendations, which are largely consistent with other international guidelines. Taal (2008), for instance, concluded that the Dutch national guidelines and the Australian ACPMH guidelines are based on the same scientific publications and contain similar recommendations.

8.2. Methods

Questionnaire

The data for this study was collected via a questionnaire between October 2007 and November 2008. A standardized questionnaire was developed to assess the degree of agreement among experts and professionals on the guidelines and their application. The 36 recommendations were translated into 31 items. For each item the level of agreement was assessed using a 5-point Likert-scale: ‘completely disagree’, ‘somewhat disagree’, ‘no opinion’, ‘somewhat agree’, and ‘completely agree’. Scores were later recoded into three categories: ‘no’ (score 1 or 2), ‘not sure’ (score 3), or ‘yes’ (score 4 or 5). In addition, for each item the respondent was asked to score on a 5-point Likert-scale whether he or she believes the item is: ‘never brought into practice’, ‘sometimes brought into practice’, ‘don’t know’, ‘often brought into practice’, and ‘always brought into practice’. Again, the scores were later recoded into three categories: ‘no’, ‘not sure’, and ‘yes’.

Not every recommendation was translated into a questionnaire item. The research agenda recommendations were left out of the questionnaire. Other recommendations were translated into multiple items, such as the recommendation to provide a supportive context (Te Brake et al. 2009) (see Table 8.3).

Procedures and study participants

Between October 2007 and November 2008, seven meetings were organized in the Netherlands for professionals from municipal health authorities, victim support, acute hospital care staff, psychosocial crisis managers, and school psychologists to

inform them about the Dutch guidelines. A total of 161 health care professionals, experienced in the provision of psychosocial services in crisis situations and disasters, were invited to complete the questionnaire at the meeting.

In addition, 45 experts from 24 European countries were invited to fill out an English version of the questionnaire. Among these experts were (mental) health care professionals, including both policy makers and caregivers (including volunteers). In order to maximize the diversity in perspectives, experts from as many European countries as possible were approached to participate in the study (1-2 experts per country). The group of participants was expanded using snowball sampling: experts were asked to put forward other relevant experts from their professional network. The recommendations were discussed at a European expert meeting in September 2008. This meeting was held at an international conference, organized in Amsterdam in the context of the EUTOPA project. During the expert meeting, participants from different European countries discussed the relevance and applicability of the Dutch guidelines in different contexts.

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8.3. Results

Response

More than half of the professionals at the seven meetings filled out the questionnaire ($N = 89$; response rates varied between 36% and 100%; general response rate: 55%).

During the international expert meeting, the questionnaire was filled out by 27 European experts from 20 countries (response rate: 62%). Results are summarized in Tables 8.1 through 8.6, structured along the six categories within the Dutch guidelines:

- Aims of early psychosocial interventions;
- Screening;
- Supportive context;
- Preventive interventions;
- Curative interventions;
- Organization of early psychosocial support.

Aims of early psychosocial interventions

Table 8.1 shows that most of the European experts and Dutch health care professionals agree with the aims of early psychosocial interventions in the Dutch guidelines and, to a lesser extent, the degree to which they are put into practice. During the expert discussion it was agreed that early psychosocial intervention

Table 8.1. Agreement and practice: aims of early psychosocial interventions (total N and relative percentages)

Aims of early psychosocial interventions...	Agreement				Practice			
	N	Europe No	Europe ?	Europe yes	N	Netherlands no	Netherlands ?	Netherlands yes
(i) to promote natural recovery and the use of natural resources	27	0	0	100	87	3	0	97
(ii) to identify people who need acute psychological help	27	0	4	96	85	1	0	99
(iii) to refer and, if necessary, to treat people who need acute psychosocial help	27	0	7	93	85	5	1	94
					26	15	4	81
					73	6	8	86
					25	24	8	68
					71	1	16	83
					26	23	15	62
					72	10	8	82

guidelines can stimulate good practice and provide support across Europe. Guidelines should be interpreted not as stringent protocols, but as guidance for shaping early psychosocial interventions in crisis situations. Furthermore, the implementation of guidelines is believed to depend on the developmental stage of psychosocial support in specific countries. Although many European countries undertook national initiatives to strengthen the provision of psychosocial support, the lack of capacity and structure may hinder the implementation of such initiatives (also see chapter 7).

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Screening

In Table 8.2 the results concerning the screening recommendations are shown. Apart from the last two (reversely formulated) items, the level of agreement is again high, with lower scores assigned to the practical application. The debate in the international literature on population-wide screening was reflected in the discussion among experts on these two items. Experts acknowledged the need for further studies into the effectiveness of population-wide screening during the first weeks after a potentially traumatic event. Negative effects and the most appropriate timing must be understood better before a large-scale population-wide screening survey is warranted. In addition, experts recommend further research on risk factor-based screening instruments for the early identification of affected individuals with an increased risk of developing trauma-related mental disorders. Other issues raised had to do with the best strategy to provide services to populations who might not otherwise have access to those services (outreach), especially the most vulnerable groups. The experts emphasise the importance of developing appropriate tools for different cultures and situations. Finally, apart from cultural sensitivity, special attention is required for the cost-effectiveness of screening.

Supportive context

Both the questionnaire (Table 8.3) and the expert discussion reflect a high level of consensus among participants on the importance of providing a supportive context.

Preventive early psychosocial interventions

Table 8.4 lists the results for preventive early psychosocial interventions. Interestingly, more than 77% of the participants are in favour of preventive psychoeducation (which is not recommended in the guidelines), and 40% of the European experts and 60% of the Dutch professionals consider this normal practice. During the expert discussion, it was noted that information needs to be appropriate, adapted to specific event types and individual situations, and should

Table 8.2. Agreement and practice: screening (total N and relative percentages)

	Agreement					Practice										
	Europe		Netherlands			Europe		Netherlands								
	N	No	?	yes	N	no	?	yes	N	no	?	yes				
For people with an acute stress disorder, a follow-up meeting is planned for further observation	26	4	0	96	77	8	7	86	25	32	20	48	66	9	27	64
When children and adolescents are screened for symptoms of an acute stress disorder following an event, information is gathered both from the child and from parents/caregivers	26	0	0	100	80	1	9	90	25	28	8	64	68	10	24	66
People at increased risk of post-traumatic stress disorder (PTSD) are identified using PTSD questionnaires*	26	31	12	58	68	34	27	40	25	72	20	8	60	55	20	25
People at increased risk of PTSD are identified by diagnosis of an acute stress disorder*	26	19	12	69	71	14	18	68	25	52	24	24	63	14	27	59

* Negatively formulated recommendations (not recommended).

Table 8.4. Agreement and practice: preventive early psychosocial interventions (total N and relative percentages)

	Agreement						Practice											
	Europe			Netherlands			Europe			Netherlands								
	N	no	?	yes	N	?	no	?	Yes	N	no	?	yes	N	no	?	yes	
Information provided to affected people includes...																		
(a) nothing (no information is given)*	27	96	4	0	86	83	1	16	26	81	12	8	73	71	12	16		
(b) a reassuring explanation about normal reactions	27	4	4	93	88	1	0	99	26	4	12	85	75	4	8	88		
(c) explaining when to seek help	27	4	4	93	86	5	2	93	26	8	8	85	73	6	16	78		
(d) advising resumption of their everyday routine	27	4	4	93	84	4	2	94	26	27	19	54	70	9	19	73		
(e) preventive psychoeducation*	26	15	8	77	78	6	9	85	25	24	32	44	68	15	24	62		
Relief workers engage in psychological triage (identification of affected people with mental disorders or serious clinical symptoms that need diagnosis or treatment)	24	8	4	88	83	2	4	94	23	35	9	57	73	10	15	75		
In psychological triage, a distinction is made between (a) people without mental disorders or serious clinical symptoms, (b) people where there is doubt as to whether they have a psychological disorder or serious clinical symptoms and (c) people with mental disorders or serious clinical symptoms	27	7	7	85	78	1	9	90	26	27	19	54	63	10	33	57		
Peer support is provided	27	4	4	93	85	5	4	92	26	39	12	50	73	8	10	82		
Psychological 'debriefing' takes place to prevent PTSD and other serious disorders in affected people*	27	56	15	30	83	84	8	7	26	58	19	23	69	75	17	7		
Psychological 'debriefing' takes place to prevent PTSD and other serious disorders in relief workers*	27	37	4	59	82	63	17	20	26	62	4	35	70	59	29	13		
Psychological debriefing is also given to children*	25	48	20	32	77	78	16	7	24	67	21	13	69	62	28	10		

* Negatively formulated recommendations (not recommended).

be appropriately timed (immediate, six weeks after, long term). The experts were aware of good practices in almost every European country and encouraged further sharing of good practices. The European experts and Dutch professionals think differently about the provision of psychological debriefing, whether for affected adults, children or relief workers. Most of the European experts disagree with the recommendation to provide psychological debriefing as a preventive intervention (which is not recommended in the Dutch guidelines either), but they are not as unanimous as the Dutch professionals.

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Curative early psychosocial interventions

Table 8.5 summarizes the results on curative early psychosocial interventions. During the expert discussion it was found that the recommendations may require some adaptation to local European contexts. The timely availability of certain curative psychosocial interventions is not guaranteed across Europe. Cognitive behavioural therapy, for example, is in some countries either unavailable or it is not the preferred intervention. What matters is that the intervention is supported by existing national evidence-based guidelines and protocols for specific disorders. Secondly, the set of guidelines discussed at the expert meeting does not address the issue of how to respond to more complex psychological problems that, ideally, should be addressed using national evidence-based guidelines and protocols as well. Thirdly, experts consider it desirable to develop guidelines to support employers in promoting mental health and wellbeing in the workplace (e.g. for uniformed services such as rescue workers, military, police, fire department, and ambulance officers and paramedics). Finally, the recommendations on children are currently not supported by strong scientific evidence – future research is necessary.

Organization of early psychosocial support

Table 8.6 presents the responses on the organization of early psychosocial support. The broad consensus on the relevance of these topics was reflected in the expert discussion. The attention given to psychosocial support topics by governments, politicians and policy makers will vary between and within countries. This underscores – from a standardization perspective – the importance of developing an integrated approach across health structures and policies. The psychosocial support organization requires cooperation between social and clinical disaster response partners in communities that need to be educated and trained.

Table 8.5. Agreement and practice: curative early psychosocial interventions (total N and relative percentages)

	Agreement					Practice										
	Europe		Netherlands			Europe		Netherlands								
	N	No	?	yes	N	no	?	yes	N	no	?	yes				
People with serious symptoms that interfere with their everyday functioning are also offered appropriate symptom and trauma-focused therapy (cognitive behavioural therapy) at an early stage	27	4	15	81	48	6	13	81	25	60	24	16	37	11	30	60
In the case of sleep disorders as a result of trauma, pharmacotherapy may be considered	27	19	7	74	40	8	18	75	26	27	15	58	37	8	27	65
The employer should offer support and guidance (to be carried out by a relief worker or trained volunteer) when an event takes place at work	27	0	0	100	85	7	1	92	26	62	8	31	69	17	17	65
Ethnic minorities should not be treated differently from other affected people, and as culturally sensitively as necessary (the latter consists of providing information in their mother tongue and involving key figures from ethnic minority groups)	25	0	4	96	80	6	5	89	24	58	4	38	65	20	34	46
Relaxation is offered as a separate intervention (not trauma-focused)*	27	30	22	48	38	29	32	40	26	73	15	12	35	24	38	38

* Negatively formulated recommendations (not recommended).

Table 8.6. Agreement and practice: organization of early psychosocial support (total N and relative percentages)

	Agreement					Practice											
	N	Europe no	Europe ?	yes N	Netherlands no ? Yes	N	Europe No	Europe ?	yes N	Netherlands no ? yes							
Early psychosocial interventions must be provided by (specially) trained persons	27	4	4	93	80	8	0	0	93	26	27	12	62	68	10	12	78
Community-level interventions form an essential part of the whole package of post-disaster psychosocial support	27	0	0	100	78	5	9	86	26	26	39	23	39	62	8	29	63
In the first six weeks after a disaster a good system of relief is established	26	12	12	77	79	3	5	92	25	25	36	24	40	63	5	30	65

8.4. Discussion

This study explored whether experts within Europe agree on a set of early psychosocial support guidelines, and to what degree these standards are considered to be applied in practice. A high level of agreement on the recommendations was found among both European experts and Dutch health care professionals. Although the questionnaire revealed agreement, the results also highlighted a gap between psychosocial service norms and practices in European countries. The implications of these findings are discussed below.

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Explaining the (lack of) consensus

European experts and Dutch professionals predominantly agree on the aims of early psychosocial support, on some of the screening interventions, on the provision of a supportive context, on the provision of information to people affected by disaster, on trauma-focused cognitive behavioural therapy as a treatment for acute stress disorders and PTSD, on the provision of professional counselling by employers in the case of work-related shocking events, on supporting ethnic minorities, and on the organization of early psychosocial support. The consensus also applies to the relevance of community-level interventions. Chapter 12 describes risk and protective factors involved in the development of trauma-related mental health problems and the coordinated community effort it takes to influence these factors. Particular community interventions such as psychosocial support programmes are elaborated upon in chapters 9 and 10. These three chapters, together with the psychosocial crisis management concept detailed in chapter 11, cover a longer time frame than the six-week period of early psychosocial intervention. What chapters 9 to 12 also have in common, is that they contribute to the knowledge base on the organization of psychosocial services, and provide several arguments why such an organization should never be disconnected from the communities where affected people live.

Agreement was lower on the use of PTSD screening questionnaires and on the provision of psychological debriefing for affected individuals. Most of the European experts are not in favour of debriefing as a preventive intervention. Psychological debriefing can be described as a standardized crisis intervention. Its purpose is to prevent and reduce the adverse psychological effects of exposure. Although debriefing can be offered in different forms, it is generally seen as a single-session, semi-structured intervention. Research indicates that psychological debriefing is not effective in preventing PTSD or other mental health problems. Single-session debriefing can even have damaging effects (e.g. Van Emmerik et al. 2002; Lewis

2003; Aulagnier et al. 2004; Sijbrandij et al. 2007). The literature does not support the use of psychological debriefing for children either (Stallard et al. 2006). This is why psychological debriefing is not recommended in the Dutch guidelines nor in the other guidelines mentioned in the introduction to this chapter. Interpretive differences in what psychological debriefing actually entails might partly explain the differences between (and among) experts and professionals. Other explanations might be linked to possible conflicts of interests, resulting from practitioners having a vested interest in professional counselling and related services.

The consensus among participants is ambiguous on a number of recommendations. A substantial number of the experts and professionals believes in the potential of PTSD questionnaires and an acute stress disorder diagnosis to identify affected people with an increased risk of developing PTSD (not recommended in the Dutch guidelines). Similarly, psychoeducation, consisting of structured information and training to those affected, is not recommended as a preventive intervention because of its weak scientific foundation (see e.g. Ehlers & Clark 2003; Ehlers et al. 2003; National Institute for Clinical Excellence 2005; Turpin et al. 2005; Sijbrandij et al. 2007; Wessely et al. 2008). Nevertheless, preventive psychoeducation was supported by a significant number of participants in the study; a finding that, like psychological debriefing, might be explained by differences in the interpretation of what psychoeducation is, and possibly overlaps with a broadly agreed upon recommendation to provide affected people with relevant information.

Closing the gap

In order to close the gap between psychosocial norms and practices, it is necessary to understand the causes. Flottorp and colleagues categorized potential “determinants of practice” into seven domains: guideline factors; individual health professional factors; patient factors; professional interactions; incentives and resources; capacity for organizational change; and social, political and legal factors (Flottorp et al. 2013; for other comprehensive overviews of relevant conditions see Greenhalgh et al. 2004 or Michie et al. 2011). The domains form a useful model to analyse the degree of implementation of the psychosocial support principles, measures and interventions, and even larger community programmes, as described in Part II of this book. It is very likely that determinants in each domain differ between local contexts where psychosocial services are provided to affected people.

It is beyond the scope of this chapter to elaborate on the domains in detail, but relevant guideline factors, like the involvement of key stakeholders in the social and technical process, were accounted for in the development of the Dutch

guidelines (Box 8.1). Determinants linked to patients or clients (or rather the affected individuals), professionals and professional interactions are at the core of the primary psychosocial service delivery process. The domains incentives and resources, capacity for organizational change, and social, political and legal factors are part of the broader context where changes in everyday practice are made. In chapter 7 (and Witteveen et al. 2012), this broader context was, at least indirectly, included in the measurement of post-disaster psychosocial support planning and delivery systems in Europe. The findings from this measurement corroborate the variation in the developmental stage of psychosocial support in different European countries highlighted by the European experts in this chapter. Furthermore, the experts linked this developmental stage to the available capacity and opportunities to put norms into practice (which is further explored in the subsequent chapters).

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As said before, understanding determinants of practice is important, but the challenge is to influence them effectively. It seems logical that some of the required determinants can be influenced, for instance by improving guideline development processes or the education and training of professionals based on lessons from research. Other determinants can, arguably, be seen better as exogenous variables here, difficult to influence and strongly interrelated at the national level (Birkmann et al. 2011; see chapters 2 and 7).

The professional, who plays a key role in the delivery of psychosocial services to affected people, is another factor to consider. Professionals are characterized by a relatively large degree of discretionary power and autonomy (Lipsky 1980). They undergo intensive periods of education and specialized training and get “programmed” for the job. Guidelines are not meant to supplant their professional judgment. This might explain why the European experts preferred the term guidance over guidelines. In their interaction with affected individuals, professionals will make an assessment of people’s needs, problems and risks. What needs to be done next is based on their professional judgement and can be different from what is prescribed in guidelines. This is not a problem as long as the professional can explain why certain decisions were made, moves within the bandwidth of accepted standards in the field and does not behave in a careless or reckless fashion. It is important to emphasize that the involvement of experienced professionals in the process of guideline development increases the connection to social and clinical practice, and increases the chance that recommendations formulated match existing conditions.

Limitations

140 The most important limitations of this study are linked to the convenience samples used. Neither the Dutch professionals nor the European experts were selected randomly. The most obvious criticism about convenience sampling is sampling bias and that the sample is not representative of the entire population. When using convenience sampling, the recommendation is to describe how study participants would differ from an ideal sample that was randomly selected. For the Dutch professionals one could argue that the sample would probably not be very different because similar participants from the professions and organizations described earlier would have been selected and invited. In the end, all professionals involved in the delivery of psychosocial support in the Netherlands are expected to adhere to the multidisciplinary guidelines. The selection of European experts is more complex. A database with hundreds of experts in each European country is not available. Efforts were made to involve experts from as many European countries as possible. Existing networks developed under the umbrella of, among others, the EUTOPIA and TENTS projects were used as an expert pool. Individual participants were asked to put forward other potentially relevant participants. However, based on differences between European countries and their professional capacity to provide psychosocial support, and in cultural and socio-economic country characteristics (part I), it seems quite difficult – not to say impossible – to define a representative population.

The study should be replicated within and across European countries, preferably periodically, with adequate professional and expert samples. By doing so, cross-national patterns and differences, as well as developments through time, can be investigated more thoroughly while minimizing the potential effects of “groupthink” and other processes that can occur in group discussions. It is recommendable to structure the questionnaires and discussions based on the latest guidelines, and to include the findings from the latest scientific evidence and practical knowledge. In order to advance implementation strategies, it would also be helpful to collect information on the determinants of practice.

Conclusion

The results of this exploratory study reflect the opinions of individual European experts and professionals, and more research is necessary to confirm the findings. Still, despite a high level of consensus on standards for early psychosocial support, a chasm was identified between norms and practice across Europe, stressing a general need for investment in guideline development and implementation.

Chapter 9

Conceptualizing the quality of psychosocial support programmes

This chapter is based on: Dückers, M.L.A., & Thormar, S.B. (2015). Post-disaster psychosocial support and quality improvement: A conceptual framework for understanding and improving the quality of psychosocial support programs. *Nursing & Health Sciences*, 17, 159-165.

Abstract

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This chapter addresses post-disaster psychosocial support programmes from a quality improvement perspective, not from the traditional mental health services viewpoint. Based on a combination of renowned quality models, a framework is sketched that offers chances to understand and optimize the quality of post-disaster psychosocial service delivery better. The quality is reflected in the programme's structure, process and outcome. Moreover, quality can be expressed in scores per criterion (i.e. need-centeredness, effectiveness, safety, timeliness, efficiency, and equity) which are proposed to be related to the "attitude" (more passive or active) towards affected people. When quality and attitude are combined in a two-dimensional parabolic model, psychosocial support is preferably found in the middle of the attitude-axis (high quality) whereas extremely passive or active positions are to be avoided (low quality). Well-timed assessments of structure, process and outcome aspects, and associations between them, will help planners, providers and evaluators understand if the optimum is reached, as well as provide guidance for quality improvement.

9.1. Introduction

What we can learn from the annual World Risk and World Disasters Reports is that communities all over the world are being confronted with large-scale disasters and major incidents (Welle & Birkman 2015; 2016; International Federation of Red Cross and Red Crescent Societies 2012; 2013; 2014). Some areas of the world are more exposed and vulnerable than others (see chapter 2). Disasters like the Japan earthquake in 2011 and the cyclone in the Philippines in 2013 have a severe impact on communities and individuals. Regardless of the local response and recovery capacity, the delivery of high-quality psychosocial services is indispensable. Despite the importance of professional aid after large-scale disasters, volunteers are often the first and main source of support to affected communities. While attention should be given to the safety, well-being and health of individuals, authorities and services have to follow a strategy that makes it possible to meet the needs of as many affected people within a community as possible (Williams et al. 2009).

A planned community intervention – in this chapter we call this a psychosocial programme – can comprise (1) basic aid (shelter, safety, food, drinking water, first aid and medication); (2) information (about what has happened, about the fate of loved ones, about normal reactions); (3) social and emotional support (comfort, a listening ear, recognition of grief, compassion); (4) practical help (legal and financial issues, household); and (5) mental health (adequate detection and management of complaints and problems). All these elements are included in leading psychosocial support guidelines for disaster settings (e.g. Bisson et al. 2010; Inter-Agency Standing Committee 2007; Te Brake et al. 2009; Suzuki et al. 2012; World Health Organization, War Trauma Foundation & World Vision International 2011; see chapter 8). When combined and carried out deliberately, the five elements form a programme; a community intervention that can differ in length (weeks, months, years), scope (variation in themes) and organization (number of partner organizations at different levels).

Objective

Many aspects of psychosocial programmes are interesting for academics. In this chapter we address a set of features that we summarize as the “quality” of the programme. The vast majority of publications on post-disaster psychosocial support originate from clinical psychology, psychiatry, or other branches of mental health research. What distinguishes the current contribution is that it is written explicitly from a quality improvement perspective. Quality improvement (in health care) has been defined as “the combined and unceasing efforts of everyone – professionals,

patients and their families, researchers, payers, planners and educators – to make the changes that will lead to better health outcomes, better system performance, and better professional development (learning)” (Batalden & Davidoff 2007: p 2). Given the nature of psychosocial support, we consider it suitable to slightly modify this definition, by adding “and trained volunteers” after “professionals” (volunteers play a crucial role in the support of affected people), adding “and well-being” after “health outcomes” (the scope is broader than health), and replacing “patients and their families” by “affected ones and the people close to them” (less stigmatic and less restrictive as loved ones can also include friends and colleagues).

