The social and psychological impact of the chemical contamination incident in Weston Village, UK: a qualitative analysis

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Abstract

This paper contributes to the literature on community response to the announcement of well-established chemical contamination close to their homes. It describes a study of residents’ views of chemical contamination on a close and long-standing community in the context of impacts on everyday life. This followed the discovery early in 2000 that houses in Weston Village, in the County of Cheshire, England, were contaminated by the chemical hexachlorobutadiene which was seeping from a sealed chemical waste quarry owned by Imperial Chemical Industries, one of the world’s largest chemical companies. Qualitative methods were used for the study. A total of 23 people from the village were interviewed in 15 focused, semi-structured interviews. This study highlights the importance of attention to secondary, community-level and interpersonal-level health impacts in the face of epidemiological uncertainty. © 2002 Elsevier Science Ltd. All rights reserved.

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Introduction

The chemical contamination of residential communities has been shown to have broad psychosocial impacts beyond the physical health impacts of exposure to the particular chemical causing contamination. Elliott et al. (1993) define psychosocial impacts of environmental contamination as: “a complex of distress, dysfunction and disability manifested in a wide range of psychological, social and behavioural outcomes, as a consequence of actual or perceived environmental contamination”. Studies undertaken during the last 30 years in the USA and Canada have identified such individual and community-level psychosocial effects as: stress, anxiety and worry (Baum, Singer, & Baum, 1981; Edelstein, 1988; Evans, 1982; Eyles, Taylor, Baxter, Sider, & Willms, 1993; Fowlkes & Miller, 1982; Stone & Levine, 1985), concern and action (Elliott et al., 1993), conflict (Couch & Kroll-Smith, 1994; Edelstein, 1988), desire to “get back to normal” (Eyles et al., 1993) and even solidarity (Couch & Kroll-Smith, 1994). Often such studies are the only evidence of effects since epidemiological studies of physical health effects often do not, or cannot show evidence of direct harm from the chemical contaminants on morbidity or mortality (Frank, Gibson, & Macpherson, 1988). In the wake of actual contamination, potential contamination, or facility siting, attention can often be drawn away from psychosocial health effect to focus solely on the more equivocal, and perhaps more easily dismissed, physical health effects (Barrow, 1997; McGee, 1999). Yet, there are still relatively few studies concerned with the individual and community-level effects of contamination on everyday life.
Studies which have looked at the psychosocial impact of these types of incident have mainly been in a North American context. These have provided valuable insight into the impact of these incidents on people’s lives. However there have been few if any previous studies which have investigated the social response to toxic chemical contamination within a UK context. Also there have been few studies which have explored the social response to toxic contamination when the company concerned has rapidly provided compensation packages to the majority of people in the surrounding area enabling them to leave the area if they wished. Some earlier studies have suggested that this is likely to mitigate the social impact of the incident but this study will question the extent to which this is the case.

Weston incident

Weston was a largely working class village of about 500 households, situated about a mile from Runcorn, which in turn is situated on the banks of the River Mersey, close to the city of Liverpool in North West England (Map. 1). Runcorn and its neighbouring town Widnes have long been associated with the chemical industry. Weston however, despite its proximity to a large industrial centre, had maintained a distinctive village identity. Within the village is a primary school (which was saved from closure by a local campaign during 1999), a church, a small general store, a post office, a motorbike accessory shop, a hairdresser’s, three public houses and a petrol station. Historically the town has been supported economically by Imperial Chemical Industries (ICI) which owned the vast nearby chemical plant employing several thousand workers (a chronology of key events is listed in Table 1). Close to the village are areas of grassland which cover two stone quarries used by ICI for the disposal of chemical waste between 1920 and the 1970s. In an effort to identify any potential problems from this waste disposal ICI launched Project Pathway in 1993. This involved drilling nests of bore holes to detect contamination around the site. Six years later in December 1999 ICI informed the local health authority that it was concerned about high rates of the chemical hexachlorobutadiene (HCBD) which had been detected in some of the bore holes near houses in Weston. It considered that this was a potential ‘cause for concern’ and, as a precautionary measure, recommended testing air quality in nearby houses.

HCBD is a toxic by-product of the manufacture of chlorinated solvents. It has been linked mainly to pathological damage to the kidneys in animal studies. The same studies have also suggested a possible link with liver disease and abnormal foetal development, although evidence is less clear in relation to this (Kociba et al., 1977).

