

Time for change? Applying an inductive timeline tool for a retrospective study of disaster recovery in Montserrat, West Indies



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ABSTRACT

The recovery process unfolds over a long time and can last for decades, yet most studies of recovery are over short timeframes or represent points in time across the process. Long-term disaster recovery studies are necessary in order to understand the process and the changes that are promoted by disasters over many years. Retrospective methods offer opportunities to gather a dataset of changes over long periods of time, yet concerns with the reliability of participant recall create challenges for research. Retrospective studies need improved data gathering techniques to facilitate reliable recall.

This paper documents the use of an inductive timeline in a retrospective study of disaster recovery for the healthcare system in Montserrat, West Indies. Drawing on creative approaches in the literature we developed a timeline tool for use within focus group settings. We conducted four focus groups with healthcare staff in 2011 ($n=7$, $n=8$, $n=6$ and $n=7$) to gather retrospective data over the extended period of the eruption of Soufrière Hills Volcano (episodic since 1995).

The approach yielded rich empirical data of changes to the healthcare system observed by the participants over time. Triangulating the results with secondary data (where available) and interviews demonstrated excellent participant recall using this technique. This approach potentially opens-up a field of study in long-term disaster recovery for historical events or cases where poor records have limited their study to date. Further applications could include study of long-term change processes in different social and environmental contexts.

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1. Introduction

Disaster recovery is defined as: ‘The restoration, and improvement where appropriate, of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors’ [67] p. 10]. Recovery is understood to be a complex process that is non-linear and multi-dimensional [12,44,48,66]. Changes are stimulated by disasters, which may be slow or rapid, linear or non-linear, planned or unplanned and may manifest in many aspects across society [6]. Post-disaster changes may be difficult to identify soon after an event and require a long-term view. Recovery processes unfold over a long time and can last decades, yet most studies of recovery are of limited duration or represent points in time across the disaster recovery continuum [57]. In order to understand the processes at work studies of

recovery need to be viewed over a much longer time-scale [12,15,42,50,51,54,57].

The Forensic Investigations of Disasters (FORIN) project (part of the Integrated Research on Disaster Risk (IRDR) Programme) emphasizes the value of longitudinal analysis in providing in-depth understanding of the causal processes underlying disasters [36]. Longitudinal studies may be prospective (forward-tracking) or retrospective. Challenges for conducting prospective studies include high costs, in terms of both money and time, as well as the loss of participants in follow-up over time [5,33]. Retrospective data remain important in understanding change processes but must contend with issues of reliable participant recall. Creative methodologies are required in order to facilitate the gathering of reliable retrospective data [5].

Traditionally used in life course studies, participatory timelines allow documentation and recording of participants’ past experiences through time, while simultaneously extending and deepening understanding of the context [55]. Drawing on participatory timeline methods [2,55], we developed an inductive timeline tool to explore

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long-term disaster recovery processes. We applied this approach in four focus groups conducted with healthcare staff in Montserrat, West Indies. The approach facilitated retrospective recall of changes to the healthcare system over the long duration of the eruption of Soufrière Hills Volcano (episodic activity since 1995).

The purpose of this paper is to describe the technique and its implementation within this case study context. First, we discuss the case study context and draw on the literature of retrospective methods to develop our approach. Second, we describe the design and implementation of the inductive timeline tool and the logistical considerations for its use. We reflect on the strengths and weaknesses of the approach, and discuss possible applications. Finally, we conclude that extended retrospective studies, which use tools that facilitate reliable recall, have the potential to significantly enhance empirical knowledge of post-disaster change and recovery processes.

2. Case study context

Montserrat is a small British Overseas Territory in the West Indies, with a colonial history and a complex dual government system with a British Governor (appointed by the UK Government) and a locally elected Government of Montserrat (GoM). The sudden onset eruption of the Soufrière Hills Volcano began on 18 July 1995 [58]. Large-scale evacuations from inhabited areas closest to the volcano ensued. In 1996 the majority of the population, including all the inhabitants of the capital, Plymouth, were permanently relocated further from the volcano [1]. The majority of housing and most of the island's infrastructure had to be relocated and re-established in a rural and little-developed landscape in the north of the island [13]. Real GDP declined by 44% between 1994 and 1997 and by early 1998 the population had reduced by about 70% [13,38]. Over the years the population increased to reach roughly half of its pre-eruption size, with the national census recording a population of 4491 in 2001, and 4922 in 2011 [23,30].