Our objective is to present a conceptual framework that can serve as a basis for the further research we deem indispensable to understanding and optimizing the quality of psychosocial support in post-disaster settings. Two relevant issues are explored, based on a combination of internationally renowned theoretical models: (1) What is high-quality psychosocial support? (2) How can the quality of psychosocial support be enhanced? After summarizing the framework, we discuss some challenges for its application.

9.2. What is high-quality psychosocial support?

To answer this question we examine common quality concepts. Different quality models can be found in the international literature. We chose to select two categorization schemes that are popular among scholars and quality managers throughout the world.

Structure, process and outcome

Several quality aspects must be taken into account if we want to understand the quality of psychosocial support programmes. The first categorization scheme, the “Donabedian model,” is one of the most influential conceptual models in the health care quality literature. This model provides a framework for examining health services and evaluating quality. According to the model, information about quality can be drawn from three categories: structure, process and outcome (Donabedian 1980). “Structure” describes the relatively stable context in which services are delivered, including people, financial resources, tools and equipment. “Process” denotes transactions between clients and providers throughout the service delivery system, activities and technical and interpersonal aspects of the performance. Finally, “outcome” refers to effects on the well-being and health of individuals and populations. One thing to keep in mind is that the three categories should not be mistaken for attributes of quality. Instead, they are the classifications for the types

of information that can be obtained in order to infer whether the quality of care is poor, fair, or good. Furthermore, in order to make inferences about quality, there needs to be an established relationship between the three categories; this relationship is a probability rather than a certainty (Donabedian 1980).

The division in structure, process and outcome, and its postulated relationship, is suitable to examine the quality of psychosocial programmes. Psychosocial support guidelines, as mentioned in the first section, focus primarily on structure and process aspects. The structure is reflected, for instance, in the availability of competent service providers (professionals, trained volunteers). In addition, the programme should contain a multi-agency planning group, a coordinator, sufficient funding, and should be based on evidence-informed guidelines (integrated in disaster plans that are regularly updated, tested and facilitated). Within this structure recommended actions can take place, embedded in a process that ideally is responsive to the needs and problems of affected people. Here we can think of needs assessments, the sharing of information leaflets, site visits, setup of a memorial, and – for people with symptoms of post-traumatic stress disorder – the provision of trauma-focused cognitive behavioural therapy or eye movement desensitization and reprocessing (Schnyder et al. 2015; for other examples of structure and process elements see e.g. Te Brake et al. 2009; Bisson et al. 2010; Suzuki et al. 2012; Witteveen et al. 2012). Regarding the outcome of the programme, it is meaningful to collect information on the well-being of people, their satisfaction about received support, the degree to which they feel taken seriously and looked after, and mental health complaints. In a high-quality psychosocial programme the structure and process elements should be in line with evidence-informed guidelines, and can ideally be linked to positive outcomes at the level of affected individuals or populations.

Quality criteria

The second categorization is complementary and allows us to go deeper into the essence of quality. In the past decades, several quality features have been distinguished in the international health sciences literature (Donabedian 1998; Berwick 2002; Eccles et al. 2009). The six performance criteria formulated by the Institute of Medicine are often used as quality standards (Berwick 2002; as it is more appropriate to speak of “affected ones” or “beneficiaries” rather than “patients” or “clients” in a disaster context, again, we chose to slightly alter the terminology):

- Need-centeredness: provide services that are respectful of and responsive to preferences, needs, and values of affected people, ensuring that their values guide all decisions;

- Safety: avoid injuries to people from services that are intended to help them;
- Effectiveness: provide services based on scientific knowledge to all who could benefit from them, and refrain from providing services to those unlikely to benefit, thus avoiding both underuse and overuse, respectively;
- Efficiency: avoid waste, including waste of equipment, ideas, and energy;
- Timeliness: reduce waits and sometimes harmful delays for those who receive and those who provide services;
- Equity: provide services without variation in quality because of personal characteristics such as gender, ethnicity, religion, geographic location, and socio-economic status.

All these criteria are relevant for the specific field of post-disaster psychosocial support. We shall discuss each briefly.

Obviously, need-centeredness is imperative in a context of catastrophe where every event, its potential impact, and every affected individual are unique. Different disaster scenarios may yield a divergence of mental health needs (North 2010; Bonanno et al. 2010). However, the reality of disaster response and the resources mobilized do not often allow for individual attention, rather the support should be directed at groups of people with similar concerns and needs. Need-centred psychosocial support implies that the focus is on providing services that are respectful and responsive to the needs of groups or communities where the context determines what needs to be done, not just the habit of providers.

In addition, effectiveness and safety are two criteria that, for understandable reasons, are given a great deal of attention in the literature. To increase the likelihood of effectiveness, it is crucial to understand what works, why it works, and to ascertain the absence of adverse effects. For exactly this reason, some experts are critical about, for instance, psychoeducation (Wessely et al. 2008), and psychological debriefing (Roberts et al. 2010; Rose et al. 2005).

Timely intervention is essential. After comparing health outcomes of volunteers that assisted after the terrorist attacks on the World Trade Center, Debchoudhury and colleagues (2011) found that lay volunteers' poorer health outcomes were related to more intense exposure to and lack of protection from physical and psychological hazards. Furthermore, the author's emphasized the need to provide timely screening and care (Debchoudhury et al. 2011). After the tsunami in Southeast Asia, Bryant (2006) concluded that inappropriately targeted therapy can compromise recovery and may even exacerbate post-traumatic stress symptoms, particularly if treatment is initiated before grief reactions subside.

In a post-disaster setting, criteria like efficiency and equity both have to do with the allocation of resources that often can be utilized only once, on behalf of one individual, group, location, or purpose. Programme managers and service providers are challenged to minimize waste and to realize an equal distribution of support for people in equal circumstances. Hurricane Katrina showed how difficult this could be. Few Katrina survivors with mental disorders received adequate care. Under-treatment was greatest among respondents who belonged to younger and older age groups, were never married, were members of racial or ethnic minority groups, uninsured, and of moderate means (Wang et al. 2007).

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The quality of psychosocial support interventions, or an entire programme, can be expressed in scores per criterion. Theoretically, the bundled scores can be ranked on a continuum, ranging from low to high. Top-quality implies that every criterion is fully met. At minimum none of the criteria are satisfied. One can imagine that the extremes are seldom seen. People involved will rate care provision positively or negatively based on a variety of observations and impressions. It is difficult to say where the threshold lies exactly, but there will always be a point where the quality level becomes “unacceptable.” A programme then fails to meet people’s needs, and is unsafe, ineffective, inefficient, untimely, and/or unequal.

Attitude towards affected people

Post-disaster psychosocial support is likely to reflect a certain attitude towards people affected and their needs. We can see attitude as a dimension, ranging from extremely passive (waiting, deliberately or even unintentionally doing nothing) to active (outreach, intervention). Then there is “watchful waiting,” an approach in which time is allowed to pass before – following a stepped care approach (Williams et al. 2009; Bisson et al. 2010) – more advanced psychological services are provided, with the purpose to avoid overtreatment. During this time, repeated assessments may be performed to determine if (an alternative) intervention is warranted. Watchful waiting is recommended in situations with a high likelihood of self-resolution or self-recovery, and in situations where the risks of intervention may outweigh the benefits (Meredith et al. 2007).

In our opinion, this fits post-disaster psychosocial support in the recovery phase very well. Nevertheless, in the emergency phase or soon after the event, some service providers, if present at the site, will tend to intervene quickly with mental health services for people with immediate needs. The wish to do something is tempting in the post-disaster reality and one can doubt whether watchful waiting is realistic in the disruption of the event. On the other hand, the imperative to avoid over-activeness and to stimulate self-reliance is always legitimate. Using

watchful waiting as a tool to monitor and follow patterns of complaints implies looking for signals where support and care are appropriate; signals like complaints, questions and observed risks for people's privacy, safety and well-being. Watchful waiting is waiting combined with detection. This is what distinguishes it from extreme passivity, which is, whether deliberate or not, characterized by absence of intervention. Although probably seldom seen after critical events, unless the resources are unavailable in the community, without watchfulness there is always a risk of under-treatment. Extreme pro-activeness on the other hand ignores the capacity for self-resolution or resiliency. This extreme might be as theoretical as its opposite, but some care givers might want to start therapeutic activity before natural normalization has been allowed to take place. The challenge is to stay away from the extremes.

Two-dimensional model

It is interesting to combine the quality dimension (the six criteria) and the attitude dimension. Psychosocial support can vary along both dimensions simultaneously. In the conceptual model (Figure 9.1) attitude is depicted on the x-axis with a range of passive and active positions. Linked to quality on the y-axis, the possible positions no longer follow straight lines. They are distributed along a parabolic shape, illustrating that waiting or intervening is not problematic until the quality-threshold (the horizontal marker) is passed. On each side of the parabola, the quality deteriorates after crossing the threshold – which is undefined – and the path reaches the bottom. The passive lack of quality is caused by neglect, disregard, and lack of insight, capacity or opportunity. Quality on the active side suffers from over-attention and wasted resources.

Both the passive and active attitudes have reasonable starting points to defend. We can explain this by using the popular resilience concept and other ideas about how people respond to and recover from health problems (Bonanno et al. 2010). Both attitudes can acknowledge people's capacity for self-recovery or resilience. Based on the viewpoint that intervening is unnecessary and a waste of resources, the passive group suggests holding back in the approach towards affected people believing, "The vast majority is self-reliant and recovers at its own strength." Activists, in their turn, do not accept the chance that people are overlooked, which is a legitimate position as well, believing, "Not everyone is self-reliant or capable of self-recovery." The activist attitude is more common in major disasters where humanitarian agencies often quickly set up a psychosocial programme with the aim to strengthen social support and re-establish family links or a sense of normality.

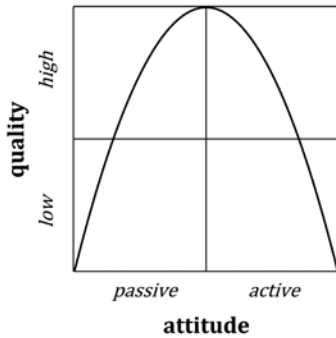


Figure 9.1. Two-dimensional conceptual model

Legend. Shown here is how the attitude of caregivers towards people affected by disaster relates to quality. Possible positions of psychosocial service delivery are limited to the parabolic pathway. The route from the curve’s top (high quality, middle-attitude) to both bases (low quality, extremely passive or active attitude) is accompanied by quality loss. Theoretically, differences in attitude are unproblematic until the quality threshold is crossed.

In addition to defensible arguments for both attitudes, the risks are not to be ignored. Coupled with low quality psychosocial services, having an overly passive or active attitude towards affected people is linked to an overestimation or underestimation of resilience respectively (see Table 9.1). A notable risk of an active attitude is that people are maneuvered into a dependent victim or patient role, with the main thought being: “I am entitled to assistance and compensation” or “I am sick and need treatment.” Such thinking may result in stigma, with negative social and public health consequences (Link & Phelan 2006). This type of thinking may also take away a person’s opportunity to experience survival and growth. Likewise, one notable risk of a passive attitude is that affected people feel socially ignored or even abandoned.

Table 9.1. Quality risks

Acting too passively	Acting too actively
<p>Overestimated resilience and self-reliance. Problems and complaints are missed or neglected. Examples:</p> <ul style="list-style-type: none"> • Unsafe: risk of damage • Ineffective: not reaching people in need • Inefficient: reparation costs • Not need-centred: not connecting to needs, ignoring interests • Not timely: appropriate care initiated too late or not at all • Inequity: disadvantaging people who cannot recover themselves 	<p>Underestimated resilience and self-reliance. Problems and complaints are created or increased. Examples:</p> <ul style="list-style-type: none"> • Unsafe: intervention might make things worse • Ineffective: effects sought are unaffected by the intervention or with opposite result • Inefficient: wasted capacity, efforts pointed at people who do not need it • Not need-centred: suboptimal connection, supply-driven • Not timely: too early, redundant or misplaced • Inequity: resources spent are unavailable to others

9.3. How can the quality of psychosocial support be enhanced?

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After this first exploration of what quality means in a post-disaster psychosocial support context, the next step is to consider quality improvement. We defined this as: “the combined and unceasing efforts of everyone – professionals and trained volunteers, affected ones and the people close to them, researchers, payers, planners and educators – to make the changes that will lead to better health outcomes and well-being, better system performance, and better professional development (learning).” These “changes that will lead to” a better structure, process and outcome can take many forms, ranging from reallocation of resources and legislation to training programmes and tool development. Moreover, quality improvement is about continuous and deliberate action to achieve quality goals followed by a check to see if goals are realized. A typical quality improvement strategy seeks to stimulate or maintain improvement based on the on-going application of so-called “plan-do-study-act cycles” (Langley et al. 1996; Berwick 1998; Taylor et al. 2014). Plan-do-study-act cycles are precisely what their name suggests, a stepwise model to disentangle the actual effect of a plan, including a decisive moment regarding the necessity of alternative measures (Figure 9.2).

Consequently, an optimization strategy for a post-disaster psychosocial support programme should start with a plan, based on an objective derived from the assessed needs of people directly or indirectly affected by disaster, yielding appropriate measures supported by the best available evidence and guidelines. In the “do” phase, the plan is implemented. A well-timed check will show if the optimum is reached or if adaptation is necessary. The strength of the quality improvement strategy is that it links evaluation to need-centred planning (as

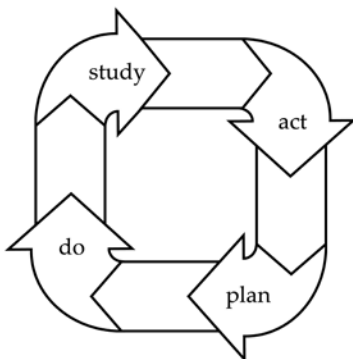


Figure 9.2. Systematic quality improvement: plan-do-study-act cycle

recommended by Reifels et al. 2013). The optimization strategy is a way to promote watchfulness on both sides of the parabola. By following the plan-do-study-act cycle a safety valve is established. On the potential pathway to professional mental health care people confronted with catastrophe can meet many different actors. Family members, friends, colleagues, community or religious leaders, trained volunteers, nurses, social workers, and family doctors can provide different types of support. They can all function as safety valves within the psychosocial programme.

Repeated measurement

Since an abundance of prevalence research is available from past events, crisis managers, service providers and researchers should be able to make an educated guess regarding what to expect when confronted with a natural or man-made disaster. Prevalence studies are helpful to anyone who wants to know how needs and problems change through time and differ between populations. Although (or because) many mental health problems are likely to decrease gradually and naturally (Bonanno et al. 2010), it is important to understand the influence of intervention. Single measurements say little about self-recovery, resiliency or the added value of psychosocial assistance. This requires repeated measurement.

Examples can be found in the literature, for instance in the context of the Gulf Coast oil spill in Alabama and Mississippi. A comparison of individuals reporting depression symptoms and anxiety disorders in 2011 and 2010 showed that mental health services are still needed, particularly in households experiencing decreased income since the oil spill (Buttke et al. 2012). Another study showed that mental health complaints in humanitarian volunteers decrease over time but that levels at 18 months are still high enough to warrant additional intervention (Thormar et al. 2012). Raguenaud et al. illustrated how epidemiological surveillance could be linked to an outreach programme in the post-emergency phase of the storm Xynthia in Charente-Maritime (France). A surveillance programme made it possible to describe the occurrence of psychological distress, monitor mental health service use by first-time users, and provide guidance to health authorities (Raguenaud et al. 2012).

9.4. Discussion

In the previous sections we explored quality improvement issues concerning post-disaster psychosocial support programmes. Our objective was to sketch a conceptual framework for the further study of the quality of such programmes, based on models described in the literature.

The variety in available models forced us to make a selection. One can always argue whether other models are more suitable or comprehensive, nevertheless, we chose to adopt a couple of theoretical concepts that, in the last few decades, have become popular among scholars and institutions internationally. The resulting framework is a combination of the Donabedian model, the quality criteria, and the plan-do-study-act-cycle, and leads to several conclusions. First, understanding the quality of a psychosocial programme implies knowing the elements that constitute the programme's structure, process and outcome, including the scores per quality criterion, plus the associations between the elements. Only then can we work deliberately to improve the quality where desirable or necessary. Second, within the framework, high quality is associated with responsible behaviour, avoiding waste and harm, and not overestimating or underestimating resilience (proposed here as a parabolic model). Third, the quality threshold is to be guarded. Programme managers and service providers who check/monitor whether their plans and expectations regarding diverse individuals or communities come true, provide a safety valve in the programme. When we know the needs and problems of affected people, and are confronted with the effect of (non)intervention, we can verify whether service delivery is situated in the optimal area of the parabolic model. Finally, application of the framework discussed in this chapter integrates research and evaluation into disaster response planning.

Based on these conclusions, we recommend that programme managers, service providers and researchers use this framework in practice to guide and evaluate the planning and implementation of post-disaster psychosocial support programmes. It can be applied to various events and circumstances, and at various moments in time i.e. during the preparation, the response in the acute phase, and the service delivery in the short, mid and long-term recovery phase.

Challenges

In addition to chances, there are challenges. First of all, it is important to examine the programme in relation to its context, not as an isolated set of elements. The type of disaster and the nature of the threat are relevant. A natural disaster like flooding or an earthquake, for instance, is likely to demand a different programme than a terrorist attack or chemical, biological, radiological or nuclear events (Gouweloos et al. 2014). Moreover, there is reason to assume that well-resourced countries are in a better position to serve communities and individual citizens because of a better equipped system in terms of, for instance, education, access to general practitioners and hospitals, higher levels of public and private health expenditure, lower proportion living in poverty, higher levels of income equality and less resource loss

due to protective measures; these are only a few of the country indicators of the World Vulnerability Index (Alliance Development Works 2011; 2012; see chapter 2). Chapter 7 confirmed that the vulnerability level at least partly explains what helps or hinders the design and implementation of psychosocial support programmes. The probable correlation between programme quality and country features, makes it important to unravel the dynamics between a programme and its context which, besides vulnerability, is derived from other cultural, social, demographic and natural factors.

Second, although numerous instruments are available to measure psychological and social capacities, needs and problems of people, convenient and reliable instruments to comprehensively assess the quality of psychosocial support programmes are rare. Some examples can be found (see for example the outcome oriented survey tools described by Ommen et al. 2010 or by Holsappel et al. 2013). Still, their availability is to be improved by the development, extensive testing, and international exchange and translation of such tools that, preferably, also cover the structure and process of a programme. Crisis and health authorities, service providers and researchers are likely to benefit from this. It will strengthen the evaluation potential and the opportunities to generate feedback that has a positive effect on quality improvement (Ivers et al. 2012; Dückers et al. 2011).

At the same time we must be realistic. Our bandwidth to draw legitimate conclusions on what works and does not work is fairly limited (Bisson et al. 2010; North & Pfefferbaum 2013; Gouweloos et al. 2014). Systematic programme evaluations can enrich the international knowledgebase. However, assessing what works and why it works will remain challenging in disaster settings that often are highly uncontrollable, unpredictable and fluid.

Chapter 10

Evaluating the quality of psychosocial support programmes

This chapter is based on: Dückers, M.L.A., Thormar, S.B., Juen, B., Ajdukovic, D., Newlove, L., & Olf, M. (2018). Measuring and modelling the quality of 40 post-disaster psychosocial support programmes. *PLOS ONE*, 13, e0193285.

Abstract

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Disasters can have an enormous impact on the health and well-being of those affected. Internationally, governments and service providers are often challenged to address complex psychosocial problems. Ideally, the potentially broad range of support activities include a coherent, high-quality post-disaster psychosocial support programme. We present a theory-driven quantitative analysis of the quality of 40 programmes, mostly implemented in European disaster settings. The objective is to measure quality domains recognized as relevant in the literature and to empirically test associations. During the EU project “Operationalizing Psychosocial Support in Crisis” (OPSIC) an evaluation survey was designed and developed for this purpose and completed by 40 programme coordinators involved in different mass emergencies and disasters. We analysed the survey data in two steps. Firstly, we used the data to operationalize quality domains of a programme, tested constructs and assessed their internal consistency reliability. A total of 26 out of 44 survey items clustered into three of the four domains identified within the theoretical framework: “planning and delivery system” (Cronbach’s alpha 0.82); “general evaluation criteria” (Cronbach’s alpha 0.82); and “essential psychosocial principles” (Cronbach’s alpha 0.75). “Measures and interventions applied”, theoretically a potential fourth domain, could not be confirmed to empirically cluster together. Secondly, several models with associations between domains and measures and interventions were tested and compared. The model with the best fit suggests that in programmes with a higher planning and delivery systems score, a larger number of measures and interventions from evidence-informed guidelines are applied. In such programmes, coordinators are more positive about general evaluation criteria and the realization of essential psychosocial principles. Moreover, the analyses showed that some measures and interventions are more likely to be applied in programmes with more evolved planning and delivery systems, yet for most measures and interventions the likelihood of being applied is not linked to planning and delivery system status, nor to coordinator perceptions concerning psychosocial principles and evaluation criteria. Further research is necessary to validate and expand the findings and to learn more about success factors and obstacles for programme implementation.

10.1. Introduction

Communities worldwide can be confronted with disasters and crises that might have an enormous impact on the health and well-being of those affected. The health effects of disasters have received a considerable amount of attention in the scientific literature (Bonanno et al. 2010; Bonde et al. 2016; Galea et al. 2005; Noji 2000; Norris et al. 2002a; Saulnier et al. 2017; Thormar et al. 2010; Yzermans et al. 2009), which is helpful for public authorities and other service providers involved in the planning and delivery of psychosocial support to affected populations. Internationally, disaster situations challenge governments and service providers to incorporate a potentially broad range of activities into a coherent programme: “a community intervention that can differ in length (weeks, months, years), scope (variation in themes) and organization (number of partner organizations at different levels)” (chapter 9). A psychosocial support programme seeks to prevent, detect, mitigate, and ameliorate the often complex psychosocial problems of exposed populations. Despite the available knowledge regarding disaster-related health problems, trajectories, and risk and protective factors, strong evidence on effective psychosocial support approaches is rare (Bisson et al. 2010; Hobfoll et al. 2007; Dieltjens et al. 2014). Although the structure, process and outcome of programmes is increasingly monitored and evaluated by the organizations responsible, these evaluations often lack information that would allow comparing quality of delivery of different programmes, which could in turn inform further knowledge and quality of practice. In this chapter we present a theory-driven quantitative analysis of quality of 40 programmes, mostly implemented in Europe. The objective is to measure several quality domains recognized as relevant in the literature and to empirically test associations between them, guided by the multidimensional theoretical framework presented in the following section.

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Post-disaster psychosocial support programmes: quality domains

The quality of a programme is a multifaceted concept; bearing this in mind, Dückers and Thormar presented a framework to conceptualize the quality of programmes based on the so-called “Donabedian model” and a categorization of “quality criteria” (chapter 9). According to Donabedian, information about quality can be drawn from three categories: structure; process; and outcome (Donabedian 1980). “Structure” describes the relatively stable context in which services are delivered, including people, financial resources, tools, and equipment. “Process” denotes transactions between clients and providers throughout the service delivery system, activities, and technical and interpersonal aspects of performance.