Early in January 2000 ICI (2000) informed the residents of its findings. Later that month air tests inside people’s homes identified that the chemical was contaminating 21 nearby houses, including one house at levels far in excess of recommended maximum
For the remaining people in the village the following months were a period of uncertainty. Initially, residents living in houses close to those that were contaminated remained in their homes but many were also anxious about whether they had been or were being exposed to the chemical. Residents in the wider village where no contamination was detected were also anxious about the potential spread of the chemical. These anxieties were intensified by national media attention, which included a feature on British television’s leading documentary programme (Panorama) and sensational headlines in the national press (‘Village of the Damned’—Guardian; ‘Village in the Shadow of Death’—News of the World). Public meetings were held and a residents’ action group was established to campaign for the interests of the local community.

Compensation packages were quickly arranged by ICI. However the scheme was controversial and heightened uncertainty and frustration. Under ICIs package most of the village was divided into two compensation zones. The smaller green zone identified those houses which were closest to the boundaries of the two quarries and where indoor air tests were being carried out. All people, including children, living in these houses were offered £5000 each. The larger blue zone identified most other houses in Weston Village and people in these houses were offered £2500 each. ICI also quickly offered to purchase the houses, up to 20% above market value, of people in the green and blue zones who wished to leave. A small number of houses within the village and many more houses outside the village but within a short distance of the quarries were excluded from the zones and therefore received no compensation. The result of this was that by the end of 2000 around half the people of the village had decided to leave. Those who have chosen or have been forced to remain must therefore cope with the potential stress of living with chemical contamination and also living in a community that has been rapidly altered. In June 2000 the Department of Health’s Committee on Toxicity concluded that 0.6 parts per billion is a safe continuous exposure limit to HCBD (DHCT, 2000). Further air tests were undertaken inside people’s homes and these identified five further houses as exceeding this limit. Despite the contamination and controversy over compensation, ICI repeatedly emphasised that they were committed to the preservation of a viable and sustainable community in Weston.

Social impact of chemical contamination on communities—current knowledge

The characteristics of the Weston incident are probably most closely comparable to the Love Canal incident in New York State which came to light in 1978. This was an incomplete canal which had been purchased by a chemical company and used as a disposal site for chemical waste. It was eventually sealed and a residential community grew up around it largely unaware of its history until chemicals were observed to be discharging

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**Table 1**

<table>
<thead>
<tr>
<th>Chronology of events</th>
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<tbody>
<tr>
<td><strong>1920s–1973</strong></td>
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<tr>
<td><strong>1993</strong></td>
</tr>
<tr>
<td><strong>1999 December 23rd</strong></td>
</tr>
<tr>
<td><strong>2000 January 8th</strong></td>
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<tr>
<td><strong>Late January</strong></td>
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<td><strong>February</strong></td>
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<td><strong>June</strong></td>
</tr>
<tr>
<td><strong>July</strong></td>
</tr>
<tr>
<td><strong>September</strong></td>
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from the ground and major health concerns were raised in the local community.

Studies which investigated the Love Canal incident and other community contamination incidents at Legler (Edelstein), Hagersville (Baxter), Centralia (Couch) clearly identified broad impacts on people who lived in the affected communities which were more complex and went far deeper than anxiety about the effects of the contaminant on physical health. Following his study on the Legler incident Edelstein (1988) developed a four part analytical framework for exploring the social and psychological impact of toxic chemical exposure. The framework is helpful in that it provides some explanation for the similarities and the differences in people’s response to these incidents:

1. The impacts of toxic exposure occur at interacting levels of social process. Toxic chemical exposure is likely to result in social and psychological impacts both from the exposure itself and from the social context of the disaster. Therefore in order to respond effectively to the incident it is necessary to respond to psychological as well as physical factors. It is essential to judge the factors from the perspective of those affected rather than by being scientifically objective.

2. Toxic exposure affects both action and cognition. People exposed to toxic contamination may find that the beliefs and assumptions that underpin their lives are shaken, resulting in the disruption of the shared social and personal paradigms for understanding the world. This suggests it may challenge the core assumptions of the overall society to which they belong.

3. Toxic exposure is inherently stressful. It can cause new strains in a person’s life, intensify existing strains or give new meanings to old problems, for instance toxic exposure may come to be blamed for the death or illness of a loved one. Stress is frequently intensified by lay and scientific uncertainty about the extent of contamination, likely health impacts, and possible delay of health impacts (Eyles et al., 1993; Vyner, 1988).