The eruption, which is ongoing, triggered a protracted disaster on the island [13,46] that has been exacerbated by the dual governance system, large-scale population emigration, and significant economic decline [13,34,35,38,71,63]. Today ashfalls, acid rain and gases from the volcano affect the relocated population in the north of the island intermittently. The British Government currently supports Montserrat's economy through the Department for International Development (DFID), providing around 60% of the recurrent budget [13,61]. DFID provided more than £350 million to support Montserrat during the period 1995–2012 [17]. The Montserrat Volcano Observatory (MVO) monitors the volcanic activity on the island, gathers scientific data, and carries out research on the volcano. The Disaster Management Coordination agency (DMCA) is a Government Department that coordinates emergency operations and emergency response by liaising with the various governmental bodies and agencies (e.g. Healthcare, Public Works Department, Fire Search and Rescue, Police). To manage volcanic risk, the island is divided into zones (Fig. 2) and a Hazard Level system is used to manage and communicate risk for each zone, which varies depending on the level of volcanic activity [43].

The political, geographic, social and economic context of this small island create a unique set of case study characteristics. Small island contexts are unique, yet they may share vulnerability characteristics that are derived from population demographics, small geographic size, dependence on overseas resources, and limited social and physical infrastructure [47,7]. Montserrat provides a geographically-bounded context where access to complex systems such as the healthcare system allows in-depth study of changes over many years since the onset of the eruption. Here, a detailed case study of disaster recovery can be explored in-depth.

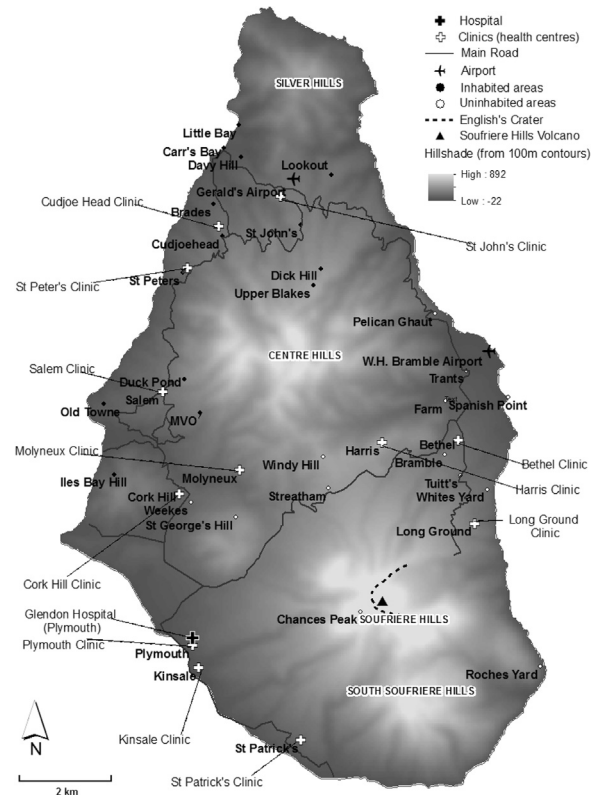


Fig. 1. Healthcare facility locations in 1995. Hillshade produced from 100 m contour Map (BGS-Government of Montserrat data).

The healthcare system underwent significant change after the onset of the eruption. The island's only hospital was relocated from Plymouth to a school in the north of the island. The school building was gradually upgraded and transformed into the current hospital site in St. John's [9]. The number of island clinics (health centers) reduced from 12 to four when the exclusion zone was implemented (Figs. 1 and 2), and many experienced healthcare staff emigrated overseas in the first years of the crisis. A recent study documents in detail the consequences of the long-term volcanic eruption for the healthcare system in Montserrat (Sword-Daniels, 2014), but today the healthcare system consists of one hospital (secondary care), two elderly care homes (one public, one private), four clinics (primary care) and a headquarters.

Beyond some initial documentation of change between 1995 and 1999 [8–10], there are few records of changes to the healthcare system over time. In this context eliciting empirical data from retrospective recall is essential, in order to understand changes over time and build a picture of the recovery process.

An initial interview-based study conducted in 2010 [60], elicited rich data on changes to essential services and society, but found that essential service participants were reluctant to assign dates to the changes that they had observed. Participants explained that when they were unsure if a date was correct, they did not wish to mislead the researcher by assigning a date that might be wrong. Dates given with more confidence surrounded significant volcanic events in the period 1995–97 and 2003 (largest dome collapse to date), creating a time dichotomy. A different methodological approach was needed to facilitate participant recall in an environment in which they felt comfortable, and where they could seek validation of their recollections of the type of change and when change occurred.

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