“Outcome” refers to effects on the well-being and health of individuals and populations. The three categories are not attributes of quality; they are rather classifications for the types of information that can be obtained in order to infer whether the quality of care is poor, fair, or good. Furthermore, in order to make inferences about quality, there needs to be an established relationship between the three categories (Donabedian 1980). The categorization of quality criteria comprises service-delivery quality criteria such as need-centeredness, safety, effectiveness, efficiency, timeliness, appropriateness, and equity (Berwick 2002; Donabedian 1988; Eccles et al. 2009; chapter 9).

In this study we use this framework as a hypothetical way of thinking about quality domains to evaluate psychosocial support programmes; we empirically test associations between the domains that are described hereafter, hypothesizing that the quality domains are positively associated with one another:

- Planning and delivery system;
- Measures and interventions applied;
- Psychosocial principles;
- General evaluation criteria.

Planning and delivery system

The first domain is linked to the structure of a programme which is reflected, for instance, in the availability of competent service providers (professionals, trained volunteers), trauma experts, government officials, and representatives from the local affected community. According to international guidelines, a multi-agency planning group should exist before a disaster strikes. Moreover, the programme requires good coordination/management, sufficient funding, and should be based on evidence-informed guidelines (integrated in disaster plans that are regularly updated, tested, and facilitated). Components like these are the building blocks of what is called a “planning and delivery system”, the coordinating centre of the programme (chapter 7; Witteveen et al. 2012).

Measures and interventions applied

Programme actions are embedded in a process that ideally is responsive to the needs and problems of affected people. Here, we conceive measures and interventions plotted along the lines of a stepped model of care, including basic psychological first aid and community activation as well as more focused support and professional mental health services appropriate to the needs of the affected. Needs assessments, dissemination of information leaflets, site visits, initiatives to strengthen social support and participation, and commemoration ceremonies are

some of the recommended interventions. Furthermore, for people with health complaints or symptoms (e.g. post-traumatic stress disorder), the provision of evidence-based psychotherapy approaches such as trauma-focused cognitive behavioural therapy or eye movement desensitization and reprocessing (Kazlauskas et al. 2016; Schnyder et al. 2015; Schnyder et al. 2016) is highly recommended (for other examples of measures and interventions, see Te Brake et al. 2009 (or chapter 8); Bisson et al. 2010; Suzuki et al. 2012).

Psychosocial principles

When it comes to outcome, one can think of changes in the well-being, functioning and health of target groups in the short and longer term. It is challenging to ascribe these health-related aspects to specific events and circumstances, particular measures and interventions, or to something less tangible like a planning and delivery system. In the case of psychosocial support programmes, besides anticipated positive outcomes of ideal intervention – of which the realization is difficult to test (e.g. reduction of stress-related health problems such as post-traumatic stress disorder or depression and improvement in well-being) – there are other objectives that are considered explicitly essential. Hobfoll and colleagues identified five aspects they claim crucial to embed in strategies to promote health and wellbeing after disasters, based on a synthesis of available scientific evidence. Measures and interventions should promote: a sense of safety; calming; self- and community efficacy; social connectedness; and hope (Bisson et al. 2010; Hobfoll et al. 2007). Currently these essential principles have been embedded in different evidence-based guidelines (Bisson et al. 2010). We therefore consider these principles as potentially suitable outcome indicators for a programme.

General evaluation criteria

General quality criteria for health service delivery constitutes a fourth domain. In the past decades, several quality features have been distinguished in the international health sciences literature (Berwick 2002; Donabedian 1988; Eccles et al. 2009):

- Need-centeredness: provide services that are respectful of and responsive to preferences, needs, and values of affected people, ensuring that their values guide all decisions;
- Safety: avoid harm to people from services that are intended to help them;
- Effectiveness: provide services based on scientific knowledge to all who could benefit from them, and refrain from providing services to those unlikely to benefit, thus avoiding both underuse and overuse, respectively;

- Efficiency: avoid waste, including waste of equipment, ideas, and energy;
- Timeliness: reduce waiting and sometimes harmful delays for those who receive and those who provide services;
- Equity: provide services without variation in quality due to personal characteristics, such as sex, ethnicity, religion, geographic location, and socio-economic status (chapter 9).

10.2. Methods

Survey

In order to analyse and compare the quality of post-disaster psychosocial support programmes we conducted a survey in which information was collected on each of the four domains. Validated evaluation tools, covering the content of evidence-based guidelines and elements from all four domains are scarce. In this study we used data collected during the EU project “Operationalizing Psychosocial Support in Crisis” (OPSIC). In the OPSIC project an online survey tool was developed for this purpose based on interviews and a systematic assessment of existing guidelines and handbooks, guided by the domains described in the previous section (Juen et al. 2015). The instrument was filled out by programme coordinators of programmes implemented in reaction to calamities in different countries. The instrument contained an extensive and diverse set of queries, divided over the following sections – for a complete version of the instrument see Juen et al. (2015):

- Participant characteristics: function; organization; and role of organization in disaster management;
- Event characteristics: year; location (country, city/area); nature of the event; short description of event and impact; number of casualties and survivors (including level of injury); and estimation of other losses (property, livelihood, livestock);
- Organizations involved in provision of psychosocial support;
- Psychosocial support target groups/beneficiaries;
- Interventions provided during preparation, response, and recovery phases (e.g. planning and delivery system, funding, training, supervision, dissemination of information, assessments and monitoring, community activities, long-term coordination, support for staff and volunteers);
- Essential psychosocial principles: importance and level of success;
- Evaluation: general evaluation criteria and “good”/“bad” practices.

In line with the grant agreement of the OPSIC project, all decisions, planned activities, methods and instruments, as well as the progress in their application

were discussed with consortium partners including an ethical advisor, both in the planning and execution phases of the project. Moreover, the entire OPSIC project was formally reviewed periodically by an ethical advisory board comprising international experts. With regard to the particular survey study and analysis described here, neither the advisor nor the ethical advisory board deemed a formal review by a medical ethical committee or an institutional body relevant or necessary; it is not a clinical study and thus does not fit criteria for review. No patients or disasters victims were involved. Participation by programme coordinators was voluntary and under the condition that results would only be presented at an aggregated and anonymized level. Examples are presented without country and location characteristics and event details are described in general terms.

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The invitation to participate was disseminated to programme coordinators via the OPSIC consortium and the network of the Reference Centre for Psychosocial Support of the International Federation of Red Cross and Red Crescent Societies. 40 programme coordinators participated in the survey between January 26 and April 22, 2014.

Operationalization

The survey data was used to empirically operationalize the quality domains of psychosocial support programmes. A total of 44 items were preselected from the survey (listed in Table 10.1). The first domain included recommended elements of a planning and delivery system and the preferable involvement of key actors (chapter 7; also see Bisson et al. 2010; Te Brake et al. 2009; Suzuki et al. 2012; Witteveen et al. 2012) (10 survey items). For the second domain, survey items on measures and interventions were selected from international guidelines (Bisson et al. 2010; Juen et al. 2015; Te Brake et al. 2009 (also see chapter 8); Suzuki et al. 2012) (14 survey items). For each item in these first two domains, a 1 was assigned when it was present, a 0 when absent. The five essential psychosocial principles – promoting a sense of safety, calming, self- and community efficacy, social connectedness, and hope (Bisson et al. 2010; Dückers 2013; Hobfoll et al. 2007; Suzuki et al. 2012) – both in terms of perceived importance and self-reported level of success, were included in the third domain (“within the [measures and] interventions for beneficiaries, how important were the essential [principles] (...) and to which degree do you think you succeeded in reaching the aim”; 10 survey items). These items were measured on a scale from 0 to 5 (importance and success level ranging between “not ...” to “very ...”). We labelled the fourth domain general evaluation criteria and included survey items covering service evaluation criteria, such as

programmes' level of need-centeredness, safety, effectiveness, efficiency, timeliness, appropriateness, and equity (chapter 9) (10 survey items), all measured on a scale from 0 to 10 (ranging between “not very ...” to “very ...”).

Analysis

The survey data were analysed in two steps. In step 1 we used the data to operationalize the quality domains of a programme, tested constructs and assessed their internal consistency reliability. This step was needed to reduce the number of variables and to cluster variables into verified constructs to include in step 2, where associations between these constructs were examined in different models.

Step 1. Testing of constructs. As a first step a confirmatory factor analysis was conducted to test whether or not the items load on latent constructs corresponding with the four hypothetical quality domains. We tested whether the 44 items clustered along the four domains. Items were selected matching the respective central theme per domain (as shown in Table 10.1). Additional analyses were guided by the test results, combined with an assessment of internal consistency reliability to verify potential improvements. Internal consistency reliability was assessed using Cronbach's alpha coefficient. A coefficient of 0.70 or higher was considered sufficient.

Step 2. Modelling of associations. As indicated, we empirically tested associations between the quality domains, hypothesizing that the quality domains are positively associated with each other. Given the relatively modest sample size, four or less variables are a desirable starting point for the statistical modelling. Step 1 was needed to determine whether it is possible to reduce the number of variables from 44 items to a substantially smaller number of theory-based domains. A lower indicator-to-sample size ratio is one advantage of working with an average domain score (or “parcel”), as opposed to including all items of a construct (Little et al. 2013).¹

Figure 10.1 gives an overview of three test models showing possible associations between the quality domains. Model A assumes a positive association between planning and delivery system score and measures and interventions applied (*relation a*), and between measures and interventions applied and essential psychosocial principles (*relation b*) and general evaluation criteria scores (*relation*

1 Little and colleagues (2013) described other advantages of working with a parcel when it comes to psychometric properties, model estimation and fit characteristics (e.g. higher reliability; greater communality; higher ratio of common-to-unique factor variance; lower likelihood of distributional variations; more, tighter, and more-equal intervals; fewer parameter estimates; lower likelihood of correlated residuals; reduced sources of sampling error).

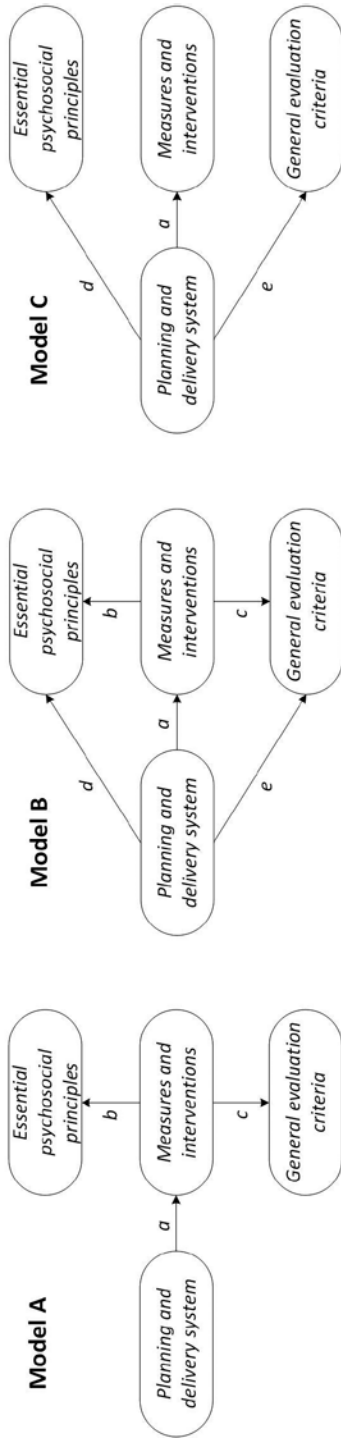


Figure 10.1. Three test models

Note. The three test models display associations between the quality domains of a programme. In model A a more developed planning and delivery system is accompanied by a higher score on measures and interventions applied (relation a), resulting in higher perceived scores assigned to essential psychosocial principles (relation b) and general evaluation criteria (relation c). Model B follows the same line of reasoning but now the planning and delivery system status directly influences perceived essential psychosocial principles (relation d) and general evaluation criteria scores as well (relation e). Model C is restricted to the influence of a change in planning and delivery score on the other domains.

c). Model B also considers the direct effects of a more developed planning and delivery system on the other quality domain scores (*relations d and e*). In the final model we tested the influence of a change in planning and delivery score on the other three domains (*relation a, d and e*).

Modelling. During step 1 and 2 multiple models were tested using structural equation modelling (SEM) and generalized structural equation modelling (GSEM). Where SEM is suitable when variables are continuous, GSEM is applicable when working with binary and continuous variables (StataCorp 2013). The planning and delivery system items and the measures and interventions applied were measured on a binary scale, the essential psychosocial principles and the general evaluation criteria, continuous. GSEM was therefore applied during step 1. SEM was used in step 2 where step 1 justified calculating continuous construct scores. SEM and GSEM allow a comparison of different models based on common information criteria: Akaike's information criterion (AIC) and Bayesian information criterion (BIC). The AIC and BIC are comparative measures of fit and so they are meaningful only when different models are estimated. Lower values indicate a better fit and so the model with the lowest AIC and BIC is the best fitting model (Bentler & Bonett 1980). Unlike GSEM, SEM allows computation of common model fit measures such as chi-square, Confirmatory Fit Index (CFI) and Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA) and P of close fit (PCLOSE). The chi-square measure of fit should not be significant. CFI and TLI can range between 0 and 1. Values below .90 indicate that the model can be improved, values between .90 and .95 are acceptable, and values above .95 are good (Browne & Cudeck 1993). Good models, moreover, have an RMSEA value of equal to or lower than .05, values between .05 and .08 are considered acceptable, values higher than .10 indicate a poor fit (Byrne 2001; Kuha 2004). The RMSEA is preferably close to zero with PCLOSE higher than .05 indicating a "close" fit of the model. Modelling results were interpreted based on these rules of thumb. Estimation method was maximum likelihood. All analyses were performed in Stata version 13 (StataCorp LP).

10.3. Results

Survey participants

The majority of the 40 programme coordinators participating in the survey were linked to the Red Cross and Red Crescent organization (75%). Asked about their function in their organization, the respondents assigned themselves to the following pre-defined categories: management (30%), programme manager (25%), volunteer (25%), desk officer (15%), and other (5%). This function appears unrelated to their

description of the role they fulfilled in the programme. Variations on terms such as “provision”, “planning” “facilitating” of psychosocial support services were used across the function categories. Terms such as “coordination” and “responsible” were primarily used by management staff, “psychosocial support” in combination with “medical”, “first aid” or “ambulance” mostly by volunteers.

About the programmes

Almost half of the programmes (45%) were implemented in the wake of a natural disaster (i.e. flooding, earthquake, volcanic eruption). Approximately one quarter (28%) followed a terrorist act, a shooting, or a large-scale violent conflict. The other programmes were directed at populations confronted with accidents, including several plane crashes, fires, bus, and boat accidents. The number of deadly casualties in the events where the programme was carried out varied between none (12.5%), up to 25 (30%), between 25 and 100 (17.5%), between 100 and 1,000 (25%) and more than 100,000 (7.5%) (three respondents did not provide a number of casualties). Psychosocial services were provided to a general public of adults (95%) and children (82.5%). In most programmes (60%) the local community was the main target group of beneficiaries. A portion of the programmes provided services to refugees, migrants and internally displaced persons (15%).

In Table 10.1 the items per domain are listed, together with distributional information.

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Table 10.1. Programme quality items per domain and distributional information per item

Item	Mean	N	IQR	Min-Max	
<i>Planning and delivery system</i>					
PD_1	Multi-agency planning group	0.49	35	1	0-1
PD_2	Politicians or government officials involved in planning group	0.76	38	0	0-1
PD_3	Local individuals involved in planning	0.77	39	0	0-1
PD_4	Trauma experts involved in planning group	0.78	36	0	0-1
PD_5	Good cooperation with other actors	0.69	35	1	0-1
PD_6	Psychosocial care plan to use in emergencies	0.75	40	.5	0-1
PD_7	Overall emergency plan	0.63	40	1	0-1
PD_8	Build upon existing guidelines	0.54	39	1	0-1
PD_9	Existing psychosocial services fully mapped	0.67	36	1	0-1
PD_10	Psychosocial care plan tested through exercises	0.46	39	1	0-1

Item		Mean	N	IQR	Min-Max
<i>Measures and interventions applied</i>					
MI_1	Mental health complaints assessment	0.36	36	1	0-1
MI_2	Integrated coordination point for long-term	0.47	36	1	0-1
MI_3	Appropriate conditions/facilities for communal, cultural, spiritual and religious healing practices	0.76	34	0	0-1
MI_4	Needs of minority or particular vulnerable groups taken into account	0.70	37	1	0-1
MI_5	Site visits	0.58	31	1	0-1
MI_6	Legal advice	0.56	36	1	0-1
MI_7	Financial assistance	0.67	36	1	0-1
MI_8	Stepped model of care	0.77	31	0	0-1
MI_9	Professional treatment for acute stress or referral	0.78	37	0	0-1
MI_10	Memorial services	0.57	30	1	0-1
MI_11	Information meeting with the affected	0.78	32	0	0-1
MI_12	Telephone helpline	0.55	31	1	0-1
MI_13	Psychoeducational leaflets	0.75	36	0.5	0-1
MI_14	Coordination centre for aftercare	0.43	30	1	0-1
<i>Essential psychosocial principles</i>					
EP_1	Successful in providing safety	4.06	32	1	0-5
EP_2	Successful in promoting connectedness	3.84	32	1	1-5
EP_3	Successful in promoting a sense of calmness	3.74	35	1	1-5
EP_4	Successful in promoting self and community efficacy	3.50	34	1	2-5
EP_5	Successful in igniting hope	3.26	34	1	0-5
EP_6	Importance of providing safety	4.55	38	0	0-5
EP_7	Importance of promoting connectedness	4.68	38	0	3-5
EP_8	Importance of promoting a sense of calmness	4.78	40	0	3-5
EP_9	Importance of promoting self and community efficacy	4.38	39	1	2-5
EP_10	Importance of igniting hope	4.44	39	1	2-5
<i>General evaluation criteria</i>					
GE_1	Responsive to needs and problems	8.34	38	1	6-10
GE_2	Overall preparedness plan helped to respond	7.30	37	2	0-10
GE_3	Effective in addressing needs and problems acute phase	7.49	37	2	0-10
GE_4	Effective in addressing needs and problems recovery phase	7.34	35	3	0-10
GE_5	Efficient (invested resources in relation to people assisted)	8.11	35	3	4-10
GE_6	Efficient in reaching vulnerable groups	7.08	37	2	0-10
GE_7	Appropriateness given circumstances	8.54	37	1	1-10
GE_8	Contribute to safety affected people	7.91	35	2	3-10
GE_9	Contribute to safety services providers/staff	8.38	32	3	4-10
GE_10	Affected people treated equally	9.08	37	1	0-10

Note. N = Number of responses, IQR = Inter-quartile range, Min-Max = Minimum-Maximum.

With respect to the planning and delivery system, fewer than half of the programmes worked with a multi-agency planning group. However, in over two thirds of the programmes the programme coordinators reported good cooperation with other actors, mapping of existing psychosocial services, and involvement of trauma experts, local individuals, and politicians or government officials was achieved. In more than half of the programmes an overall emergency plan was available and the response was built upon existing guidelines. Psychosocial care plans were tested through exercises in fewer than half of the programmes.

According to the programme coordinators, over two thirds of the measures and interventions applied in the context of the programmes involved professional treatment for acute stress or referral, information meetings with the affected, application of a stepped model of care, appropriate conditions or facilities for communal, cultural, spiritual and religious healing practices, distribution of psychoeducational leaflets, consideration of needs of particular vulnerable groups, and financial assistance. In more than half of the programmes site visits, memorial services, legal advice, and a telephone helpline were provided. Fewer than half of the programmes included an integrated coordination point for the long-term coordinated provision of aftercare or mental health complaints assessments.

Generally, observance of the essential psychosocial principles was scored positively by programme coordinators. Overall, they assigned higher scores to the importance of the essential principles compared to the actual level of success achieved in promoting a sense of safety, calmness, connectedness to others, self and community-efficacy, and hope.

In most cases the programme coordinators gave positive scores to the various general evaluation criteria. The highest programme scores were given for equal treatment of affected people and the appropriateness of measures and interventions. The degree to which the overall preparedness plan was helpful during the response, and the efficiency of the programme in reaching vulnerable groups both yielded somewhat lower scores.

Step 1. Testing of constructs

The first analysis, carried out to confirm the presence of the four latent constructs, suggests that the preselected items actually load on three of the constructs. Six of the ten planning and delivery system items load on their latent construct ($p < 0.05$), with three other items slightly exceeding the threshold ($p < 0.10$). The remaining item (PD_6) seems to conflict with another emergency plan item (PD_7). Only three of the items assigned to measures and interventions applied load on this second construct ($p < 0.05$). This is also the case with seven essential psychosocial

principles and eight general evaluation criteria items in relation to their respective constructs ($p < 0.05$).

170 These findings encouraged us to further explore a solution with three latent constructs. Since measures and interventions applied do not cluster together it is not logical to treat them as a construct. There are two items that could be part of the planning and delivery system (which pertain to coordinated cooperation between a variety of stakeholders) as well: integrated coordination point for long-term (MI_2); and coordination centre for aftercare (MI_14). Adding both items to the construct increases the internal consistency reliability of planning and delivery system from 0.79 to 0.82. In the second analysis, nine of the twelve items, including the newly-added coordination items, load on the adjusted construct ($p < 0.05$). No coefficient is produced for emergency plan item PD_6 and the PD_7 coefficient seems overestimated. The two other constructs perform better with less items. The seven essential psychosocial principles items (Cronbach's alpha 0.75) and the eight general evaluation criteria items (Cronbach's alpha 0.82) all load on their constructs ($p < 0.05$). In none of the three constructs does additional removal of items improve internal consistency reliability.

In order to further examine the problem with items PD_6 and PD_7 we conducted a third analysis but now without item PD_7. The eleven remaining items (including item PD_6) all load on the planning and delivery system construct ($p < 0.05$). The correlation between the 12-item construct average and the 11-item construct average is nearly perfect ($r = .993$; $p < 0.001$; $N = 40$). With this correlation and the higher internal consistency reliability in mind we prefer the 12-item over the 11-item construct. The three constructs are summarized in Table 10.2.

Step 2. Modelling of associations

In step 2 we used the average item scores per construct (Table 10.2) to operationalize the domains planning and delivery system (12 items; mean 0.61, min-max 0.00-1.00, IQR 0.33), essential psychosocial principles (7 items; mean 3.94, min-max 2.00-5.00, IQR 0.64) and general evaluation criteria (8 items; mean 7.78, min-max 3.63-10.00, IQR 1.63) and to analyse the relations between these three domains, also in relation the twelve remaining measures and interventions. Since the measures and interventions do not load on one construct it is not suitable to calculate a mean score. Instead, we decided to make a distinction between the number and nature of measures and interventions applied within a programme.