4. Toxic exposure is stigmatising and arouses anticipatory fears. Stigma is a consequence of being contaminated. In toxic exposure cases, people who fall within the identified boundaries become routinely stigmatised. The people exposed often discover that others see them differently as their home and community is downgraded. They also tend to perceive themselves differently because they fear health impacts such as cancer and harm to unborn children.

Couch (1996) argues that people often underestimate the long-term harmful effects of toxic contamination incidents on communities. He compares them with natural disasters where a certain pattern is discernible which makes recovery a part of the process:

During impact, the threat becomes a reality, generating a maelstrom of flying debris, or raging floods, or towering walls of fire, ripping apart the last vestiges of ‘business as usual’ in the full force of nature’s wrath. During the ‘inventory’ and ‘rescue’ stages, survivors begin to assess their losses and gradually piece together a picture of what has happened. Survivor groups emerge spontaneously to help treat the wounded, extinguish fires, or free trapped victims. With the onset of a ‘remedy’ stage, outside agencies take control and impose a formal structure on the inventory and rescue activities. During the ‘recovery’, there is a reconstitution of the old community structure, sometimes with a modified pattern of personal and collective life (Couch, 1996).

Couch (1996) argues that toxic contamination incidents differ significantly from this model. Usually there is a very long period between the first warnings of possible danger and the belief that the worst is past. People can feel trapped in the warning, threat, and impact stages with no sign of an end to the stress and anxiety and great uncertainty about the future.

At the individual level there are a number of major environmental stress factors, which make the experience of living in a contaminated community a particularly stressful experience. These factors include lack of personal control over events; confusing, inadequate or contradictory information about the pollution; and the possibility of lasting harm or damage (Baum et al., 1981). Some confront the situation in an attempt to master it. These people often form community action groups which may help them to cope. However others find that this heightens concern, anxiety and frustration through increased knowledge and awareness (Unger, Wandersman, & Hallman, 1992).

Chemical contamination can also put enormous stress onto relationships within and beyond the family. Stone and Levine (1985) reported that at the start of the Love Canal incident, two-thirds of respondents reported a high level of family strain. Family members may see the problem differently and there is often difference of opinion about whether to stay in the area or to leave. There may be a lack of sympathy or understanding of the stress being felt by other family members. Problems experienced by couples include blaming, for instance, one may blame the other for moving to the area or for wanting to leave the area. There may also be a breakdown in supportive participation in that shared interests become neglected amidst the dominant worries (Unger et al., 1992). There can be resentment at the
activity or inactivity of the other partner in getting involved with community groups and there may be cumulative strain arising from multiple pressures (Edelstein, 1988).

Beyond the immediate family Edelstein (1988) found deteriorating relationships between people in the exposed community and their friends and relations outside their community. Although sympathy may initially be offered, this can quickly turn into criticism if the people continue to live in the contaminated area. Conversely within the contaminated area, relationships with neighbours or people within the community often become much closer when there is strong consensus about what needs to be done. In the absence of their normal support network of friends and family, people in contaminated communities will often turn to each other for support (Couch & Kroll-Smith, 1994).

However, where strong differences of opinion exist in a community about the potential risk of contamination to health or about relocation, then intra-community conflict can occur. People in the community who perceive little or no risk to health from contamination can begin to see those who campaign for compensation as ‘gold-digging’ and unnecessarily stirring up people’s anxieties (Baxter, Eyles, & Willms, 1992). It is often the case in ‘company towns’, such as Weston, that many residents are employed by the company responsible for the contamination or are in some other way financially dependent on the company (e.g. pensions). Previous studies have found that these people are often less ‘concerned’ than other residents and conflict and victim blaming may develop when these views are openly expressed to angry neighbours (Baxter et al., 1992; Gould, 1991; McGee, 1999).

Research process

The research was designed to respect the wishes of the community who were already under the strain of dealing with contamination. This was ascertained by opportunistically speaking informally to residents to obtain a picture of what was missing from the management of the incident up to that point. The clear response was that the broader social dimensions of the incident had been largely ignored by all the relevant agencies. Qualitative methodologies are recommended in such instances since they enable flexibility within the interview and the ability to establish good rapport through sustained contact (Burgess, 1982; Lincoln & Guba, 1985). Focused interviews enable the researcher to probe beneath the surface of the topic being discussed and to explore experiences in great detail, uncovering ideas that may not have been anticipated at the outset of the research (Lincoln & Guba, 1985; Britten, 1996; Burgess, 1982).