We tested three models (Figure 10.1) using the mean domain scores and the number of applied measures and interventions (12 items; mean 6.65, min-max 1.00-12.00, IQR 3.50). The result of the SEM analysis is shown in Table 10.3. Relation

Table 10.2. Three constructs

	<i>Planning and delivery system (Cronbach's Alpha 0.82; 12 items)</i>
PD_1	Multi-agency planning group
PD_2	Politicians or government officials involved in planning group
PD_3	Local individuals involved in planning
PD_4	Trauma experts involved in planning group
PD_5	Good cooperation with other actors
PD_6	Psychosocial care plan to use in emergencies
PD_7	Overall emergency plan
PD_8	Build upon existing guidelines
PD_9	Existing psychosocial services fully mapped
PD_10	Psychosocial care plan tested through exercises
MI_2	Integrated coordination point for long-term
MI_14	Coordination centre for aftercare
	<i>Essential psychosocial principles (Cronbach's Alpha 0.75; 7 items)</i>
EP_1	Successful in providing safety
EP_2	Successful in promoting connectedness
EP_3	Successful in promoting a sense of calmness
EP_4	Successful in promoting self and community efficacy
EP_5	Successful in igniting hope
EP_9	Importance of promoting self and community efficacy
EP_10	Importance of igniting hope
	<i>General evaluation criteria (Cronbach's Alpha 0.82; 8 items)</i>
GE_1	Responsive to needs and problems
GE_2	Overall preparedness plan helped to respond
GE_3	Effective in addressing needs and problems acute phase
GE_4	Effective in addressing needs and problems recovery phase
GE_5	Efficient (invested resources in relation to people assisted)
GE_6	Efficient in reaching vulnerable groups
GE_7	Appropriateness given circumstances
GE_8	Contribute to safety affected people

a was significant in model A ($p < 0.01$); a higher score on planning and delivery system is accompanied by a larger number of measures and interventions applied. In model B the relations a ($p < 0.01$), d ($p < 0.01$) and e ($p < 0.001$) were significant, confirming the relevance of a more developed planning and delivery system for the number of measures and interventions applied, and for the domain scores of essential psychosocial principles and general evaluation criteria. These effects were sustained in model C after removal of the relations b and c. The goodness of fit statistics improved in each subsequent model tested; model C is the best model. Modification indices did not suggest any paths to be added or removed to further enhance model fit.

Table 10.3. Structural equation modelling: testing three models

	Model A			Model B			Model C		
	Coefficient	SE	p	Coefficient	SE	p	Coefficient	SE	p
MI_sum \leftarrow PD_mean (relation a)	4.713	1.420	.001	4.713	1.420	.001	4.713	1.420	.001
Constant	3.849	.971	.000	3.849	.971	.000	3.849	.971	.000
EP_mean \leftarrow MI_sum (relation b)	.032	.037	.378	-.022	.037	.546	-	-	-
EP_mean \leftarrow PD_mean (relation d)	-	-	-	1.150	.370	.002	1.044	.327	.001
Constant	3.703	.269	.000	3.357	.265	.000	3.271	.224	.000
GE_mean \leftarrow MI_sum (relation c)	.132	.072	.067	-.014	.065	.826	-	-	-
GE_mean \leftarrow PD_mean (relation e)	-	-	-	3.077	.647	.000	3.010	.570	.000
Constant	7.883	.531	.000	6.960	.463	.000	6.904	.390	.000
Chi-square (df, P)*		26.487 (3, .000)			.133 (1, .715)			.545 (3, .909)	
RMSEA (lower-upper) / PCLOSE		.454 (.305-.620) / .00			.000 (.000-.309) / .73			.000 (.000-.108) / .92	
CFI / TLI		.31 / .00			1.00 / 1.00			1.00 / 1.00	
AIC / BIC		400.933 / 415.672			378.579 / 396.593			374.991 / 389.729	

Note. EP_mean = Mean score essential psychosocial principles (7 items); GE_mean = Mean score general evaluation principles (8 items); MI_sum = Number of measures and interventions applied (12 items); PD_mean = Mean score planning and delivery system (12 items). * LR test of model vs. saturate.

To examine the relevance of the nature of distinct measures and interventions in relation to the three domain scores, we tested model A twelve times, each time with a different item from the items that remained after step 1 (Table 10.4). The chance that information meetings with the affected and site visits are organized, that needs of particular minorities or other vulnerable groups are considered, and that appropriate conditions/facilities are provided for communal, cultural, spiritual and religious healing practices is larger in programmes with more developed planning and delivery systems (*relation a*). Programmes with appropriate conditions/facilities for communal, cultural, spiritual and religious healing practices, focusing on needs of minorities and vulnerable groups, and incorporating a stepped care model, score higher on the essential psychosocial principles (*relation b*). Programme coordinators assigned a higher average general evaluation score when the programme includes appropriate conditions/facilities for communal, cultural, spiritual and religious healing practices, a stepped care model and psychoeducational leaflets (*relation c*). Mental health complaints assessments, telephone helplines, memorial services, professional treatment for acute stress or referral, financial assistance and legal advices are not associated with planning and delivery system, general evaluation criteria and essential psychosocial principles scores (*relations a, b and c*).

10.4. Discussion

In this chapter we presented a methodology to operationalize the quality of post-disaster psychosocial support programmes based on a theoretical framework. By combining elements from different quality domains and by modelling the associations between the domains we could learn more about the structure, process and outcome of programmes. Although the study is not devoid of limitations (expounded upon in the section following), our exploratory approach enabled us to measure the multi-faceted quality concept in the context of programmes. In our analysis of items, measured in a sample of 40 programmes, a priori four theoretical domains were operationalized. For three of the domains our data showed to empirically cluster in a coherent way. It appears possible to assess and compare the quality of programmes in different settings and moments in time.

The study corroborates the gap between psychosocial support norms and practices described in chapter 8, particularly in relation to the essential psychosocial principles which belong – together with the general evaluation criteria – to the more subjective quality domains criteria of the four. Despite consensus on the importance of the essential principles in the context of the programme, there is

Table 10.4. Generalized structural equation modelling: separate measures and interventions

#	Relation	Model A: relation a			Model A: relation b			Model A: relation c			AIC / BIC		
		Coef.	SE	p	Relation	Coef.	SE	p	Relation	Coef.		SE	p
1	MI_1 ← PD_mean	-.433	.760	.955	EP_mean ← MI_1	.120	.219	.584	GE_mean ← MI_1	.118	.470	.802	250.749 /
	Constant	-.330	.497	.507	Constant	3.867	.131	.000	Constant	8.702	.275	.000	263.417
2	MI_3 ← PD_mean	5.552	1.884	.003	EP_mean ← MI_3	.497	.235	.034	GE_mean ← MI_3	1.663	.459	.000	193.564 /
	Constant	-1.950	.895	.029	Constant	3.488	.205	.000	Constant	7.542	.400	.000	205.774
3	MI_4 ← PD_mean	2.447	.856	.004	EP_mean ← MI_4	.614	.206	.003	GE_mean ← MI_4	.759	.461	.099	235.082 /
	Constant	-.847	.526	.107	Constant	3.485	.173	.000	Constant	8.280	.384	.000	247.969
4	MI_5 ← PD_mean	2.179	1.040	.036	EP_mean ← MI_5	.076	.187	.685	GE_mean ← MI_5	.695	.471	.140	199.061 /
	Constant	-1.172	.704	.096	Constant	3.956	.143	.000	Constant	8.286	.365	.000	210.533
5	MI_6 ← PD_mean	.719	.741	.332	EP_mean ← MI_6	-.098	.210	.642	GE_mean ← MI_6	.205	.452	.651	251.933 /
	Constant	-.288	.490	.556	Constant	3.984	.157	.000	Constant	8.647	.342	.000	264.601
6	MI_7 ← PD_mean	1.098	.757	.147	EP_mean ← MI_7	.092	.222	.680	GE_mean ← MI_7	.407	.478	.394	246.634 /
	Constant	-.207	.488	.672	Constant	3.869	.181	.000	Constant	8.485	.396	.000	259.302
7	MI_8 ← PD_mean	1.181	.928	.203	EP_mean ← MI_8	.421	.198	.033	GE_mean ← MI_8	1.552	.505	.002	181.840 /
	Constant	.080	.573	.889	Constant	3.612	.174	.000	Constant	7.446	.442	.000	193.312
8	MI_9 ← PD_mean	.760	.797	.340	EP_mean ← MI_9	-.184	.250	.462	GE_mean ← MI_9	.561	.519	.280	244.942 /
	Constant	.332	.520	.524	Constant	4.107	.222	.000	Constant	8.382	.458	.000	257.830
9	MI_10 ← PD_mean	.045	.857	.959	EP_mean ← MI_10	-.267	.173	.123	GE_mean ← MI_10	.334	.494	.499	195.427 /
	Constant	.140	.580	.809	Constant	4.110	.130	.000	Constant	8.504	.367	.000	206.637
10	MI_11 ← PD_mean	2.111	1.003	.035	EP_mean ← MI_11	-.101	.228	.656	GE_mean ← MI_11	.061	.626	.923	203.048 /
	Constant	-.401	.588	.496	Constant	4.041	.202	.000	Constant	8.646	.563	.000	214.774
11	MI_12 ← PD_mean	-.345	.870	.692	EP_mean ← MI_12	-.203	.199	.306	GE_mean ← MI_12	-.013	.477	.979	210.533 /
	Constant	.339	.594	.568	Constant	4.117	.147	.000	Constant	8.691	.349	.000	222.004
12	MI_13 ← PD_mean	1.320	.894	.140	EP_mean ← MI_13	.064	.211	.763	GE_mean ← MI_13	1.038	.499	.037	223.867 /
	Constant	-.157	.602	.794	Constant	3.984	.183	.000	Constant	8.000	.436	.000	236.535

Note. EP_mean = Mean score essential psychosocial principles (7 items); GE_mean = Mean score general evaluation principles (8 items); MI = Measure/ intervention applied; PD_mean = Mean score planning and delivery system (12 items).

room for improvement when it comes to their practical implementation. Witteveen et al. (2012) observed the variation in adherence to evidence-informed guidelines at the level of European regions. The variation in the developmental status of planning and delivery systems at the regional level was examined in greater detail in a study that confirmed the positive relation between system developmental status and a compilation of socio-economic country characteristics (chapter 7). The analysis described in the present study also points at variation, this time however not at the level of individual professionals, countries, or regions but at the level of community programmes. The programmes generally score fairly high on the following: involvement of trauma experts, local individuals, and politicians or government officials in the planning group; professional treatment for acute stress or referral; information meetings with the affected; stepped care; and conditions or facilities for communal, cultural, spiritual and religious healing practices. The scores are lower for programme components such as a multi-agency planning group, coordination of (long-term) aftercare services, and the testing of psychosocial care plans. Apparently, there is room for improvement in collaboration, integration, and learning in the planning and delivery of psychosocial support services.

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As could be expected, in programmes encompassing richer planning and delivery systems, a larger number of measures and interventions from evidence-informed guidelines was applied. Programme coordinators in such programmes provide more positive self-evaluations, i.e. with respect to the general evaluation criteria, and the realization of essential psychosocial principles at the community level post-disaster. Some measures and interventions are more likely to be applied in programmes with more evolved planning and delivery systems, yet for a variety of measures and interventions the chance of being applied is not linked to planning and delivery system status, nor to coordinator perceptions concerning psychosocial principles and evaluation criteria.

The programme inquiry suggests that a programme can serve as a transportation vehicle for the essential psychosocial principles. This is relevant given the criticism Benedek and Fullerton (2007) directed at the essential principles of Hobfoll and colleagues. Hobfoll acknowledged that the possible working mechanisms and means of transportation of the principles received ample attention; an accompanying model with “passageways and obstacles” for the realization of the principles is however missing (Dückers 2013). Ideally, a programme serves as a bridge between the temporary project organization in the wake of an event on the one hand, and longer-term regular health care capacity and other professional services on the other. Programmes can serve as a passageway and as a means for overcoming obstacles.

Practical implications

Strengthening the structure of programmes – planning and delivery systems but also the capacity and skills of professionals and volunteers – is a route to increase the possibility of services to affected communities which encompass fitting measures and interventions. We recommend that support tools, education and training, aimed at standardization, go beyond the content of evidence-based diagnostic or therapeutic knowledge and interventions; specific guidance concerning the multi-organizational, inter-professional challenges awaiting responsible governments, planners, providers, and evaluators from a quality improvement perspective should also be given. Since disaster contexts will differ, and needs and problems of affected people develop over time (more on this in chapter 11), the organization and the composition of the programme should be able to adapt. Instruments to support tailoring on behalf of the realization of psychosocial support imperatives must be welcomed, especially when they combine planning with evaluation (Reifels et al. 2013; also see chapter 9). Occasional evaluations of a programme are helpful to verify expectations, to ensure local needs and problems are actually addressed, and to promote learning during the implementation of the programme. We consider the instrument to assess the overall quality of programmes presented in this chapter a major contribution to the standardization, monitoring, evaluation and overall improvement of programmes, potentially leading to a strengthening of quality assurance and effective resource management. The instrument and the items are formulated in such a way that they can be used in a variety of post-disaster situations, wherever programmes are planned, delivered, or evaluated. Responsible stakeholders and decision makers should welcome instruments like these as they can increase their opportunity to manage programmes based on structured empirical data rather than merely impressions.

Further research

In our view, the development and testing of tools, educational curricula, and training schemes to accommodate the practical solutions mentioned above could benefit from additional research on a number of topics, contributing to a better understanding of programme management. We recommend more qualitative and quantitative studies of the separate domains and their components, as well as interactions between them. Further, it is meaningful to learn more about the interrelation between contextual characteristics of the disaster setting and the programme. Which environmental features help or hinder implementation of a programme and particular components? Socio-economic country characteristics

matter (chapter 7), but little is known about the question of how this works. And inversely: what is needed to tailor a programme to different country settings, with different health care systems and institutional characteristics, particularly when a crisis or public health risk extends beyond country borders. Evaluation of an integrated programme, locally implemented, covering psychosocial support but also broader public health and safety topics can guide local quality management and may well suffice in a localized incident. However, more complex transboundary crises such as the refugee crisis, regional flooding or pandemics actually require cross-national coordination and programmes with multilateral planning and delivery; measures and interventions to address problems that extend beyond national borders, jurisdictions and conflicting interests also need to be developed.

Our analysis was theory-driven. The data we examined clustered in a way that fits the theoretical framework. There can be reasons for testing alternative frameworks and models, but nevertheless, it would be a most interesting exercise to link programme features to outcomes at the level of affected individuals or populations. The relation between a programme and health and well-being is complex and challenging to study. We are confronted with limited cases, limited material for comparison, many factors we cannot control for, and an abundance of possible interactions. Novel approaches and instruments are necessary to understand programmes, and also to learn more about the role individual professionals and trained volunteers fulfil during a programme. Ultimately, the work is done by people, working within a programme's interdisciplinary surroundings. Our study and the tool contribute to the knowledge base; we must however underline the relevance of research that goes further, and links knowledge about elements and working mechanisms of programmes, to practically equipping professionals and trained volunteers in an optimal fulfilment of their roles.

All in all, our understanding of programmes would benefit from research on varying event types in different populations of beneficiaries, communities, countries, and world regions. Even studies in sectors outside post-disaster psychosocial support, where temporary multidisciplinary programmes are designed and implemented on behalf of groups of people, can be informative.

Strengths and weaknesses

This study has several strengths. To our knowledge it is the first time multiple programmes have been evaluated in a similar manner against the background of a theoretical framework. The measurement instrument proved to be an effective way to gather information from different events in different situations in a systematic way, and allowed us to study patterns across programmes and programme domains.

A number of weaknesses need to be addressed. The measurements reflect the perspective of single respondents. This proved helpful in testing the clustering within datasets and relations, and can also be useful for improvement purposes, but it is still only one opinion from each programme. Approaching a programme coordinator to provide data is a logical source, but vulnerable to confirmation bias. Since scores on planning and delivery system and measures and interventions are concretely tied to actual structures or activities, these domains would seem to be relatively well protected. The other two domains are based on unanchored response scales and are therefore more vulnerable, though the instrument provides some protection by requiring respondents to do a careful substantive review before they rate these items. Whether from this kind of bias or from generally shared strong values, the importance scores appear higher and more skewed than the success scores and could possibly dilute the effect of items that more truly represent programme outcomes.

Given the likelihood that different stakeholders will view the quality of a programme from different perspectives it is preferable to also involve other stakeholders, particularly beneficiaries, in addition to gathering the indispensable input from programme coordinators. Including more viewpoints allows the opportunity to illuminate variation. Moreover, subjective views are ideally complemented by objective observations. Regarding the outcome of a programme, it is meaningful to look further than the perceived realization of psychosocial principles, and to collect information on changes in well-being, risk and protective factors, and psychopathology within the population – bearing in mind that we must remain critical about the extent to which these “outcomes” can really be attributed to the programme and not to other developments or circumstances. A further shortcoming is that our analysis does not take into account changes over time. This is a limitation as aftercare will, or even should, be anticipated as needs and problems evolve. The quality of a programme can score high at one moment and lower at another. Particularly in the first period following a large disaster the population is fluid; later specific issues of particular target groups are typically addressed in the communities where the affected reside. The survey tool referred to in this study can be used for this purpose. Finally, the sample size is far from optimal. It did not allow for more advanced analysis, nor did it accommodate expanding the number of items (e.g. the management of volunteers, advanced therapeutic interventions) or even domains.

Conclusions

In this study we describe an approach to coherently measure the quality of post-disaster psychosocial support programmes, focusing on different domains and items derived from theory, guidelines, and a wealth of practical experience. The interrelations between the domains confirm the assumption that more evolved planning and delivery systems are accompanied by a higher adoption of evidence-informed measures and interventions, and score higher on a variety of general evaluation criteria and on the importance and realization of essential psychosocial support principles. The findings suggest that high-quality programmes serve as “transport vehicles” for the realization of these principles at the community level. Moreover, community programmes can serve as a passageway towards professional care and support. Temporary organizations, set up to accommodate new disaster-driven needs and problems, form ideally in the end a bridge to regular services. Further research is necessary to validate and expand the findings herein and to learn more about success factors and obstacles for the implementation of programmes in communities confronted with extraordinary adversity.

Chapter 11

Crisis leadership guided by psychosocial support principles

This chapter is based on: Dückers, M.L.A., Yzermans, C.J., Jong, W., & Boin, A. (2017). Psychosocial crisis management: The unexplored intersection of crisis leadership and post-disaster psychosocial support. *Risk, Hazards & Crisis in Public Policy*, 8, 94-112.

Abstract

Epidemiological research has documented the serious health issues that can affect people exposed to disasters and major crises. Yet, the psychosocial dimension of crisis has received little attention in crisis management literature. This chapter integrates psychosocial principles with a model of strategic crisis management. The resulting model of psychosocial crisis management (PCM) describes how the tasks of strategic crisis managers can be guided by psychosocial support principles. This PCM-model helps public leaders, at society and local community level, to better understand typical psychosocial dynamics and obstacles as the crisis life cycle evolves. Although crisis management insights and psychosocial support principles stem from different disciplines and research traditions, integrating them helps to reduce foreseeable problems in the response and recovery phases.

11.1 Introduction

Communities everywhere can be confronted with crises and disasters, events that disturb the normal order of everyday life. A crisis often entails undesirable circumstances, which are characterized by a widely perceived threat to core values, deep uncertainty, and time pressure (Rosenthal et al. 1989; 2001; Brecher 1993; Stern & Sundelius 2002; Boin et al. 2016). We define crisis management as the set of efforts aimed to deal with the consequences of crises, “before, during and after they have occurred” (Shrivastava et al. 1988, p. 287; also see Boin et al. 2016).

Crises can have substantial consequences for the well-being, functioning and health of those affected by them (this also applies to complex emergencies in conflict areas; Salema et al. 2004). Typical effects include stress, fear, uncertainty, physical symptoms, and trauma-related mental health problems. Disaster health effects have been studied extensively, and in recent decades with an emphasis on mental health and post-traumatic stress disorder (PTSD) (e.g. Bonanno et al. 2010; Bonde et al. 2016; Herbert et al. 2006; Galea et al. 2005; Moline et al. 2006; Neria et al. 2008; Norris et al. 2002a; Yzermans et al. 2009).

Although such effects yield psychological dynamics and influence social interactions within affected communities (chapter 12), and thus demand a response from public leaders, the psychosocial dimension of crises has received little attention in crisis management literature. The aim of this chapter, therefore, is to integrate psychosocial principles, relevant to anticipating the well-being, functioning and health of people confronted with potentially impactful events, into crisis leadership theory. We focus on public leaders and crisis managers at national or local level: public officials at the strategic apex of public organizations with a formal responsibility to manage the disaster response and recovery network. In the context of crisis management these leaders will have to deal with a set of strategic crisis management challenges and tasks. After briefly discussing the crisis leadership tasks, we explore the degree of integration between the tasks and psychosocial support principles as described in the literature. As a final step we present a model of effective psychosocial crisis management (PCM).

Strategic crisis management challenges and tasks

The challenges of strategic crisis management are daunting (for detailed overviews see Boin et al. 2016; Boin & ‘t Hart 2011). To overcome these challenges, strategic crisis managers must focus on a set of tasks (Boin et al. 2016). Research suggests that the effective organization and implementation of these tasks helps strategic crisis managers to impose order in the network that is charged with responding to

disaster. The following six tasks are distinguished: The sense-making task requires crisis managers to diagnose unfolding crisis situations adequately, often making use of scarce and ambiguous information. The core of the decision-making task is to identify critical decisions that can and should only be made at strategic level. The coordination task refers to the alignment of key actors in a response network, during and after the crisis (Boin & Bynander 2015; Dückers et al. 2014; Heller 2010). Coordination is about allocating capacity and limited resources to facilitate the cooperation between particular organizations and groups. Meaning making is about providing a convincing narrative, an explanation of a crisis and its causes, its implications, the response, and the envisioned roles of different actors. Account giving refers to the democratic duty to clarify and accept responsibilities, without engaging in scapegoating. Learning requires crisis management actors to critically assess their own functioning and to draw lessons from it to enhance their future performance, both during and after a crisis (Stern 1997; Smith & Elliott 2007; Alexander 2012).

11.2. Literature review

To get an impression of how PCM has been discussed in recent literature we carried out an electronic search in Medline, PsycINFO, Cochrane, ProQuest (combined search of PILOTS and Sociological Abstracts) and Web of Science. These databases contain publications from broad fields such as sociology, psychology, public health, political science and public management. The search was conducted on 20 May 2016 using the following string of search terms: (psychosocial OR “psycho-social” OR psychologic*) AND (“crisis management” OR “disaster management” OR “emergency management” OR “crisis leadership”). We did not use a date restriction and selected relevant publications written in English, German and Dutch based on an assessment of titles and abstracts. After removing duplicates, our search resulted in 436 publications, which we then reviewed. As our interest is primarily restricted to public crises and disasters, we excluded studies about the workplace, corporate crises, medical crisis interventions, suicide, and health disorders. We mostly found guidelines, discussion papers and reflections, presenting primarily qualitative findings, which meant the material did not allow for formal meta-analysis.

Our literature study shows that crisis leadership and psychosocial support generally form two distinctive streams with limited unification or integration, despite their evidently shared area of interest. The study of crisis management is only moderately concerned with the psychosocial dimension of crises. Studies of crisis-related psychosocial support focus more on the impact on affected individuals

– particularly the development of trauma-related mental health problems – than on crisis management dilemmas and problems. Numerous publications are devoted to particular models, interventions or approaches that are suggested to be helpful in addressing trauma-related problems in individuals and groups (e.g. Everly 2000; Hammond & Brooks 2002; Clark & Volmann 2005; Mitchell & Everly 2006). However, because of a lack of evidence contemporary international evidence-based guidelines do not recommend early preventive measures that go further than the strengthening of social support, provision of information, and timely detection of serious health problems (ACPMH 2013; Bisson et al. 2010; WHO 2013; Juen et al. 2015; chapter 8).

The studies differ in their timeframe orientation. Several authors focus on the early phase of the crisis (Burkle 1996; Van Loon 2008), others take a longer-term view (Weaver 1995; Buckle, Brown & Dickinson 1998). The few publications that explicitly speak of PCM use it as a synonym for psychosocial support in crisis situations (e.g. Uhle & Haubner 2005; Beerlage & Helmerichs 2011; Hannig & Harks 2009; Bering et al. 2009). Van Loon views PCM as “primarily aimed at ‘normalizing’ and gaining control over more or less increased levels of commotion during and after a calamity” (Van Loon 2008, p. 115).

We found many topics that are relevant from a PCM-perspective, but we did not find an integrated model combining principles from crisis leadership and psychosocial support. Before we can produce such a model we first need to describe the main building blocks. The crisis management tasks grounded in the work by Boin and ‘t Hart have already been discussed. In section 11.3 we integrate the findings from the exploratory review into an overview of psychosocial support principles. In section 11.4 we make a synthesis between the principles and the set of general crisis management tasks.

11.3. Psychosocial support principles

The literature describes a variety of psychosocial support principles. We clustered them into three categories:

- Consideration of needs, problems, risks and existing capacities;
- Provide a supportive context;
- Evaluate and implement lessons.

Consideration of needs, problems, risks and existing capacities

Assess needs and problems. The needs and problems of affected populations, which response and recovery planners should consider, can cover a variety of issues

such as: shelter, safety, food, drinking water, first aid, and medication (basic aid); information about what has happened, about the fate of loved ones, and about possible stress reactions (information); comfort, a listening ear, recognition of grief, compassion (social and emotional support); legal and financial problems, establishing a household again (practical help); and mental and physical health problems (health care) (chapter 9). The psychosocial needs and problems of people affected by disasters tend to change over time. These changes in psychosocial needs are related to the deterioration of social support (Amaratunga 2006; see “consider risk and protective factors”). Rao states that support efforts should be “modulated according to the phase of recovery following the event occurrence because each phase will highlight different needs. (...). In the initial phases, the emphasis is placed on social intervention that can be delivered by community-level workers. In the later phases, the psychological issues that emerge necessitate the services of trained professionals” (Rao 2006, p. 501).

The large range of problems mentioned demonstrates the need for flexibility and improvisation skills among psychosocial care providers (Van Loon 2008). Stress is considered a normal reaction after a potentially shocking event. According to Van Loon, psychosocial care providers involved in the provision of immediate psychosocial help to affected people, should not (only) focus on the possible development of event-related mental health problems (like PTSD) among victims (Van Loon 2008). Putting emphasis on the treatment of psychological problems is considered too narrow given the extent of the needs and problems associated with the psychosocial well-being of affected people (Van der Velden, Van Loon, Kleber, Van Uhlenbroek & Smit 2009).

Consider risk and protective factors. Effective psychosocial support requires an understanding of who is at risk within an affected population (e.g. vulnerable groups such as people displaced, children and the elderly, but also first responders and other helpers). Typical risk factors linked to the prevalence of mental health complaints and a limited capacity for self-recovery should guide psychosocial support. Studies refer to risk factors such as lower socio-economic status, female gender, lack of social support, exposure to death and loss, and existing mental health problems (Brewin et al. 2000; Ozer et al. 2003; Bonanno et al. 2010). Additional stress is caused by actual or potential “resource loss”, the loss of anything that matters to a person (Hobfoll 1998), for instance in terms of relations, possessions, work, someone’s role in society and status. A risk reduction approach should incorporate addressing additional sources of stress linked to resource loss and other stress factors (Van der Velden et al. 2009).

Social support is a key component of community resilience (Norris et al. 2008) and – if absent – a well-known risk factor for the development of trauma-related mental health problems and, possibly, the attribution of physical symptoms from experiencing the event. Social support can vary if a person's life circumstances change, for instance, if someone moves to a new location, or if circumstances are altered by the disaster itself. Levels of social support, as perceived by affected citizens, tend to deteriorate in a disaster's aftermath (Kaniasty et al. 1990; Kaniasty & Norris 2004). Collective emergencies can dramatically impact interpersonal social dynamics and the availability of community resources (Bonanno et al. 2010). The disaster stages model (Raphael 1986; Yzermans & Gersons 2002) illustrates the psychosocial impact of crises as an "emotional timeline". The "impact" phase is followed by a "honeymoon" phase with extensive levels of social support (sympathy, compassion and attention from family members, friends, co-workers, community actors, governments and media). In the "disillusionment" phase, in the weeks or months after a crisis, social support diminishes as the survivors and the bereaved pick up the thread of normal life. Raphael (1986) speaks of a "second disaster" when individual and community adaptive capacities reach a minimum. Gradually, the amount of social support is expected to regrow, with likely fall-backs, as an affected person overcomes the impact and enters a phase of "reintegration".

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Strengthen and utilize existing capacities. A core principle in the psychosocial support literature in disaster settings refers to strengthening and utilizing resilience, i.e. adaptation or recovery capacity and resources available to individuals, communities and societies (Norris et al. 2008; Bonanno et al. 2010; chapter 12). Well before the current popularity of resilience theory in disaster mental health research, Omer and Alon noted that "the continuity principle stipulates that through all stages of disaster, management and treatment should aim at preserving and restoring functional, historical, and interpersonal continuities" at the level of "individual, family, organization, and community" (1994; p. 273). The dominant perspective in the international literature is that the vast majority of people confronted with a potentially shocking event are capable of dealing with the psychological impact and capable of self-recovery (Bonanno et al. 2010). Some individuals will develop problems they cannot overcome themselves. While some authors focus on the capacity to adapt and interventions at individual level, others stress the importance of community-level resources/capacities, interventions and programmes (Dudley-Grant et al. 2000; Vernberg 2002; Vymetal 2006; Norris et al. 2006; Norris et al. 2008; Comfort et al. 2011; Basu et al. 2013; Kapucu et al. 2013; chapter 12).

Provide a supportive context

Experts agree upon the importance of providing affected people with a “supportive context”, which may include: offering a listening ear, support and comfort, and being sensitive to immediate practical needs; offering practical and up-to-date information about the event; mobilizing support from one’s own social environment; facilitating reunions with family and keeping them together; and reassuring people who are displaying stress reactions that their reactions are normal (chapter 8). The notion of such a supportive context – which can be realized nationally or locally by government, businesses and civil society actors – is reflected in three psychosocial principles:

- Provision of information and basic aid;
- Promote a sense of safety, calmness, self- and community efficacy, connectedness to others, and hope;
- Social acknowledgement.

Provision of information and basic aid. Information about the crisis, causes and consequences, especially those killed, missing or relocated, but also information on the status of response and recovery processes, practical guidance and possible health reactions, is highly valuable for people confronted by a disaster. The same applies to direct basic needs such as safety, emergency first aid, shelter, water and food, and reunification with loved ones, friends and family members (Bisson et al. 2010; see chapter 8).

Promote a sense of safety, calmness, self- and community efficacy, connectedness to others, and hope. Hobfoll and colleagues (2007) identified five essential psychosocial support principles, relevant for anyone who interacts with people exposed to crises. It is necessary to promote a sense of safety, calmness, self- and community efficacy, connectedness to others, and hope (Hobfoll et al. 2007).

Social acknowledgement. Maercker and Muller defined social acknowledgement as “a victim’s experience of positive reactions from society that show appreciation for the victim’s unique state and acknowledge the victim’s current difficult situation. The term social here not only includes the (...) victim’s [closest social network] (e.g. family, friends), but also significant persons (e.g. local authorities, clergy), groups (e.g. at the workplace, fellow citizens), and impersonal expression of opinions (e.g. media) about the experiences of the victims or survivors” (2004, p. 345). Social acknowledgement is low if people affected experience societal disapproval, misunderstanding, criticism, rejection or a lack of support. This can be problematic because it is social support that they are seeking (Maercker & Müller 2004).

Evaluate and implement lessons

The psychosocial support principles described above under “consideration of needs, problems, risks and existing capacities” and “provide a supportive context” can be seen as assignments for the many different actors that are involved in the different stages of planning and the delivery of services to affected individuals and communities. In the principles under the third category they can contribute to closing the learning loop and service optimization. From a quality improvement perspective, the challenge is to approach each unique disaster context with the same series of quality improvement steps (plan-do-study-act) and to integrate (mental) health research into post-disaster management planning (chapter 9; also see Greenberg et al. 2009; Reifels et al. 2013). Firstly, collect information, rigorously and rapidly, about the needs, problems, risks and (a lack of) adaptive capacities of the people exposed, also to verify whether expectations and assumptions are correct. Ideally, the psychosocial needs of the public, first response team, support staff, and volunteers will be assessed before advancing to the next stage of the disaster timeline (Amaratunga 2006). Secondly, prioritize the issues that must be addressed and design a practical approach with clear roles and tasks for the actors involved, as well as required conditions (“plan”). Thirdly, carry out the activities as planned (“do”). Fourthly, evaluate the result in relation to the original plan and check whether principles are being put into practice (“study”). The final step, closing the loop, is to adjust the plan if necessary, to proceed with the plan or to end it (“act”). These steps increase the chance that affected populations will be served in an effective, efficient, need-centred, safe, and appropriate way (chapter 9). Basic “quality” criteria like these can be used to evaluate psychosocial support (including the performance of distinctive partners or networks) in positive or negative terms and, when appropriate, to implement lessons to improve the support of affected people in the present and the future.

11.4. Psychosocial crisis management

Bringing crisis leadership challenges and psychosocial support together

The next step is to bring crisis leadership and psychosocial support principles together in one PCM-model. The strategic crisis management model is thus enriched with insights from psychosocial literature. The six leadership tasks are used as the main platform for the development of a PCM-model to better understand typical challenges related to the psychosocial dimension of crises. In Figure 11.1 the crisis leadership challenges and psychosocial support principles are shown in different rings, linked to each other and centred around the well-

being, functioning and health of citizens exposed to potentially traumatic events. Whilst psychosocial support principles are particularly relevant to professionals and trained volunteers, from a PCM-perspective they also provide meaningful guidance to public leaders with a responsibility for the well-being, functioning and health of citizens at national or local community level. Crisis leadership tasks and psychosocial support principles are structured anti-clockwise along the stages in the plan-do-study-act cycle in Figure 11.1.

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Sense making

From a psychosocial perspective, sense making is needed to make an assessment of the event and its potential effects on the exposed population. This assessment should identify psychosocial risks, needs and problems, risk factors, (insufficient) capacity to adapt, preferably guided by lessons learned from earlier situations. In the early phase of a crisis, the PCM-response is hindered by a lack of information. Public leaders have to access different channels to obtain necessary information. At individual level this can be done based on informal conversations with the affected (Jong et al. 2016b), or more formally through an investigation or professional diagnosis. At community or country level it is possible to perform a rapid health and needs assessment (Korteweg et al. 2010), a health monitor to follow the development in time of mental and physical health (Yzermans et al. 2009; Yzermans et al. 2016), or an analysis of social media, newspaper or television broadcasting to understand emotions and perceived PCM-outcomes within local communities (Back et al. 2010; Griffin-Padgett & Allison 2010; Jong & Dückers 2016; Jong et al. 2016b).

Although these activities are helpful there is always a risk that sense making intensifies the crisis (Weick 1988). Asking people about possible health consequences, may make them believe they are suffering or are going to suffer from a physical ailment and therefore make them extra aware of symptoms, regardless of whether these symptoms are linked to exposure.

Decision making

Crisis leaders must make critical choices, also in relation to the psychosocial impact and necessary aftercare in the short-term as well as in the long-term. To ensure that the right principles are reflected in strategic crisis decision making, crisis leaders must be informed about particular characteristics and challenges surrounding the psychosocial dimension of crises, including the lessons learned from earlier disasters and major events (see “learning”). In disaster settings, (mental) health experts can highlight specific but critical crisis management aspects. Education and

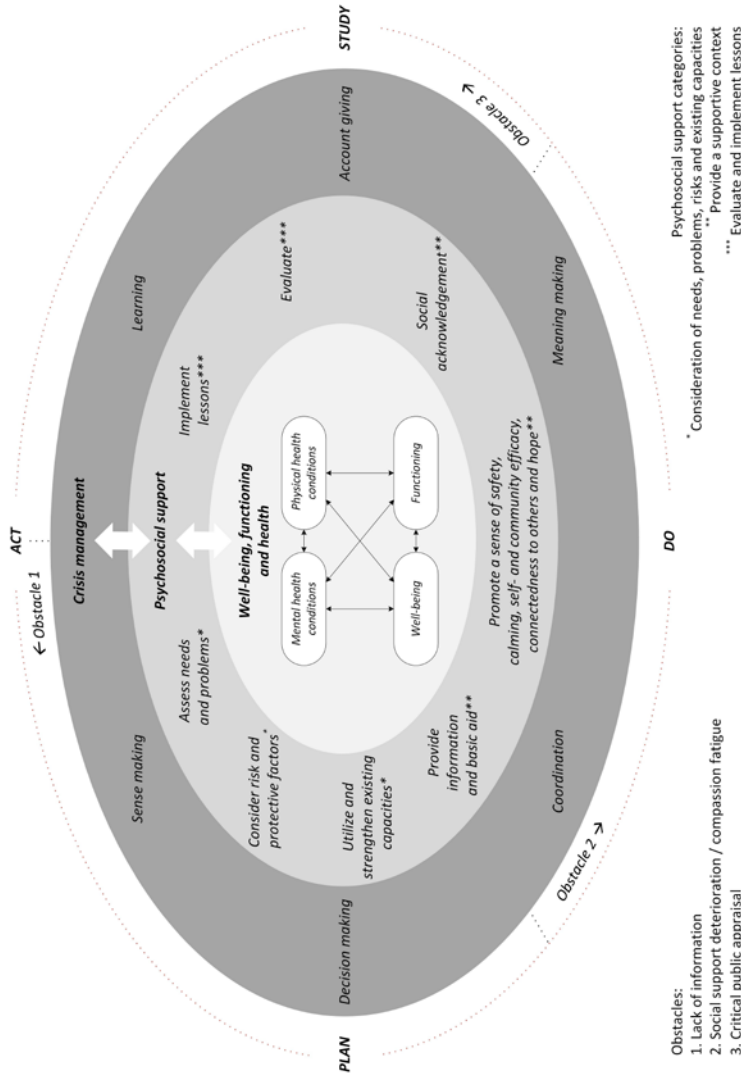


Figure 11.1. Psychosocial crisis management: crisis leadership guided by psychosocial principles

Note. Crisis leadership challenges and psychosocial support principles are shown here in different rings, centred around the well-being, functioning and health of citizens exposed to potentially traumatic events. General leadership challenges, originating from crisis management studies, are linked to post-disaster psychosocial support principles identified in the literature. Whilst psychosocial support principles are particularly relevant to professionals and trained volunteers (e.g. rescue workers, family physicians, mental health professionals, social workers and clergy), from a PCM-perspective they also provide meaningful guidance to public leaders with a responsibility for the well-being, functioning and health of citizens at national or local community level. The crisis leadership tasks and the psychosocial support principles are structured anti-clockwise along the stages in the plan-do-study-act cycle. PCM encompasses different time phases in which public leaders must overcome several obstacles while shaping sense making, decision making, coordination, meaning making, account giving, and learning tasks.

advice on psychosocial principles is also relevant to other partners, such as disaster personnel and emergency workers, primary caregivers (e.g. family physicians), welfare workers, clergy and other community actors (Powell & Penick 1983; McFarlane 1984; Raphael 1984; Van Loon 2008).

Including psychosocial support knowledge in decision-making processes enhances the possibility that coordination and meaning making are shaped and conducted in line with the right principles, strengthening and utilizing resilience, and anticipating the deterioration of social support.

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Coordination

Crisis management and post-disaster psychosocial support have in common that both are conducted by actors with different tasks, interests and responsibilities at different levels in a multidisciplinary inter-organizational network (Boin & 't Hart 2011; Bisson et al. 2010; chapter 8). The realization of services to affected populations after a disaster requires the involvement of a variety of government, business and civil society actors (chapter 12). These actors will then be enrolled in what we can call a psychosocial support programme: “a community intervention that can differ in length (weeks, months, years), scope (variation in themes) and organization (number of partner organizations at different levels)” (chapter 9).

Rescue workers, response team, families, volunteers, community workers, clergy, primary health care-givers, and therapists play a role in providing a supportive context. The PCM-challenge is to pursue cooperation across social groups (including groups of survivors and the bereaved), professional disciplines, organizations, jurisdictions, policy domains, and governmental layers. Without the alignment of activities and interventions and without the deliberate allocation of resources (including information), adjusted to different circumstances through time, PCM is bound to fail in its aim to be responsive to needs, problems, risks and stress factors, (a lack of) resilience, and to establish a supportive context reflecting essential principles. Finally, providing information remains a vital element of PCM. News media must be regularly and appropriately briefed, in order to use their potential for disseminating information to the survivors, bereaved families, and the public (Kroon & Overdijk 1993; Vastermans et al. 2005).

Meaning making

Giving meaning to something can have a positive effect on people's resilience and recovery from stressful events (Park 2016). Benedek and Fullerton (2007) underlined the relevance of the “essential principles” (Hobfoll et al. 2007; see “provide a supportive context” in the previous section), but emphasized something

was missing, namely a “vehicle” to bring the principles into practice. In a reaction Hobfoll stated that the “passageways and obstacles” for the essential principles need to be elaborated (Dücker 2013). Public leaders can serve as the necessary vehicle. In their meaning-making behaviour, crisis managers can provide social acknowledgement and contribute to a sense of connectedness and hope, for example, just by being there and by using well-chosen words.

The meaning-making task is prone to being amplified by (social) media and becomes harder when public discussions are dominated by frustration about unmet expectations, disillusionment and a perceived lack of social support (the second obstacle in Figure 11.1). After the earthquake at L'Aquila, Italy, in 2009, the public was positive about the initial response and provision of temporary housing by the government, but then unrealistic promises were made. The government promised that permission for evacuees to return to their homes would be granted within a month of the disaster, but the actual repair of homes became a slow, disorganized process that was dependent on funds that were in very short supply (Alexander 2010). When government involvement becomes a problem in itself, it will become harder for leaders to provide a convincing narrative with explanations and implications.

Psychosocially speaking, meaning making requires crisis leaders to consider the potential impact of rituals that are routinely employed in the wake of a disaster. Leaders are expected to play a role in “remembering” the disaster, its impact on people involved, including responders and communities as a whole. Nowadays, societies do not easily allow a disaster to be forgotten. Years after an event there is still a need – political or not – for commemoration ceremonies and monuments (‘t Hart 1993; Eyre 2007; Boin & ‘t Hart 2011). While this may be functional in terms of the legitimacy of leaders and institutions (“license to operate”; Moore 1995), and in terms of connectedness and social support, it could have the opposite impact on survivors and bereaved families who may feel pressured to share their grief in the public arena (Jong 2013).

Account giving

Investigations and inquiries play a role in aiding or inhibiting recovery (Eyre 2004). In the accountability phase of PCM, social acknowledgement and evaluation of leadership come together. To what degree were psychosocial support principles followed in the response and recovery phase? In practice, PCM can be judged using a broad range of evaluation terms (see “learning”). Crisis managers must render an account of their decisions and handling of response and recovery. This account giving should be broadened to include how PCM was organized. If

that is not done, or not done properly, the legitimacy or “license to operate” of responsible leaders and public institutions may well suffer as a consequence. The effective implementation of psychosocial principles enhances the fate of leaders in the wake of crisis. For instance, six years after the Bijlmermeer plane crash disaster in Amsterdam, health complaints escalated, ending in a highly contentious parliamentary investigation procedure, which threatened the ruling coalition (Boin, Van Duin & Heyse 2001; Yzermans & Gersons 2002).

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Learning

During a crisis, we expect public leaders and crisis managers to take into account feedback that suggests the proposed course of action is not working as envisioned – they can optimize PCM by applying the plan-do-study-act quality improvement model. Learning from a crisis implies that lessons are remembered in the management of the psychosocial impact of a new crisis (this type of plan-do-study-act cycle is shown in Figure 11.1). Evaluation of PCM can be complicated because of the potential variation in normative viewpoints among stakeholders with respect to needs, problems and capacities of individuals and communities (with in-group and between-group differences), the multi-faceted composition of community programmes, and relevant contextual differences (possibly connected to community or society-level characteristics) that justify another approach.

Moreover, as changes through time matter psychosocially, the evaluation strategy should be responsive to the different challenges crisis leaders have to solve at different time stages. If the response is too passive or too active, the evaluation will be negative (Figure 9.1; chapter 9). Negative-passive PCM-evaluations are expressed in terms of neglect, disregard, and a lack of insight, involvement, capacity or opportunity. People can feel abandoned or ignored. The aftermath of the earthquake at L'Aquila (Alexander 2010) and the Bijlmermeer plane crash disaster in Amsterdam (Boin et al. 2001; Yzermans & Gersons 2002) can be seen as examples. Negative-active PCM-evaluations reflect over-attention and wasted resources. Things were done, but probably not the right things. After the Bijlmermeer disaster the mental health interventions made available to many victims were much too short to achieve any lasting result, did not follow an explicit protocol and, in many cases, did not prove to be effective even in the short-term. These and other experiences from the Bijlmermeer plane crash were used to implement an improved programme after the Enschede fireworks disaster, almost ten years later (Yzermans & Gersons 2002). This example illustrates how lessons can be implemented in a new cycle of sense making, decision making et cetera.

11.5. Psychosocial crisis management and health

A two-way relation

Although psychosocial support and crisis management insights stem from different disciplines and traditions, integrating them can reduce foreseeable problems in the response and recovery phases. A key assumption in this line of reasoning, present in the body of knowledge brought together in this chapter, is that a relation exists between PCM on the one hand, and the well-being, functioning and the health of those affected on the other. This relation works in two directions and this is where the two research disciplines differ in their emphasis.

Psychosocial support literature is mostly interested in how PCM influences the health of affected people. Norris and colleagues describe this type of relation explicitly at community level: “[if] management systems (...) function effectively to protect lives, reduce injuries, minimize damage to public utilities, and connect community members to necessary services, it is reasonable to expect the population to remain well” (Norris et al. 2008; p. 133). Psychosocial support literature contains descriptions of interventions and programmes, but so far provides little evidence on the health effects of such interventions and programmes, nor on the health effects of leadership behaviour.

Literature on crisis management stresses the implications of disaster health issues for the leader’s position. The general well-being of citizens is not an explicit crisis management objective. Authors emphasize the emotional well-being of society primarily with regard to the accountability and responsibility of public leaders (‘t Hart 1993), and the impact on their support from constituencies (Boin & ‘t Hart 2003; Fairhurst & Cooren 2009; Griffin-Padgett & Allison 2010; Jong et al. 2016a). In the end, the care for “victims and survivors” tends to be instrumental: a lack of well-being results in declining support from voters and political and institutional turmoil. At the same time, in order to politically survive the crisis, public leaders are more or less obliged to serve the interests of their citizens and to be responsive to their needs. In an ideal situation this shared interest functions as an institutionalized PCM-“safety valve” i.e. the self-interest of the leader stimulates to take good care of the interest of disadvantaged citizens. What makes matters complicated is that, post-disaster, public leaders will have to deal with different groups and differing interests within those groups.