The first author (GB) was employed by the local Health Authority and was asked to become involved in the community so that the Health Authority could address some of the social issues more effectively. He introduced his role within the community as a representative of the Health Authority through the residents’ group which had been formed immediately after the announcement of chemical contamination. He indicated that he wished to become involved in the local community and that to begin this process he hoped to carry out some research exploring the social impact of the incident on individuals and the community in Weston. A meeting was organised which provided an opportunity to discuss the sort of project that was envisaged and to obtain residents’ input into the study design. GB agreed to report the findings of the research within the village by disseminating the report to all participants at the earliest opportunity and by writing a summary of the research in the local newsletter. He also agreed to disseminate the report within relevant local agencies such as the Health Authority, the Local Authority and the ICI management team.

The timescale for the project was short and required fieldwork to be conducted during a five-week period in June & July 2000. The features common to all interviews were: an exploration of the informant’s knowledge about the nature of the quarry prior to January 2000; their initial reaction when they learned about the contamination; concerns about health effects; views of public agency management of the incident; views on remaining in the village; and what they thought could be done to sustain the village in the future. Its intention was to provide guidance to the public agencies in responding to the incident as nothing on this scale had happened in the UK before and therefore no guidelines existed. As such, the study did not begin as a study specifically about psychosocial health.

People were recruited to the study by a variety of methods. A number of informants were approached directly and invited to take part. All of these agreed to be interviewed. These included representatives of the residents’ group, local shop owners, a community association leader, a man living in the middle of the contaminated zone and a man highly involved in youth work in the area. In addition a few people contacted the researcher after information about the project appeared in the village newsletter asking to participate in the study. Interviews proceeded until there was a saturation of themes. A total of 23 people participated in 15 separate focused interviews, eight interviews involved one participant, six interviews involved two participants, and one interview involved three participants. In addition to the interviews GB worked within the community throughout the process and therefore built up a wide range of informal contacts which provided a large number of private accounts. Although not formally included in the...
study these provided an extra check of validity. This close involvement with the community has continued since the completion of the study.

The age range was from 17 to 70, there were 17 in the blue zone (main part of the village), 5 in the smaller green zone (area close to the contaminated houses—most residents had already left this zone) and one who fell just beyond the designated zones and was thus excluded from compensation and house value protection (for further details see Table 2). Anonymity for informants was assured and pseudonyms are used in the results section.

Interviews took place inside informants’ homes and were recorded and transcribed by the researcher. Interviews lasted between 25 and 100 min (average = 50 min). Ethical approval for the project was obtained from the North Cheshire Local Research Ethics Committee. One concern for the study was that a number of informants were quite distressed by the incident. It was therefore very important to handle the interviews in a sensitive manner and that they should be a positive experience for the informant. Several wrote to the researcher afterwards indicating that the interviews had provided an opportunity to talk about their experiences which had been helpful to them.

Interpretation of the transcripts was undertaken as an ongoing process throughout the study. Potential themes were initially identified and coded from the interview schedule but other recurring themes, raised largely by the residents, were highlighted during analysis. The interpretation of the transcripts focused on the production of a detailed record of informants’ interpretations of their world over the previous six months, at the current time and their perspectives on the future, all against the background of the contamination and compensation. The aim of analysis is to provide an accurate description of the subjects under study and to present a “rich and believable” account in the results section by interweaving the informants’ own words with interpretation (Strauss & Corbin, 1990). Threats to qualitative research rigour were minimised using researcher member checking (feedback from respondents about initial interpretations of the interviews). This ensured the credibility of the results. Respondents were given the opportunity to comment on the researcher’s analysis before wider circulation and all indicated satisfaction with the conclusions reached (Baxter & Eyles, 1997; Lincoln & Guba, 1985).