Causal attribution problem

The term disaster health effects implies causality between a person’s condition and an external source of exposure. Methodologically, verifying a causal relation

between the two is vastly complex as actual exposure levels are difficult to ascertain retrospectively while controlling other relevant factors. Causal attribution is a typical problem in disaster health research (Yzermans et al. 2009). Even in case of personal doubts concerning the plausibility of a causal relation, effective PCM requires public leaders to deliver a trustworthy and supportive meaning-making performance. Whether causality can be verified or not, when it is real in the subjective perceptions of affected individuals and they define it as such, it is real in its consequences, and demands serious attention from crisis managers while shaping the various PCM-tasks. This classical Thomas theorem (Thomas & Thomas 1928) confronts public leaders with the challenge of finding a balance between social acknowledgement (meaning making) and confirming responsibility or entitlement to compensation (account giving).

11.6. Conclusion

Crises are disruptions with a potential psychosocial impact. In this chapter we explored the intersection between crisis leadership and psychosocial support. We identified a lack of integration of the two disciplines in the literature, and presented a PCM-model linking typical crisis leadership challenges to the well-being, functioning and health of individuals in relation to their social environment.

By combining insights from both knowledge domains, the scope of PCM can be better delineated as a distinctive crisis management theme. PCM stretches out over different time stages, from sense making, decision making, coordination, meaning making, account giving to learning, confronting public leaders with predictable obstacles in their challenge to integrate the psychosocial support principles into crisis leadership. Clearly, PCM should not disappear from the radar of political-administrative elites when the operational phase of the crisis is over. The PCM-model can assist crisis leaders and researchers to better understand and to evaluate the psychosocial dimension of crisis management. PCM can only be effective if it is integrated into every stage of crisis management.

This chapter offers a study model and several angles to formulate and test hypotheses. We encourage more empirical research on the realization of PCM-principles by leaders in different phases of a crisis, and under different circumstances. Particularly interesting topics are: the extent to which PCM-principles are recognized and translated in practice; relevant characteristics and factors explaining the success or failure of PCM (e.g. individual, role, governmental, societal and external sources; Wittkopf et al. 2007); and the nature of the two-way relation between PCM and well-being, and how it can be influenced. Systematic

assessments of topics like these have the potential to enhance the forgotten psychosocial dimension of crisis management, and can therefore strengthen crisis management in general.

Part III

Synthesis

Chapter 12

A multi-layered psychosocial resilience framework

This chapter is based on: Dückers, M.L.A. (2017). A multilayered psychosocial resilience framework and its implications for community-focused crisis management. *Journal of Contingencies and Crisis Management*, 25, 182-187.

Abstract

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The focus of this chapter is on the psychosocial well-being, functioning and health of communities in the context of major crises. A multi-layered psychosocial resilience framework is described, conceptualizing and connecting capacities at individual, community and society levels. Effective crisis management is strengthening and utilizing these capacities. The community as a resilient, functioning social system depends, almost by definition, on collaboration among government, business and civil society. Yet while resilience and crisis management form a logical combination, resilience for its part is de-politicized and naturalizing, whereas crisis management can be controversial and politically intense, which in practice means crisis management might negatively affect the development of more resilient communities.

12.1. Introduction

Resilience is a popularized and formal concept in different branches of scientific research, including the social sciences (Alexander 2013; Comfort et al. 2010; Duit 2016; Olsson et al. 2015). Different authors have focused on the devastating effects of disasters and major crises on individuals, communities and societies in terms of loss of lives, safety, health, livelihood, communality, functioning and productivity (Bonanno et al. 2010; Bourque et al. 2007; Dückers et al. 2014; Erikson 1976; Perry 2007). According to Boin and 't Hart crises occur “when core values or life-sustaining systems of a community come under threat” with “widely shared values such as safety and security, welfare and health, integrity and fairness” becoming unstable or even meaningless (2005, p. 43). The constellation of concepts revolving around adaptation, coping, recovery, and “bouncing back,” which is an intrinsic feature of resilience, explains the tendency to incorporate the resilience concept in disaster and crisis management literature.

This chapter is written from a psychosocial perspective, focusing on the well-being, functioning and health of communities confronted by a major crisis. Its relevance and the need to consider both individual and community impacts have been described by Kaniasty and Norris: “Natural disasters, technological catastrophes, and acts of mass terrorism are more than individual-level events; they are community-level events that bring harm, pain, and loss to large numbers of people simultaneously. They are often brutal in their severity and broad in their scope. Many of them involve immediate trauma arising from exposure to death and injury (horror), extreme physical force (terror), and life-threatening situations. They destroy and disturb (...) [and] result in similar psychological consequences, such as symptoms of post-traumatic stress disorder, depression, anxiety, and physical ailments (...). Yet there are potentially important differences among these events in their effects on social and community life.” (Kaniasty & Norris 2004, p. 200).

Understanding possible effects is one thing, addressing them adequately in relation to psychosocial resilience is another. Diversity in crisis effects at different levels and the variation in coping and adaptive capacities, particularly for serious hazards, demands a comprehensive, cross-sector, multidisciplinary approach. What would such an approach involve? Hereafter psychosocial resilience is conceptualized as a multi-layered construct, followed by a discussion on how the theoretical framework can be applied to stimulate the creation of more resilient communities.

12.2. Psychosocial resilience: a concept with multiple layers

Norris and colleagues defined resilience as “a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance” (Norris et al. 2008, p. 130). This process can take place at least on three levels (individual, community and society), each with distinctive sets of adaptive capacities that are likely interconnected.

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Individual level

Resilience has been used by psychologists to describe an individual's reactions to potentially traumatic events. Bonanno described how “large numbers of people manage to endure the temporary upheaval of loss or potentially traumatic events remarkably well, with no apparent disruption in their ability to function at work or in close relationships, and seem to move on to new challenges with apparent ease” (Bonanno 2004, p. 20). He emphasises that resilience differs from recovery: “a trajectory in which normal functioning temporarily gives way to threshold or subthreshold psychopathology (e.g. symptoms of depression or (...) PTSD), usually for a period of at least several months, and then gradually returns to pre-event levels (...). By contrast, resilience reflects the ability to maintain a stable equilibrium” (p.20). According to Bonanno, most individuals exposed to violent or life-threatening events “show the type of healthy functioning suggestive of the resilience trajectory” (p. 22). A number of them will fully recover within one or two years or more rapidly, and a minority (approx. 10 – 20%) will suffer from chronic or delayed psychological problems (Bonanno 2004).

Different risk factors (or protective when reversed) have been verified, among others: being a woman, lower social economic status, absence of social support, exposure to adversity (being confronted with death, trauma and loss), and pre-existing mental health problems (Brewin et al. 2000; Ozer et al. 2003). Apart from social support, the capacity to shape and modify one's behaviour to meet the shifting challenges that arise in different situations (optimal adjustment) is ascribed to personality traits like hardiness, ego-resiliency and adaptive flexibility (Bonanno et al. 2010). According to Ahmed (2007), resilience is promoted by internal characteristics (e.g. optimism, trust, self-efficacy, secure attachments, interpersonal abilities) and external factors (safety, religious affiliation, strong role models, and emotional sustenance).

Community level

The community resilience concept centres on the neighbourhoods and cities in which people live. Community resilience has been referred to as “the ability of human communities to withstand external shocks or perturbations to their infrastructure, such as environmental variability or social, economic or political upheaval, and to recover from such perturbations” (Adger 2000). Community resilience involves the connection among the physical in terms of infrastructures like roads, bridges, and utilities; technical systems such as phones and internet, and humans through individual, group, and organization-level interactions (Busch & Givens 2013; Kendra & Wachtendorf 2003; Powley 2003). When it comes to organizations and businesses, it should be noted that organizations are communities or sources of community themselves, and employers of citizens, with their resilience being part of the equation (Doerfel et al. 2010; Kendra & Wachtendorf 2003). From a psychosocial perspective, the human aspect is a core theme. Psychosocially, community resilience has been described as “community-level adaptation” in relation to “population wellness” – “a high prevalence of wellness in the community, defined as high and non-disparate levels of mental and behavioural health, role functioning, and quality of life in constituent populations” (Norris et al. 2008; p. 133).

Norris and colleagues conceptualized community resilience as a set of networked adaptive capacities:

- Economic development: fairness in the distribution of risk and vulnerability to hazards; the level and diversity of economic resources; equity of resource distribution;
- Social capital: received (enacted) social support; perceived (expected) social support; social embeddedness (informal ties); organizational linkages/cooperation; citizen participation, leadership and roles (formal ties); sense of community; attachment to place;
- Information and communication: narratives, responsible media, skills and infrastructure; trusted sources of information;
- Community competence: community action, critical reflection and problem solving skills; flexibility and creativity; collective efficacy/empowerment; political partnerships (p. 136).

Society level

Communities are part of a broader society. The capacity of societies to return to a stable order depends heavily on the presence of socio-economic, political and institutional conditions, together with operational structures and resources. The

more precisely these conditions are met, the more resilient a society is likely to be in the face of disaster. Nevertheless, it is usually simply a matter of time before weaknesses in capacity expose themselves. If this happens, it has a negative impact on ability to manage and recover from disasters (Dückers et al. 2014).

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This national capacity is captured in the World Vulnerability Index: a periodically updated index comprising over 20 cultural and socio-economic country dataset. Items in the index are clustered in three groups: susceptibility to negative impacts, lack of coping capacities and lack of adaptive capacities (Welle & Birkmann 2015a; 2015b). Less vulnerable countries are characterized by good governance, low levels of corruption, access to health care and education, higher public and private health expenditure, gross national product per individual, income equality, and life expectancy, among other indicators. These countries have better developed systems to provide professional psychosocial services in the wake of calamities (chapter 7). Yet and in contrast to patterns found at individual level, populations living in less vulnerable countries run a higher risk of developing mental disorders (PTSD and mood disorders in particular), especially when they are more exposed to potentially traumatic events (chapters 3 and 4). This “vulnerability paradox” may be linked to a lower availability of social support (an individual-level protective factor) in less vulnerable countries (inhabited by more individualistic cultures; see chapter 2).

Cross-level interactions

Community resilience links the capacities at the society-level to individual-level capacities and other factors within the framework. At all three levels, several adaptive capacities help make it possible to regain equilibrium, in a mechanical sense but also notably in terms of attachment to place and space. “Communal activities may be thwarted for all residents of affected areas simply because physical environments, settings, and places instrumental for maintaining a sense of continuity and interpersonal contacts are damaged or destroyed. Residents of places ruined by disasters often report decreased participation in social activities with relatives, friends, neighbours, and community organizations (...). Routine activities such as visiting, shopping, recreation, and attending religious services are necessarily reduced and, with them, the daily opportunities to convey and preserve the sense of support and feeling of being reliably connected to people and the community. Also, loss of attachments to places is psychologically hurtful because physical structures with their familiar symbolic and social dimensions are foundations of self- and collective-identities.” (Kaniasty & Norris 2004, p. 205; also see Erikson 1976). Again, organizations and businesses can also be portrayed as

communities or sources of community. Their continuation or return matters as an economical resource. Moreover, identities are attached to faith, church, community as well as work (c.f. Mael & Ashforth 1992). This illustrates how, although different, many pertinent factors at different levels are likely connected, where lower-level capacities depend, to a certain extent, on capacities at higher levels. Resilient individuals contribute to resilient communities that drive the response and recovery capacity of societies, and the other way around. Capacities at the different levels are linked to the psychosocial well-being, functioning and health of populations in a crisis context.

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12.3. Development of more resilient communities

This framework serves here as a starting point for exploring approaches to achieve and maintain resilient communities in the wake of adversity which, if it is not a crisis management task, is an endeavour that influences effective crisis management. Crisis management involves deliberate efforts to deal with the consequences of crises “before, during and after they have occurred” (Shrivastava et al. 1988, p. 287; also see Boin, Hart, Stern & Sundelius 2016). Three issues have practical implications for strategies to develop more resilient communities: time stages, coordination and alignment, and political and social dynamics.

Time stages

The time stages before, during and after a crisis are relevant for coping and adaptive capacities with respect to the different levels of the framework. From a preventive or planning perspective, the ideal (though unrealistic) strategy would be to prevent major natural or human-made events or threats from occurring. A more feasible path is to invest proactively in detecting and resolving weak spots or deficiencies in capacities at different levels, including critical infrastructure, and strengthen them beforehand. People can be trained and methods tested. However, it is uncertain whether specific exogenous capacities – particularly those at individual and society level (personality traits, socio-economic country-characteristics) – can be influenced significantly or, even if they can, whether it can be done soon enough.

Furthermore, during and after the crisis, crisis management can help to limit the impact on individual capacities, for example by bringing people into safety, providing shelter and basic first aid, family reunification, and psychosocial services. A logical approach, given the relevance of individual-level features (such as safety, religious affiliation, strong role models, and emotional sustenance), is to make use of capacities at community level, and, in the case of a large scale event, benefit from available capacity for response and recovery at national level or beyond.

Coordination and alignment

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When a crisis occurs, it is tackled by networks of organizations, which cut across disciplinary, jurisdictional and public-private sector boundaries (Hilliard 2000; Kapucu 2008). This applies as well to investments in the various capacities at society and community levels. The resilience of a society is to a considerable extent determined by the breadth and depth of inter-professional or inter-organizational relationships within its crisis management systems. “Just having high-performing components within that system is not good enough; it is the linkages between components that make or break systemic resilience” (Boin & ‘t Hart 2011, p. 366). However, managing community resilience is complex and involves coordination across public and private sectors (Doerfel 2016). Within the community, many actors play a role in the creation and maintenance of capacities, including capacities and risk factors at individual level and local manifestations of society level capacities (e.g. quality and integrity of the governing system, health and education services accessible to the population, operational infrastructure). From various sectoral perspectives, governmental and non-governmental organizations, professionals and volunteers, corporations, community actors like schools, religious organizations, sport clubs, and local or national media and charity organizations must join forces to strengthen and utilize economic development, social capital, information and communication, and community competence. Alexander (2010) provides an account of how restoration of community capacities was omitted in the recovery programme for survivors after the first years following the earthquake in L’Aquila, Italy in 2010: “[N]othing was invested in transportation and services, leaving sites that had populations of up to 2,500 people devoid of shops, community centres, coffee bars, bus services, clinics, schools and doctors’ surgeries. Moreover, little attention was paid to the problem of conserving social cohesion in the assignment of transitional housing units. This has led to high levels of isolation, depression and post-traumatic stress among the assignees” (Alexander 2010, p. 9). Such is why disaster recovery should involve coordinated cooperation, carefully designed and well-resourced community programmes, and active target group involvement through all phases from planning to evaluation. Boin and ‘t Hart follow a similar line of reasoning when they emphasize how “enhancing community resilience and planning the interface between government, business and community sectors in crisis management should be part and parcel of the planning process. This presupposes levels of cross-sectoral involvement and dialogue that are neither self-generating nor self-sustaining. It requires community participation in crisis planning, particularly within high-salience ‘at risk’ communities” (Boin & ‘t Hart 2011, p. 361).

Several examples can be found. After the tsunami in Southeast Asia (2004), international organizations and the mass media underestimated crucial local capacities, and neglected the skills of local actors and context-specific requirements. While the international community collected vast amounts of money, problematic coordination and ignorance of local coordination mechanisms led to an unbalanced, inequitable flow of funding, lack of investment in local capacities and failure to respond adequately to local needs (Telford et al. 2006). The aftermath of the 2010 earthquake in Haiti, one of the most vulnerable countries according to the World Risk Report, was hindered by knowledge of the operational environment, sustainable support and effective investments in capacity. A stronger connection with local actors, embedded in regular coordination mechanisms, would have resulted in more efficient recovery process (Inter-Agency Standing Committee 2010; Welle & Birkmann 2015b).

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What capacity-building and crisis management have in common is a need for coordinated planning and the delivery of measures and interventions. The level of success depends heavily on the alignment among professionals, disciplines, organizations, policy domains, and governmental layers. Smooth interactions depend on social trust, sense of urgency, awareness of interdependencies, shared interests, compatible ideologies and habits, roles, personal idiosyncrasies, even coincidence.

Political and social dynamics

Olsson and colleagues concluded that core concepts and theories in social science, such as agency, conflict, knowledge and power, are absent from resilience theory, making resilience “a powerful depoliticizing or naturalizing scientific concept and metaphor when used by political actors” (Olsson et al. 2015, p. 9). In this respect resilience and crisis management could not be more different. Crisis management should not be viewed just in terms of coping capacities, but “it should be considered a deeply controversial and intensely political activity” (Boin & ‘t Hart 2005, p. 49). This has to do with accountability, and even the survival of responsible authorities confronted with increased criticism and public pressure. The political dimension goes further than that. In fact, the cornerstones of traditional political models are, to a greater or lesser extent, blended in the social system of crisis management and community resilience. Olsson et al. exemplify how Parsons’ notion of a social system resembles resilience theory (Olsson et al. 2015). Parsons stated that a social system (i) must adapt to its physical and social environment as well as adapt the environment to its needs (adaptation; condition: develop industries and markets, science and technology), (ii) must define and achieve its primary goals (goal

attainment; condition: societies need to develop political institutions), (iii) must coordinate and regulate interrelationships of its components and strive towards a cohesive whole (integration; condition: develop civil society and religion), (iv) must furnish, maintain and renew itself and stimulate its individuals to perform their roles according to social and cultural expectations (latency; condition: develop families and schools) (see Parsons 1951, pp. 241-242). Government, business and civil society (including family and the private sphere) equip the resilient social system to perform its four functions. As a coordination model, business, government and civil society each have pitfalls the opposing models can compensate. In addition, boosting adaptation, freedom and entrepreneurship can result in inequality, lack of solidarity with the less fortunate, lack of cohesion, and other negative effects that can be regulated or otherwise counterbalanced by government and civil society. The government route, for instance, is a means to pursue equality and public interests, yet, emergency powers, geared in a post-disaster setting of securitization, need to have proper democratic underpinnings (Alexander 2010; Cooper & Block 2006). Civil society has the potential to nurture cohesion and solidarity, but also benefits from what the other models can provide in the areas of science and technology (business), and the safety valve they provide which maintains legitimate laws and serves the interests of in-groups and out-groups (including – more vulnerable – marginalized groups and ethnic minorities) (government).

12.4. Discussion

This chapter focused on communities as resilient social systems confronted with crises, equipped with a certain capacity to anticipate the negative impact on psychosocial well-being, functioning and health. Community capacities to deal with adversity are closely connected, however, to capacities at individual and society level. Effective crisis management involves strengthening and utilizing these capacities as well. A practical challenge is to equally distribute scarce resources between and within communities and to plan and coordinate activities by professionals and volunteers who operate autonomously or in organizations and multi-layered inter-organizational networks, whilst benefiting to the maximum from contemporary science and technology.

The community as a resilient functioning social system depends on collaboration among government, business and civil society. Yet while resilience and crisis management form a logical combination, resilience for its part is de-politicized and naturalizing, whereas crisis management is potentially controversial and politically

intense. When discussion takes place in a resilience vocabulary, sensitivities can be avoided for the time being. Still, in practice, this does not prevent possible tensions, even conflicts of interest, while strengthening and utilizing community capacities before, during and after a major crisis.

Chapter 13

General discussion

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13.1 Background

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Throughout history, people have migrated all over the planet, creating communities and societies, shaping their lives under fortunate, as well as less fortunate, circumstances. The everyday routines and aspirations of individuals and families can be disrupted by tragedies such as accidents, interpersonal violence and sickness. Less frequently, communities, and even larger societies, can become severely hampered by natural or human-made disasters and catastrophes, pandemics, armed conflicts or long-lasting wars. Globally, development opportunities, as well as disaster exposure risks, are not equally distributed over societies and populations. As in the past, contemporary and future civilizations will be challenged to formulate responses to threats and the impact of events when they manifest themselves as true disasters.

The human consequences of disasters are normally considered in terms of well-being, social functioning, and mental and physical health (WHO 1948; Huber et al. 2011). Epidemiology and health research during the last decades has contributed greatly to knowledge of the health impact of exposure to disasters and major events (Bonanno et al. 2010; Bonde et al. 2016; Galea et al. 2006; Herbert et al. 2006; Kessler et al. 2008; Noji et al. 2000; Norris et al. 2002a; Norris & Elrod 2006; Reifels et al. 2017; Saulnier et al. 2017; Scott et al. 2013; Yzermans et al. 2009). It has been repeatedly confirmed that exposure seriously harms human health, and a lot is now known about prevalence, health trajectories, and risk and protective factors. However, the scientific knowledge base on the best way to anticipate the human health consequences of exposure, especially in different contexts, is less extensive.

13.2 Resilience and vulnerability perspective

The objective of this book is to gain a better understanding of the causes and consequences of human resilience and vulnerability from a disaster mental health perspective. In recent years, concepts such as resilience and vulnerability have become an increasingly popular lens with which to examine this challenge at individual, community and society level (Alexander 2012, 2013; Bonanno 2004; Cutter et al. 2003; Olsson et al. 2015; Welle & Birkmann 2015b). Since the resilience concept concerns the ability or capacity to deal with disruption and maintain or regain a sufficient equilibrium in well-being, functioning and health, and the vulnerability concept centres on the lack of this ability and the potential to be harmed, the two concepts can be seen as two sides of the same coin. To enhance readability, vulnerability has been largely used in this chapter although its antonym, resilience, can often be seen to be equally applicable.

A better understanding of the causes and consequences of vulnerability is invaluable for the planning and delivery of high-quality psychosocial services to affected individuals and communities. An existing disaster vulnerability model, entitled “the plexus of context and consequences”, was introduced in the first chapter as a starting point with the intention of further developing it using the studies presented in chapters 2 to 12. In the model (Figure 1.1) “the vulnerability of human socio-economic systems is acted upon by physical hazards (whether natural or anthropogenic), as well as cultural and historical factors. The plexus of the context and consequences of these associations is what determines the form, entity and size of any ensuing disaster.” (Alexander 2012). From a mental health perspective, this model is not specific enough. The human consequences cover the well-established disaster “health consequences” mentioned in the previous section, but the human consequences are not exclusively linked to health. There are also “service consequences”. Human vulnerability is characterized by the insufficient capacity to provide psychosocial services for the benefit of the health of affected people. In this book, health and psychosocial services are both treated as human consequences of disaster in the light of the plexus model.

13.3 Research questions

In order to learn more about the causes and consequences of people’s vulnerability from a disaster mental health point of view, a series of research questions was formulated. The research questions were grouped in two clusters. In both clusters vulnerability is examined in relation to its causes (exposure and culture) and consequences (health and psychosocial services). The first cluster explores cross-national patterns in disaster vulnerability:

- 1.1 How are exposure and cultural characteristics related to vulnerability?
- 1.2 How is vulnerability linked to mental health?
- 1.3 How does vulnerability relate to the capacity to provide psychosocial services to affected people?

The second cluster is more conceptual and normative, and linked to the type of psychosocial services that should be provided to adequately address the mental health impact of exposure:

- 2.1 Is there consensus on psychosocial service norms and are these norms applied in practice?
- 2.2 What type of activities are relevant for psychosocial service providers from a quality improvement perspective?
- 2.3 How can psychosocial service norms guide crisis management?

13.4 Cross-national patterns

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In Part I several studies were brought together, dealing with international differences and similarities in disaster exposure, cultural and socio-economic characteristics, mental health prevalence, and the organization of psychosocial services. Before discussing the results of the studies, it is important to say a bit more about one of the constant concepts in the various studies: country vulnerability. It is common in epidemiological research to cluster countries according to World Bank categories (high income, higher middle income, lower middle income and low income). Although it can be meaningful to give an indication of resource levels in societies, one must always wonder about the significance of income categories. There is another metric, the World Vulnerability Index, that combines information on over 20 indicators into one country statistic, ranging theoretically from 0 to 100. The vulnerability index is based on, among other factors, income, but also on income equality, good governance, corruption, access to general practitioners, access to hospitals, public and private health expenditure, life expectancy at birth, access to clean water and nutrition (Welle & Birkmann 2015b). As such, country vulnerability is a richer construct, containing more information on countries than a blunt division into income categories. The vulnerability index is updated every year and presented in the freely accessible World Risk Report. In Part I of this book, the country vulnerability index is used as a dependent (question 1.1) and an independent (questions 1.2 and 1.3) variable.

Question 1.1: exposure, culture and vulnerability

The association between exposure and cultural characteristics on the one hand, and vulnerability on the other, was examined in chapter 2. The large-scale survey research conducted by Hofstede and colleagues since the 1970s has resulted in a dataset containing cultural dimension scores for many countries, organized according to six dimensions (Hofstede 2001; 2011; Hofstede & Bond 1988; Minkov 2007). Populations in different countries appear to vary substantially in their cultural fingerprint. Recent validations of the six dimensions showed no loss of validity, indicating that the country differences described by these dimensions are basic and enduring (Hofstede et al. 2011; Beugelsdijk et al. 2015). Hofstede's cultural dimensions can be summarized as:

- Power distance, relating to the different solutions to the basic problem of human inequality;
- Uncertainty avoidance, relating to the level of stress in a society in the face of an unknown future;

- Individualism versus collectivism, relating to the integration of individuals into primary groups;
- Masculinity versus femininity, relating to the division of roles between women and men;
- Long-term versus short-term orientation, relating to the choice of focus for people's efforts: the future or the present and past;
- Indulgence versus restraint, relating to the gratification versus control of basic human desires related to enjoying life.

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The study in chapter 2 took data on different countries' exposure to natural hazards and the vulnerability index from the 2012 World Risk Report (Welle & Birkmann 2012) and combined them with countries' cultural dimension scores. Cultural dimension scores and country vulnerability data could be matched for 60 countries. Analyses suggested that cultural dimension scores were all associated significantly with vulnerability, except for the level of masculinity. Greater degrees of uncertainty avoidance, long-term orientation, and indulgence were cultural characteristics found in less vulnerable countries. Countries with a lower power balance and a higher level of individualism were especially likely to be wealthier and less vulnerable. Approximately 70% of the variance in vulnerability could be explained in this way. The findings should, however, be interpreted with some caution as longitudinal data were unavailable and disaster vulnerability itself may be seen as a cultural derivative, making it impossible to clarify causal mechanisms. Because long-term data on culture, exposure (natural as well as anthropogenic), and disaster vulnerability are not available at the moment, the historical element of Alexander's model could not be included directly in the analysis. Despite these and other limitations, the study highlights interesting associations that, firstly, should be expanded and replicated in larger samples, allowing more advanced analysis, and secondly, should encourage the more thorough examination of different local contexts and cross-level interactions than was possible in this exploratory endeavour.

Question 1.2: vulnerability and mental health

Four studies were conducted to explore whether vulnerability is linked to mental health. The country vulnerability data was twice combined with data on exposure to disasters and other potentially traumatic events and mental health disorders, depending heavily on the methodological heritage of the World Mental Value Surveys (Kessler & Ustün 2008; Kessler et al. 2009).

In the first study, in chapter 3, it was tested whether variation in national PTSD rates can be explained by exposure to trauma, country vulnerability and their interaction. The interaction has been suggested, for instance, by Cutter: “Vulnerability is the likelihood that an individual or group will be exposed to and adversely affected by a hazard. It is the interaction of the hazards of place (risk and mitigation) with the social profile of communities.” (Cutter 1993). There is consistent evidence that within countries, more disadvantaged groups have higher prevalence levels of PTSD in response to trauma exposure (Bonanno et al. 2010; Hobfoll et al. 2009). These findings suggest that more vulnerable countries should have higher prevalence rates, and that trauma exposure interacts with group vulnerability to increase PTSD prevalence. General population studies on lifetime PTSD and trauma exposure were retrieved from literature databases. The focus was on studies based on the WHO Composite International Diagnostic Interview (DSM-IV). PTSD prevalence was identified for 24 countries (86,687 respondents) and exposure for 16 countries (53,038 respondents). Next, PTSD was predicted using exposure and vulnerability data (this time the vulnerability index from the 2013 World Risk Report was used; Welle & Birkmann 2013). The analysis in the third chapter showed that PTSD is related positively to exposure but negatively to country vulnerability. Together, exposure, vulnerability, and their interaction explain approximately 75% of the variance in the national prevalence of PTSD. Contrary to expectations based on individual risk factors, a paradox was identified whereby greater country vulnerability is associated with a decreased, rather than increased, risk of PTSD for its citizens. The exposure to traumatic events remains the most important predictor, but the country vulnerability context matters, and might even be considered a country-level risk or protective factor. The interaction effect can be explained in a similar way to the influence of sunlight and nutrition on plant growth: sunlight and nutrition both have a positive effect on plant growth, separate to each other, however, growth increases substantially when they are combined.

In the second study (chapter 4), a similar analysis of national population survey data was conducted to examine this vulnerability paradox in relation to other disorders. Kessler and colleagues presented the lifetime prevalence of any anxiety disorder (AAD: including agoraphobia, adult separation anxiety disorder, generalized anxiety disorder, panic disorder, PTSD, social phobia, and specific phobia), any mood disorder (AMD: including bipolar disorders, dysthymia, and major depressive disorder), any substance disorder (ASD: including alcohol or drug abuse with or without dependence), and any externalizing disorder (AED: including attention-deficit/hyperactivity disorder, oppositional-defiant disorder, conduct disorder, and intermittent explosive disorder) in the populations of 17

countries based on the WHO CIDI instrument (Kessler et al. 2009). The lifetime prevalence of anxiety, mood, substance, and externalizing disorders in 17 countries was predicted based on trauma exposure reported by Benjet et al. (2016) and updated country vulnerability data (this time extracted from the 2015 World Risk Report; Welle & Birkmann 2015a). A substantial proportion of the variance in all disorder categories, 33% to 54%, could be explained by trauma exposure. Explained variance increased by 5 and up to 40 percentage points after adding the variable of vulnerability to the equation. Higher exposure and lower vulnerability levels were accompanied by a higher prevalence in any mental disorder, with the largest effect size in mood disorders (76% of explained variance). Interestingly enough, the interaction between exposure and vulnerability did not explain the significant additional variance in any disorder as it did for PTSD (more on this later).

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The previous two studies suggest that greater country vulnerability is associated with a decreased, rather than increased, risk of mental health problems. A third study has examined the paradox in relation to gender differences in PTSD (chapter 5). It is a well-known finding that the lifetime risk for PTSD in women is at least twice as high as in men (Christiansen & Hansen 2015; Ditlevsen & Elklit 2010; Olf et al. 2007; Tolin & Foa 2006). Research suggests that greater exposure to trauma in general cannot account for the increased PTSD risk in women (Yehuda et al. 2015). Although men may, on average, experience higher levels of trauma (often war-related exposure types), it is specific types of trauma (such as sexual violence) to which women are more exposed that have been associated with a higher conditional prevalence of PTSD. Many other psychological, social, and biological factors can potentially explain women's greater vulnerability to PTSD (Olf et al. 2007). The third study retrieved lifetime PTSD prevalence data for women and men from 11 population studies ($N = 57,031$). Statistical models were tested with vulnerability, gender, and their interaction as predictors. The average lifetime PTSD prevalence in women turned out to be at least twice as high as it is in men. The international sample indicated that the vulnerability paradox exists in the prevalence data for women and men, and did not suggest that gender effects are modified by socio-economic and cultural country characteristics. The absence of a significant interaction between gender and country vulnerability makes it less likely that explanations based on cultural and socio-economic societal factors differ between men and women. For instance, one could hypothesize that the vulnerability paradox in women would be significantly greater than in men because access to the protective factor of social support (that women are known to be more likely to seek out) may not be as commonplace in less vulnerable, individualistic countries. The data at present offer no support for such speculation.

The validity of the paradox has been challenged, specifically for being biased by modest sample sizes and reliance on a survey methodology not designed for cross-national comparisons (Vermetten et al. 2016; Kessler et al. 2018). The fourth study (chapter 6), focused on explaining cross-national differences in suicide rates as reported by the World Health Organization (WHO 2014), aimed to verify the existence of the vulnerability paradox using data from a substantially larger country sample (96 countries) and coming from an entirely different data source (national registries). Again, a negative association between country vulnerability and suicide prevalence in both women and men was found with higher suicide rates for men, regardless of country vulnerability. The study corroborates the previous research findings which are contrary to standard theoretical predictions and inconsistent with the well-established finding that individual social or economic vulnerability increases a person's mental health risk. The paradox is not accounted for by data quality or by income level, since it exists across and within World Bank income groups.

The results of the four studies suggest that country-level data can help to explain the multi-layered mechanisms of resilience and vulnerability in the context of trauma better.

Question 1.3: vulnerability and psychosocial services

The study in chapter 7 combined the 2012 country vulnerability index (Welle & Birkmann 2012) with mapping survey data collected by The European Network for Traumatic Stress (TENTS). The TENTS mapping survey collected information in European countries on the multi-agency capacity to organize professional psychosocial support for people exposed to large-scale traumatic events (Witteveen et al. 2012). The development status of local planning and delivery systems as measured is reflected in different survey items, e.g. cooperation between professionals, trained volunteers and authorities belonging to different organizations; the coordination of planning and delivery of services; adherence to evidence-informed guidelines by organizations; plans facilitated by government legislation; and regular testing of the plans (Cronbach's alpha 0.90). The response system score is meaningful as it tells us something about the capacity to provide psychosocial support in line with evidence-based guidelines, but the factors that explain variation in that capacity are poorly understood.

The association between cultural and socio-economic country characteristics and the planning and delivery systems' development status was assessed. Multilevel analyses were applied to take the hierarchical structure of the data into account. Vulnerability data for 36 countries grouped into the northern, western, central,

southern, south eastern, and eastern parts of Europe (six regions) were taken from the 2012 World Risk Report (Welle & Birkmann 2012). Planning and delivery system information was available from 286 survey participants in 30 countries (within the same six regions). The analysis in chapter 7 confirmed that the developmental stage of local psychosocial planning and delivery systems in Europe is associated with countries' level of disaster vulnerability at the level of the six regions. Lower country vulnerability is accompanied by more evolved systems – a more evolved inter-professional capacity to plan and deliver psychosocial services in reaction to trauma exposure. Countries in the northern, western and central regions of Europe have more developed systems and lower vulnerability levels than those in the south, southeast and east. The highest proportion of variance in vulnerability is located at regional level, which is interesting because vulnerability is operationalized at the country level using national data. Every context in which trauma is manifested is unique, but a certain proportion of the professional capacity to address it is apparently not only linked to national but also to supranational cultural and socio-economic characteristics. The finding that most of the variance in planning and delivery systems is at individual level suggests there is room for local improvement.

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13.5 Psychosocial services

The studies in Part II concern the type of psychosocial services that should be provided to adequately address the mental health impact of exposure. This topic is approached from three sides. Apart from the more traditional mental health angle, preferred services to populations confronted with adversity are also elaborated from a quality improvement and crisis management perspective.

Question 2.1: consensus on psychosocial service norms and application

In the last two decades, several initiatives have been undertaken to develop post-disaster psychosocial support standards. With the Dutch national multidisciplinary guidelines for early psychosocial interventions (Te Brake et al. 2009) as a point of reference, the study in chapter 8 investigated the level of consensus on the grounding principles of early psychosocial interventions, and examined whether these principles are translated into mental health care practice. The analysis was carried out during the EU project EUTOPA, an acronym for “European guideline for target-group oriented psychosocial aftercare”. The Dutch guidelines were used for two reasons: firstly, these guidelines were the first evidence-based psychosocial support guidelines within Europe that were developed nationally in cooperation

with professionals and other end-users; which is important because the chances of successful guideline implementation increase if targeted end-users are involved (Eccles et al. 2012). Secondly, the Dutch guidelines are in line with source material and recommendations in other guidelines (e.g. Bisson et al. 2010; ACPMH 2007; see Taal 2010). Experts and health care professionals from 24 EU-countries discussed the Dutch guidelines at an international seminar. They filled out a questionnaire to assess the extent to which they consider the guidelines' scope and recommendations relevant to, and part, of regular practice in their own country. The responses suggest overall agreement on the standards, although many of the recommendations do not appear to be embedded in everyday practice. The study concludes that, despite a high level of consensus on standards for early psychosocial support, a chasm between norms and practice appears to exist throughout the EU, stressing a general need for investment in guideline development and implementation (which requires tailoring, particularly as country contexts can differ substantially; more on this later).

Question 2.2: quality improvement implications for psychosocial services

Chapter 9 addresses post-disaster psychosocial support programmes from a quality improvement perspective. A framework is sketched that offers chances to understand and optimize the quality of post-disaster psychosocial service delivery better. The framework is a combination of the Donabedian model (1980), the quality criteria (Donabedian 1988; Berwick 2003; Eccles et al. 2009), and the plan-do-study-act-cycle (Langley et al. 1996). The quality is reflected in the programme's structure, process, outcome and the association between aspects per dimension. Moreover, quality can be expressed in scores per criterion (i.e. need-centeredness, effectiveness, safety, timeliness, efficiency, and equity), which are proposed to be related to the "attitude" (more passive or active) towards affected people. When quality and attitude are combined in a two-dimensional parabolic model, psychosocial support is preferably found in the middle of the attitude-axis (high quality) whereas extremely passive or active positions are to be avoided (low quality). In that case, high quality is associated with responsible behaviour, avoiding waste and harm, and not overestimating (too passive) or underestimating (too active) resilience. The quality threshold should be monitored. Programme managers and service providers who check/monitor whether their plans and expectations regarding diverse individuals or communities come true, provide a safety valve in the programme. When the needs and problems of affected people are known, together with the effect of (non)intervention, it can be verified whether service delivery is situated in the optimal area of the parabolic model.

This book contains a study, chapter 10, that uses the framework from chapter 9 and presents a quantitative analysis of the quality of 40 post-disaster psychosocial support programmes, mostly implemented in European disaster settings. The objective was to measure quality domains recognized as relevant in the literature and to empirically test associations. During the EU project “Operationalizing Psychosocial Support in Crisis” (OPSIC) an evaluation survey was designed and developed for this purpose and completed by 40 programme coordinators involved in different mass emergencies and disasters. The survey data were analysed in two steps. Firstly, the data were used to operationalize the quality domains of a programme, to test constructs and to assess their internal consistency reliability. A total of 26 out of 44 survey items clustered into three of the four expected domains: “planning and delivery system” (Cronbach’s alpha 0.82); “general evaluation criteria” (Cronbach’s alpha 0.82); and “essential psychosocial principles” (Cronbach’s alpha 0.75). “Measures and interventions applied”, theoretically a potential fourth domain, could not be confirmed to empirically cluster together. Secondly, several models with associations between the three domains and the measures and interventions were tested and compared. The model with the best fit suggests that in programmes with a higher planning and delivery systems score, a larger number of measures and interventions from evidence-informed guidelines are applied. In such programmes, coordinators are more positive about general evaluation criteria and the realization of essential psychosocial principles. Moreover, the analyses showed that some measures and interventions are more likely to be applied in programmes with more evolved planning and delivery systems, yet for most measures and interventions the likelihood of being applied is not linked to planning and delivery system status, nor to coordinator perceptions concerning psychosocial principles and evaluation criteria. Further research is necessary to validate and expand the findings and to learn more about success factors and obstacles to programme implementation.

In summary, from a quality improvement perspective, psychosocial service providers should collect and study information on the elements that constitute the programme’s structure, process and outcome, including the scores per quality criterion, plus the associations between the elements. Only then can they purposefully try the available routes to improve the quality where desirable or necessary. Well-timed assessments (which require evaluation instruments) will help planners, providers and evaluators establish whether the optimum has been reached, as well as provide guidance for quality improvement. When the framework is applied in such a way, research and evaluation are integrated into disaster response planning. Methodologically, it will remain challenging to attribute changes in the health status of affected individuals and groups to a programme or particular measure.

Question 2.3: crisis management guided by psychosocial service norms

Crises are disruptions with a potential psychosocial impact. The point where crisis leadership and psychosocial support converge was explored in chapter 11. The study shows that the two disciplines are poorly integrated in the literature, and presents a model linking typical crisis leadership challenges to the well-being, functioning and health of individuals in relation to their social environment. The psychosocial dimension of crises has received little attention in crisis management literature. The study in chapter 11 links leadership challenges, originating from crisis management studies (Boin & 't Hart 2011; Boin et al. 2016), to post-disaster psychosocial support principles identified in the literature (see chapter 8). While psychosocial support principles are, above all, relevant to professionals and trained volunteers (e.g. rescue workers, family physicians, mental health professionals, social workers, and clergy), and embedded in a psychosocial crisis management model, they also provide meaningful guidance to public leaders with a responsibility for the well-being, functioning, and health of citizens at national or local community level. The crisis leadership tasks and the psychosocial support principles are structured along the stages in the plan-do-study-act cycle (as described in chapter 9). Psychosocial crisis management encompasses different time phases in which public leaders must overcome several obstacles while shaping sense making, decision making, coordination, meaning making, account giving, and learning tasks. Clearly, psychosocial crisis management should not disappear from the radar of political-administrative elites when the operational phase of the crisis is over. The model can assist crisis leaders and researchers in understanding and evaluating the psychosocial dimension of crisis management better. Psychosocial crisis management can only be effective if it is integrated into every stage of crisis management.

In chapter 12 a multi-layered psychosocial resilience framework is described, conceptualizing and connecting capacities at individual, community, and society levels. This chapter further analyses the multi-layered nature of psychosocial resilience, focusing on the psychosocial well-being, functioning and health of communities in the context of major crises. The framework adds depth to the imperative that crisis management should strengthen and utilize those capacities. The community as a resilient, functioning social system depends, almost by definition, on collaboration between government, business, and civil society. A practical challenge is to distribute scarce resources equally between and within communities, and to plan and coordinate activities by professionals and volunteers who operate autonomously, or in organizations and multi-layered inter-organizational networks. However, this can be complicated. Resilience, for its part

is depoliticized and naturalizing, whereas crisis management can be controversial and politically intense, which in practice means crisis management might negatively affect the development of more resilient communities.

The psychosocial crisis management model and the psychosocial resilience framework in the chapters 11 and 12 complement each other. Although crisis management insights and psychosocial support principles stem from different disciplines and research traditions, integrating them helps to reduce foreseeable problems in the response and recovery phases. The psychosocial crisis management delineated, describes how the tasks of strategic crisis managers can be guided by psychosocial support principles. The model helps public leaders, at society and local community level, to understand typical psychosocial dynamics and obstacles better as the crisis life cycle evolves (chapter 11). Since risk and protective factors, susceptibilities, coping capacities and adaptive capacities can be found at individual, community and society level (chapter 12), it is necessary to address, tackle, strengthen or utilize factors and capacities at these different levels. Public leaders and strategic crisis managers need to adopt a multilevel perspective in the planning and delivery of psychosocial services, and should ideally involve civil society, business and government stakeholders in disaster response and recovery.

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13.6 Reflections

Considerations on cross-national patterns

Overall, the answers to the research questions in Part I mark an interesting overarching finding. The human consequences of disaster in less vulnerable countries are different than in more vulnerable countries. Less vulnerable countries – characterized by, for example, lower exposure to natural hazards, higher levels of individualism, lower power distance, and greater indulgence within society – are confirmed to have a higher prevalence of mental health problems and greater professional capacity to provide psychosocial services. The implications require further inquiry. At an individual level, one may speculate that cultural factors engender greater sensitivity to social failure and the hampered realization of aspirations. This blocking of personal aspirations and goals might be coupled with lower levels of protective social support and less hindrance by stigma when it comes to discussing personal problems, including mental health (chapter 3).

In seeking to explain why there might be an interaction between country vulnerability and exposure to trauma on the prevalence of PTSD but not on other mental disorders, it is necessary to consider what makes PTSD unique. One difference is that a PTSD diagnosis explicitly links psychological, physical,

and functional symptoms to trauma exposure. For this reason it was suggested in chapter 4 that populations in less vulnerable countries are more likely to attribute health complaints to exposure to external events or causes. Perhaps the variation in PTSD between countries reflects differences in the extent to which traumatic events are recognized as having lasting effects that include impairment in functioning.

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In the two studies exploring the combined influence of exposure to trauma and country vulnerability on mental health problems (chapters 3 and 4), exposure rates were calculated by averaging different types of exposure. Burri and Maercker (2014) tested whether the effect of exposure specifically to war, crime, natural disaster and road fatalities on PTSD prevalence in 11 countries was mediated by cultural value orientation. Their analysis showed that “modern” values, in particular stimulation (excitement, novelty, and challenge in life; see Schwartz 2006), are related to rates of traumatization and PTSD symptoms. The authors concluded that the pursuit of novel, intense and exciting sensations “therefore might not only be regarded as an individual intrinsic process or trait but also as a coping strategy for the terror and emotional sequelae of repetitive trauma exposure” (Burri & Maercker 2014). Although the study is limited by sample size and replication of the effect is crucial, it is plausible that stimulation-seeking is more prevalent in less vulnerable, more individualistic, and more indulgent societies that value social success and the realization of aspirations despite these goals not being achievable by all members. Another thing relevant to note is that Burri and Maercker approached cultural variation as a mediator. Whether distinctive cultural and socio-economic country characteristics (values, dimension scores, aspects of vulnerability) are mediators, moderators, or both is hitherto still undetermined. Ultimately, these country features cluster together and play a role in how exposure affects people’s mental health.

It is conceivable that the lack of availability of institutional and professional capacities and systems in more vulnerable countries — as discussed in chapter 7 — is accompanied, or even compensated, by aspects of social capital such as community engagement and support that in turn might serve as an alternative route to the realization of psychosocial principles (support by professionals in individualistic societies might even be considered a substitute for a lack of social support within people’s personal networks). Also, variation in the availability and accessibility of professional mental health services between countries might affect the likelihood of being diagnosed with mental disorders. Among health issues, mental health has been recognized to hold a “unique” and “paradoxical” position because it combines the under-recognition of suffering and the breadth of mental health issues with over-treatment and over-medicalization “across geographies”

(PLOS Medicine Editors 2013). Whether or not this position is linked to country vulnerability, the paradox described in chapters 3 to 6, and verified in general anxiety disorder (Ruscio et al. 2017) and adult attention deficit hyper-activity disorder (Fayyad et al. 2017), raises serious concerns about the baseline of mental health. Since the prevalence in less vulnerable countries is above average and in vulnerable countries below average, one can wonder which prevalence should serve as a point of reference. There is no objective universal standard. At the same time, there are indications that “among immigrants, the prevalence of common mental health problems is initially lower than in the general population, but over time, it increases to become similar to that in the general population” (Kirmayer et al. 2011; also see Baker et al. 2015; Burnam et al. 1987; Vega et al. 1998; Grant et al. 2004a; Grant et al. 2004b; Allegria et al. 2008).

Several possible explanations for the higher mental health disorder prevalence in populations in less vulnerable countries have been detailed so far. The classic relative deprivation theory by Merton (1957) provides a compelling explanation why the vulnerability paradox exists between societies and not within them. The notion of relative deprivation as a subjective dissatisfaction, not rooted in an objective situation but caused by one’s relative position compared to others, is compatible with the robust finding that vulnerable groups (in cultural and socio-economic terms) within a country run a greater risk of developing mental health problems.

Lastly, McNally explored another potential explanation for the vulnerability paradox. He suggested that “the paradox vanishes if we avoid falling prey to the ecological fallacy”. This fallacy arises when one assumes that associations between variables at the ecological (group or aggregate) level necessarily apply to associations between these variables at the level of the individual (McNally 2018).

Considerations on psychosocial services

Several studies in Part II identified and further developed a coherent set of psychosocial principles, integrating them into other research fields. A gap was identified between the principles and their application in chapters 8 and 10. The combination of knowledge from the traditional mental health research discipline with quality improvement models in chapters 9 and 10, and crisis management models in chapters 11 and 12, helped to further define challenges and tasks for health care professionals, volunteers, crisis managers, public leaders, policy makers and evaluators. Psychosocial support principles relevant to these actors could be clustered in three categories in chapter 11: the consideration of needs, problems, risks, and existing capacities; the provision of a supportive context; evaluation

and the implementation of lessons. Chapter 9 explains how, from a quality improvement perspective, multiple domains of service delivery and criteria need to be considered, and planning and delivery must be succeeded by evaluation and adjustment when appropriate and feasible. Chapter 11 emphasizes, from a crisis management perspective, that psychosocial support principles should guide typical crisis leadership tasks through time. Despite differences in focus, applying a quality improvement or crisis management lens adds a set of safety valves in the planning and delivery process. On the one hand, the plan-do-study-act cycle can be applied at the level of an event (the crisis life cycle), but also in relation to interventions or measures applied (separate or in combination): check if they turn out as planned and if this is not the case, adjust the plan. On the other hand, because public leaders need to guard their “license to operate” (Moore 1995), they are encouraged to keep an eye on the well-being and health of people residing under their responsibility. Within communities’ social systems, highlighted in chapter 12, government serves as a safety valve in relation to business and civil society to protect individuals from injustice and inequality in the midst of post-disaster response and recovery. As such, combining knowledge from different disciplines helps to understand better the tasks and challenges for different stakeholders in the provision of psychosocial services in the wake of a major incident or crisis.

Considerations on psychosocial services in the light of cross-national patterns

The next step is to consider the findings from Part I and Part II in relation to each other. The norms described in Part II seem to rest on a foundation of scientific knowledge and expert opinions from less vulnerable countries, particularly from Europe. A conclusion based on Part I and described earlier, is that less vulnerable countries appear more equipped to provide professional services in line with such norms and are inhabited by populations with a higher mental health disorder prevalence. Those countries score better on governance and access to health care and private and public health expenditure is higher. One can wonder whether the content of international evidence-informed guidelines is biased because of the overrepresentation of data from less vulnerable countries. If that is the case, it would explain why many principles match the cultural and socio-economic context of less vulnerable countries. An international comparison of psychosocial support guidelines during the OPSIC project supports the possibility that guidelines are formulated with a particular vulnerability context in mind. Guidelines from post-conflict and low income countries, for instance, contain recommendations on gender issues, culture-sensitivity and other ethical aspects of service delivery that – apart from the guidelines developed during OPSIC (Juen et al. 2015) – are scarcely

addressed in the European TENTS and EUTOPA guidelines (Bisson et al. 2010; chapter 8). There is another aspect that complicates the cross-cultural applicability of psychosocial support principles: the parabolic model described in chapter 9 illustrates how a too passive or active attitude coincides with low-quality service delivery. The needs and problems of people affected by trauma and loss depend on the context (including the country context as pointed out in Part I of this book): since the nature of an event, its scale and consequences, can vary, the provision of support should vary as well. The relativity of the human consequences of disaster is difficult to unify with the idea that one single context could serve as a meaningful point of reference to other cases. An implication of the studies in Part I might be that the vertical middle axis in the parabolic model in fact holds a relative position. Country vulnerability ranges on a theoretical scale from 0 to 100, with scores of approximately 25 marking the least vulnerable countries up to values of around 75 capturing the most vulnerable countries. Whether or not a particular psychosocial service package is an appropriate reaction to a given incident in Bangladesh, Haiti or Somalia, it will probably be perceived differently in less vulnerable countries like Canada or Sweden. It is not unlikely that shifting the parabola upwards on the vulnerability scale also changes viewpoints on what is necessary or appropriate. Suppose that the value of a human individual or human losses differs between two specific settings located at different ends of the vulnerability continuum, this difference would then be reflected in lower expectations of affected people and service providers in more vulnerable countries, with respect to necessity, appropriateness and other service quality aspects. Why allocate scarce resources to psychosocial support when a society or community has more immediate problems to cope with (as, again, suggested by the lower mental disorder prevalence in Part I)? Maslow's classic hierarchical pyramid of needs, comprises different types of needs starting with physiological needs at the bottom, and then upwards via safety and security, love and belonging, and self-esteem to self-actualization at the top (Maslow 1971). In a study in 123 countries from all major regions of the world, the needs were confirmed as universal human needs regardless of cultural differences (although the order in the hierarchy and the complementary nature of needs are more complicated; Tay & Diener 2011). With the risk of oversimplifying matters, one could argue that less vulnerable countries spend more resources on self-esteem and self-actualization needs, while more vulnerable countries are occupied with physiological needs, and safety and security. In the end, people's needs and problems, as well as the appropriate vehicle to address them, are relative and differ between contexts across time and location. It is probably no coincidence that Rosenthal and colleagues formulated similar thoughts while reflecting on issues of

crisis management. They even used identical “vulnerability paradox” terminology to describe “the side effect of the near-perfect and undisturbed service delivery in modern society: the more perfectionist the preventive schemes and safety measures, the more dramatic (...) the effects of relatively minor disturbances” (Rosenthal et al. 2001; “modern society” is used in this quotation as a synonym for less vulnerable countries). The relativity of normality is apparently relevant from both a crisis management and a mental health viewpoint.

13.7 Revisiting the plexus model

At the beginning of this chapter, Alexander’s vulnerability model was introduced as a conceptual framework to study the causes and consequences of vulnerability. With some modifications based on the findings described in the various chapters of this book, the “plexus model” helps to present the bigger picture surrounding the planning and delivery of high-quality psychosocial services to affected people. Figure 13.1 is an expanded version with two notable changes compared to the initial model. Firstly, the human consequences have been divided into two types: “health” and “psychosocial services”, represented as two areas on the right of the figure. Secondly, human vulnerability has been replaced by “risk and protective factors” (the grey area shown in the centre). Health covers human well-being, functioning and health. Psychosocial services encompass health-related support and care provided by professionals, organizations, networks and programmes. The risk and protective factors area comprises, as its name suggests, determinants that have been confirmed (partly in this book) to be associated with certain health or psychosocial services status. Instead of risk and protective factors, it could be equally applicable to speak of coping and adaptive capacities; after all, health and psychosocial services can be seen as consequences of the potential capacity (or lack of capacity) of individuals, communities and societies to deal with adversity. The current representation of the grey area in Figure 13.1 matches the multi-layered framework as described in chapter 12, with risk and protective factors (or coping and adaptive capacities) at three levels.

The health area of Figure 13.1 contains a set of interrelated mental health, physical health, well-being and functioning aspects. Associations between these aspects have been verified consistently by epidemiological and health research, and mental disorder diagnoses often entail a combination of criteria covering these aspects. Information on such health aspects can be either objective or subjective, although perceptions and objective observations can be hard to separate from one another. From a psychosocial services perspective, the health area is considered a

diverse pool of possible outcomes that is ideally influenced in a positive way. These outcomes represent the status of people (actual or potential clients) affected by forms of exposure.

The left of the figure shows how exposure, culture and history influence the determinants for coping and adaptation at all three the levels. The risk and protective factors influence, or are at least connected to, the health of affected people and the potential to provide psychosocial services. The studies in Part I confirm general associations as shown in Figure 13.1 at society level and contribute to the knowledge from earlier research at individual and community level. Also the effect of exposure on health is confirmed statistically in chapters 3 and 4. At country level, vulnerability has a paradoxical effect on health, directly affecting most mental health disorders and moderating the effect of exposure on health in the case of PTSD.

The association between adaptive and coping capacities of societies and psychosocial services (i.e. planning and delivery systems) was verified in chapter 7. Furthermore, chapter 10 showed how more advanced planning and delivery systems are accompanied by a larger number of measures and interventions based on evidence-based guidelines, and more positive perceptions of service quality by programme coordinators. The psychosocial services area of the model encompasses the conditions, structure and process, including professionals, volunteers and public leaders – or any individual or organization from the government, business or civil society sector – providing support and contributing to the realization of essential psychosocial principles. Less vulnerable countries have more resources available to design programmes and to address needs with inter-organizational and professional capacity. The structure and process of service delivery are only two domains of the Donabedian model, outcome, the third domain, is not part of psychosocial services in Figure 13.1 but falls under health and perceived quality. According to Donabedian, quality is reflected in the domains and the relationship between them: a relationship that is a probability rather than a certainty (Donabedian 1980). This concept deserves a bit more attention. Methodologically, the association between structure and process can be difficult to ascertain, as is the relationship between these two domains and health. An attempt to verify the influence of psychosocial services on health is vulnerable to a causal attribution problem. This problem is similar to the causal attribution problem regarding the association between exposure and health discussed in chapter 11 (also see Yzermans et al. 2009). When is the relationship between services provided and a perceived or real change in the health status of affected people probable? In Figure 13.1 the association between psychosocial services and health is illustrated by three dotted lines. These lines

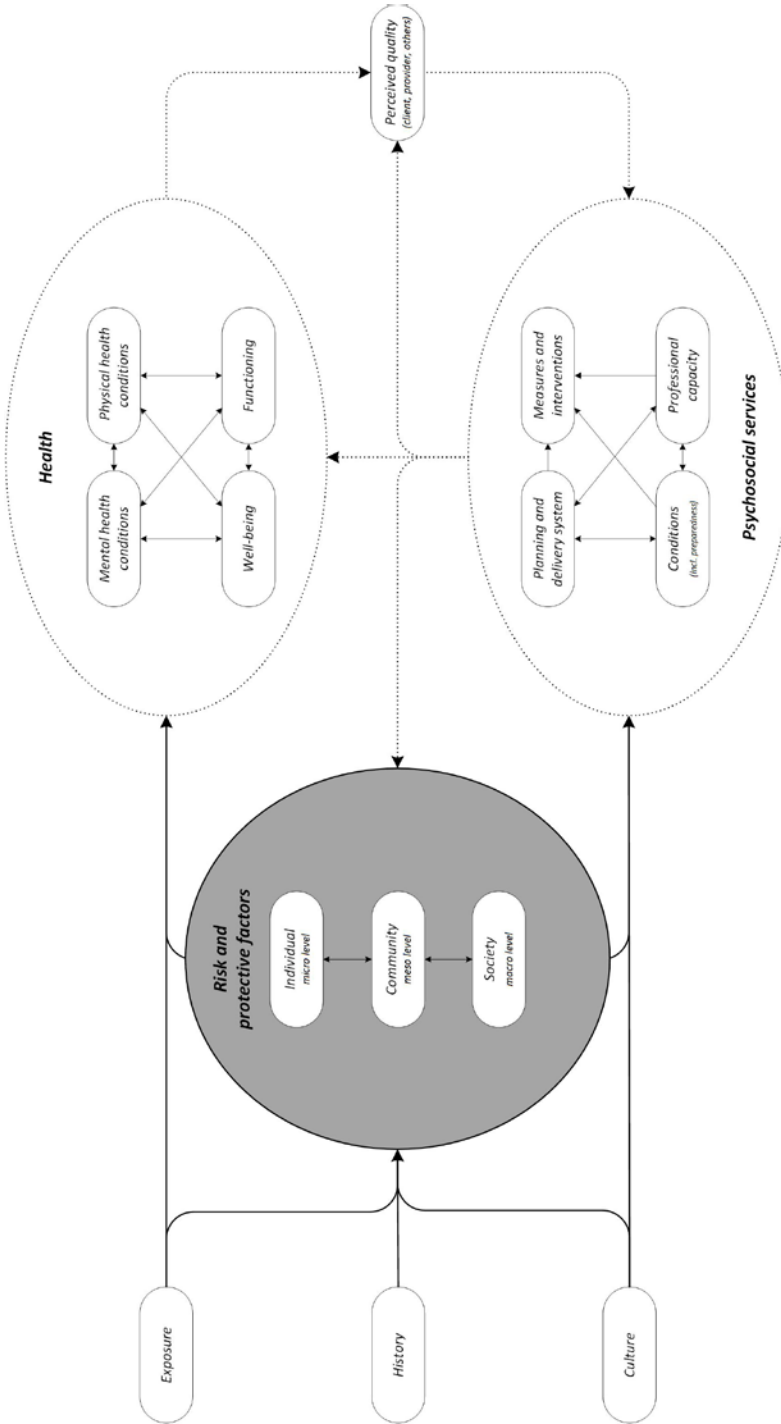


Figure 13.1. Health and psychosocial services: the plexus of context and consequences

Note. Inspired by Alexander (2012): Interrelated sets of resilience or vulnerability factors at the level of individuals, communities and societies (health determinants), are acted upon by physical hazards (whether natural or anthropogenic), as well as cultural and historical factors. The plexus of the context and consequences of these associations is what determines the form, entity, and size of any ensuing disaster, and is reflected in the health of affected populations and the nature of psychosocial services.

represent the three routes by which psychosocial services (single measures or intervention packages) can influence health.

The middle path is a direct route. The problem is, there are no studies with strong methodological designs available to support this route. In order to directly attribute changes in health to particular services, it would be necessary to monitor/observe many relevant influential factors, and to find a way of interpreting changes in health outcomes against the background of disorder or symptom trajectories described in the literature for different populations.

A second route is shown on the right of the model, between psychosocial services and perceived quality. A few of the difficulties here are that perceptions of service quality are prone to self-confirmation bias, hindsight bias, and can be confounded by the respondents' deplorable state of health. It is nevertheless important to learn from perceived quality and use it as input for quality improvement. Also, asking people about their experiences and opinions on service delivery indicates that their viewpoints are taken seriously and can even be seen as a form of social acknowledgement.

The third route connects psychosocial services to health via risk and protective factors at different levels. What makes this route more promising is that a mechanism is implied. The impact of psychosocial services on health is mediated or moderated by factors at the individual, community or society level, depending on the sort of measures and interventions applied. The psychosocial services are influenced by the grey area in the model, but in order to make the health effects of service delivery plausible, the circle needs to be closed, and the factors in the grey area that are connected to the health of people affected by exposure strengthened or utilized. Services failing to minimize risks and maximize protection (or failing to utilize available capacity) can be considered redundant (too active) or not protective enough (too passive) and are positioned in the lower left and lower right areas of the parabolic model respectively (low quality) (Figure 9.1).

13.8 Further research

This book reviewed several country-level patterns involving cultural, socio-economic and mental health aspects of populations. Given the sometimes far-reaching implications of these patterns, it is important to verify them, preferably in larger samples and in populations with greater variation in cultural and socio-economic characteristics. It will be important to consider additional health outcomes and correlates, and to utilise mixed-method study designs from an interdisciplinary perspective.

The combination of disciplines such as psychology and sociology is promising when it comes to formulating new theory and revisiting existing work. A recent study was able to replicate Hofstede's dimensions of national culture for different generational cohorts (Beugelsdijk et al. 2015). One of the findings was that national cultures have changed. Specifically, societies have become on average more individualistic, more indulgent, and less hierarchical (lower score on power distance). In contrast, average uncertainty avoidance and long-term orientation have not changed very much. The results also showed that this change has been absolute and not relative: the cultural distance between countries has stayed the same (with the notable exception of the United States, whose cultural distance from other countries has become smaller) (Beugelsdijk et al. 2015). Based on the strong association between cultural dimensions and country vulnerability, one hypothesis could be that over time countries' vulnerability decreases as they become more individualistic, more indulgent and less hierarchical. Subsequently, since lower vulnerability levels are accompanied by higher mental disorder prevalence and more professional service capacity, a hypothesis regarding the direction of future developments would, if any change is to be expected, point at a further increase in mental health problems and professional service capacity instead of a decrease.

In addition, the possible explanations described above need to be further examined. The same applies to the relationship between psychosocial services and health. Hypothetically, psychosocial services are most effective in promoting health when relevant risk and protective factors are recognized and utilized (the third route). However, little is yet known about the mechanism through which psychosocial services in different vulnerability contexts influence health outcomes, or the conditions that shape, help, hinder or modify the realization of psychosocial services. Today, the literature on the provision of psychosocial support by professionals, public leaders or community actors, its effects at individual and group level, and the factors that play a role, is very limited. This is equally applicable to the realization and impact of community interventions.

Finally, research into these matters, whether theory-driven or exploratory, would benefit from the development of measurement instruments or data sources that enable a timely and reliable assessment of as many of the elements of the framework in Figure 13.1 (or alternative interdisciplinary frameworks) as possible, capturing the perspectives of stakeholders on the side of the client and on the provider of psychosocial services.

13.9 Conclusion

What makes individuals, communities, and societies resilient or vulnerable from a mental health point of view, and how should the causes and consequences of resilience and vulnerability be addressed? This question delineated the thread of this book. An existing disaster vulnerability model was adopted to study cross-national patterns, followed by a more normative approach focusing on which norms should be applied by public leaders and service providers from three perspectives: psychosocial support, quality improvement, and crisis management. Together, the conceptual and empirical studies presented shed light on coping and adaptive capacities, and risk and protective factors at different levels, coupled with an inquiry into mental health and service delivery – two aspects derived from, and at the same time part of, the same capacity that is at the heart of resilience or vulnerability. In combination, the studies constitute an overarching perspective on several routes to address the mental health impact of disaster; benefiting from the combination of epidemiology and social sciences. The studies, and the cross-national comparisons in particular, made it possible to analyse the relative nature of resilience and vulnerability, and explore whether or not different crisis contexts, mechanisms, and outcomes demand different mental health strategies and guidance. Given the variation between cultures in exposure, vulnerability factors, professional psychosocial service capacity and mental health, it can be concluded that different strategies and tailored guidance would indeed be beneficial; the needs and problems of people affected by trauma, loss, and other aspects of exposure vary across geographies, as do psychosocial norms and practices, as does the capacity to deal with adversity.

Summary

Mental health and disaster researchers have thus far not extensively examined the association between exposure to adversity, mental health and psychosocial services across country contexts, while considering determinants at different levels. The objective of this book is to explore these themes and their interrelations conceptually and empirically in order to understand better the resilience and vulnerability of individuals, communities, and societies in the face of disaster.

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An existing disaster vulnerability model was adopted as a heuristic frame. In Part I of the book, “cross-national patterns in disaster vulnerability”, several quantitative studies using existing country data collections were brought together. In Part II, “the quality of psychosocial services in crisis”, a more normative approach was followed to identify and measure the norms public leaders and service providers should adhere to from a psychosocial support, quality improvement, and crisis management perspective. Part III, “Integration”, synthesizes the main findings and implications for research and practice.

Overall, the answers to the research questions in Part I mark an interesting overarching finding. The consequences of disaster in less vulnerable countries are different than in more vulnerable countries. Less vulnerable countries – characterized by, among others, lower exposure to natural hazards, higher levels of individualism, lower power distance, and greater indulgence within society – are confirmed to have a greater professional capacity to provide psychosocial services and, paradoxically, have a higher prevalence of mental health problems.

The studies in Part II identified and further developed a coherent set of psychosocial principles, and integrated them into other research fields. A gap was identified between the principles, as recommended by literature, experts and practitioners (*norms*), and as actually provided by professionals and inter-organizational programmes (*practice*). The combination of knowledge from traditional mental health research disciplines with quality improvement and crisis management models, helped to further define challenges and tasks for health care professionals, volunteers, crisis managers, public leaders, policy makers and evaluators. Psychosocial support principles could be clustered in three categories: the consideration of needs, problems, risks, and existing capacities; the provision of a supportive context; evaluation and the implementation of lessons. From a quality improvement perspective, multiple domains of service delivery and criteria need to be considered while realizing the principles in these three categories. The planning and delivery of psychosocial services must be succeeded by evaluation and adjustment when appropriate and feasible. From a crisis management perspective,

psychosocial support principles should guide typical crisis leadership tasks through time to reduce foreseeable problems in the response and recovery phases.

In Part III the findings are described in relation to each other. Together, the studies constitute an integrative perspective on the research themes. Exposure to disasters and major crises has a direct impact on the health of affected people. Exposure and culture influence interrelated sets of resilience or vulnerability factors at individual, community and society level that promote coping or adaptation. In the first place, these factors – also interpretable as risk and protective factors – are linked to or reflected in health. In the second place, these factors cannot be seen separate to psychosocial service norms and their application.

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Different associations between the research themes were tested and verified. The relationship between psychosocial services and health is still amply understood. Hypothetically, psychosocial services are most effective in promoting health when relevant risk and protective factors are recognized and utilized. Despite consensus on principles, measures and interventions to promote post-disaster mental health, their practical merits in different community and country settings need to be studied more extensively. This is especially necessary because country comparisons reveal differences in exposure, culture, vulnerability factors, professional psychosocial service capacity and mental health. In other words, the needs and problems of people affected by trauma, loss, and other aspects of exposure, vary across geographies, as do psychosocial norms and practices, as does the capacity to deal with adversity. The relativity of the mental health consequences of disaster is difficult to unify with the idea that one single case or context could serve as a meaningful point of reference for other disaster situations. The absence of universal baselines is an additional reason why psychosocial services for individuals and communities must be tailored to individual cases and contexts, and why norms should be treated with caution.

All in all, this book reviewed several country-level patterns involving cultural, socio-economic and mental health aspects of populations. Given the sweeping implications of these patterns, it is important to verify the parallels and paradoxes and to explore them further, preferably in sizable samples and in populations with variation in cultural and socio-economic characteristics, while considering additional health outcomes and correlates, as well as the multilevel structure of the data. If reliable, the patterns have potentially far-reaching implications from an international mental health perspective.

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Michel L.A. Dückers

On the relativity of the mental health consequences of disasters

What makes individuals, communities, and societies resilient or vulnerable to a disaster from a mental health perspective? How should the causes and consequences of resilience and vulnerability be addressed? These questions delineate the scope of this book.

The first part of the book describes patterns in exposure to adversity, mental health, cultural and socioeconomic characteristics, and professional psychosocial service capacity across country contexts. In the second part a more normative approach is followed, focusing on psychosocial support guidelines and their application by public leaders and service providers. The psychosocial support theme and its implications are explored through a quality improvement and crisis management lens. In the third part the findings are discussed in relation to each other. Together, the studies constitute an integrative perspective on the research themes, the associations between them and determinants at different levels. The model presented in the final chapter can be used to guide future research, guideline development and emergency preparedness.

Although there are several routes to address the mental health impact of disasters, local tailoring remains imperative. Country comparisons reveal differences in exposure, culture, vulnerability factors, professional psychosocial service capacity and mental health. In other words, the risks, needs and problems of people affected by trauma, loss, and other aspects of exposure, the capacity to deal with adversity, and psychosocial norms and practices all vary across geographies. Despite consensus on principles, measures and interventions to promote post-disaster mental health, their practical merits in different community and country settings need to be studied more extensively.

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