Results

Personal impacts

To understand the full impact of the incident it was necessary to place it in the context of how residents

<table>
<thead>
<tr>
<th>Interview</th>
<th>Approx age</th>
<th>Sex</th>
<th>Occupation</th>
<th>Zone</th>
<th>Housing</th>
<th>Length of residence</th>
<th>Pseudonym</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>65+</td>
<td>M</td>
<td>Retired</td>
<td>Green</td>
<td>Own</td>
<td>10–20 years</td>
<td>Peter</td>
</tr>
<tr>
<td>2</td>
<td>60+</td>
<td>M</td>
<td>Journalist</td>
<td>Green</td>
<td>Own</td>
<td>10–20 years</td>
<td>Harry</td>
</tr>
<tr>
<td>3</td>
<td>60+</td>
<td>F</td>
<td>Tourism</td>
<td>Green</td>
<td>Own</td>
<td>10–20 years</td>
<td>Margaret</td>
</tr>
<tr>
<td>4</td>
<td>40+</td>
<td>M</td>
<td>Contractor</td>
<td>Blue</td>
<td>Own</td>
<td>&lt;5 years</td>
<td>Tom</td>
</tr>
<tr>
<td>5</td>
<td>30+</td>
<td>F</td>
<td>PA</td>
<td>Blue</td>
<td>Own</td>
<td>&lt;5 years</td>
<td>Elizabeth</td>
</tr>
<tr>
<td>6</td>
<td>50+</td>
<td>M</td>
<td>Care Worker</td>
<td>Blue</td>
<td>Own</td>
<td>&gt;20 years</td>
<td>Carol</td>
</tr>
<tr>
<td>7</td>
<td>40+</td>
<td>M</td>
<td>Retail</td>
<td>Blue</td>
<td>Own</td>
<td>&lt;5 years</td>
<td>Jim</td>
</tr>
<tr>
<td>8</td>
<td>30+</td>
<td>F</td>
<td>Retail</td>
<td>Blue</td>
<td>Own</td>
<td>&lt;5 years</td>
<td>Jill</td>
</tr>
<tr>
<td>9</td>
<td>50+</td>
<td>M</td>
<td>Sickness benefit</td>
<td>Blue</td>
<td>Council</td>
<td>10–20 years</td>
<td>David</td>
</tr>
<tr>
<td>10</td>
<td>40+</td>
<td>M</td>
<td>Manager</td>
<td>Excluded</td>
<td>Own</td>
<td>10–20 years</td>
<td>Richard</td>
</tr>
<tr>
<td>11</td>
<td>40+</td>
<td>M</td>
<td>Industrial</td>
<td>Blue</td>
<td>Own</td>
<td>&gt;20 years</td>
<td>Steve</td>
</tr>
<tr>
<td>12</td>
<td>40+</td>
<td>F</td>
<td>Nurse</td>
<td>Blue</td>
<td>Council</td>
<td>10–20 years</td>
<td>Bill</td>
</tr>
<tr>
<td>13</td>
<td>40+</td>
<td>F</td>
<td>Housewife</td>
<td>Blue</td>
<td>Council</td>
<td>5–10 years</td>
<td>Teresa</td>
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<tr>
<td>14</td>
<td>50+</td>
<td>M</td>
<td>Retired (from ICI)</td>
<td>Blue</td>
<td>Own</td>
<td>10–20 years</td>
<td>John</td>
</tr>
<tr>
<td>15</td>
<td>50+</td>
<td>M</td>
<td>Retired</td>
<td>Blue</td>
<td>Own</td>
<td>&gt;20 years</td>
<td>Paula</td>
</tr>
<tr>
<td>16</td>
<td>30+</td>
<td>F</td>
<td>Nurse</td>
<td>Blue</td>
<td>Council</td>
<td>10–20 years</td>
<td>Andrew</td>
</tr>
<tr>
<td>17</td>
<td>60+</td>
<td>M</td>
<td>Green</td>
<td>Own</td>
<td>&gt;10 years</td>
<td>10–20 years</td>
<td>Gordon</td>
</tr>
<tr>
<td>18</td>
<td>30+</td>
<td>M</td>
<td>Industrial</td>
<td>Blue</td>
<td>Own</td>
<td>10–20 years</td>
<td>Colin</td>
</tr>
<tr>
<td>19</td>
<td>30+</td>
<td>F</td>
<td>Clerk</td>
<td>Blue</td>
<td>Own</td>
<td>10–20 years</td>
<td>Sarah</td>
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viewed life in Weston Village prior to December 1999. Weston was an unusual place in modern Britain. It was the site of strong community bonds amongst many extended families living in the area. The recent campaign to save the school from closure and the village church’s hundredth anniversary celebrations in 1998 had further strengthened the community. Those such as Paula, who were newcomers to the area were reminded of the communities that they grew up in as children and many expressed the view that they were settled for life:

It is such a nice little community and its been kept old-fashioned, so many people are related, a lot of dynasties in the village, this is where you get the caring coming in, that’s why people out of here don’t understand it. This community was how I was brought up in Chester (Paula)

Initial reaction

The initial news of the contamination came as a major shock to almost all the informants. Asked about their initial reaction to news of the possibility of contamination, the reactions of Richard and Margaret illustrate a common respondent reaction:

Suddenly on my doorstep in a house that I’d spent a number of years improving and I thought I was here for life and I’d made a nice family home for my children. I thought, “I don’t want to live here anymore” (Richard)

It absolutely devastated us when we found out about this. Up to then I’d always been amazed at the number of 80 and 90 year olds in the village... when we heard it was in people’s houses it was like the end of the world (Margaret)

For informants such as Andrew, the quarry sites had attracted them to the area in the first place as they were assured that they would forever remain public green spaces and as such a local amenity for walking or horse riding:

When we bought the house we checked the status of the land and were reassured that nothing would ever be built there. This was part of the attraction, knowing that we’d always have the green landscape behind us and the view over the estuary in front (Andrew)

Stress

The personal impact of the crisis on most people still living in Weston has been considerable. All reported enhanced levels of stress although the severity of stress varies. The issue had come to dominate many lives and now they had little time for former interests. Others reported that they were behind in their normal work-related activities because their mind was so exercised on this matter. Many reported that they had contacted their physician and were on medication for stress related ailments. There was also a tendency to wonder whether former or present ailments could be linked to the contaminated land, which was causing additional stress:

It’s affected me terribly because I’m arguing with my wife. After Christmas in the early days it was absolutely horrendous. I’m devoting an enormous amount of time to it so my hobbies have gone, I do nothing but work and this... It’s the most important thing in your life, there is nothing as important as this, my whole future is depending on it (Tom)

I had a miscarriage a couple of weeks ago. That worried me because then I was thinking straight away, I wonder if its anything to do with gas but miscarriages are so common that you just think there’s no way you could ever prove a link with it at all but it’s at the back of your mind (Jill)

A minority were suffering severe emotional distress and were tearful. These people tended to be in a position of uncertainty, wanting to remain in the village but unsure whether they would be able to stay. Their distress was being compounded by the continual loss of neighbours and friends who had moved from the area and worries about what would happen to the empty houses. They also tended to feel abandoned by public agencies and were bewildered about the future. As these quotes from Sarah and Bill reveal, the stress was having both emotional and physical effects:

I feel like I can’t feel anymore... can’t get excited anymore about the house, I feel numb... Even if we move and start afresh I’ll still always be comparing things to what we had here... I’m changed now. I don’t plan anymore. I can’t look further than today anymore, I used to have lots of dreams (Sarah)

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Damaged relationships

A number of informants reported that their marriages had come under strain as a result of the incident. The most common factor in marital problems was disagreement between husband and wife about whether to remain in the village. Colin tells of how the indecision had put their “life on hold”:
It’s been a big issue with you [his wife] and me…. I wanted to go but you wanted to stay, it’s been six months of me trying to convince her that it’s not going to get any better than this… our life’s been on hold until recently because we haven’t known what to do (Colin)

For some people their relationships with work colleagues deteriorated, Colin perceived that his colleagues showed no understanding for their plight and often treated the issue as a joke:

I’ll tell you what else gets me and a lot of people, the whole of Runcorn knows our business and have an opinion. You have your lunch in work and there’s someone with you you’ve had lunch with for years and she’s telling you that she thinks ICI are doing their utmost to look after us. People don’t understand and next minute you’ve got to get up and leave (Colin)

Colin’s comments show that contamination effects are not always overt physical manifestations of stress, rather they can be seemingly mundane, yet extremely important, threats to everyday life such as eating lunch with the usual bunch of co-workers.

Stigma

Many residents were conscious of both community and personal stigma. The stigma had contributed to difficulties in their relationships with work colleagues, outsiders and even family members outside the community. A typical view was that people in the village felt exposed, that they had lost their privacy and had become objects of pity. Colin and Sarah explain:

I get it everyday in work, why are you still there, how can you still let your horse graze in that field, a lot of it is peer pressure, they don’t see the other side of things… they just joke about living in mini Chernobyl, it’s pathetic but it still goes on 6 months on. They can’t comprehend what we’re going through (Colin)

You only have to say your postcode to people now and they look at you like you’ve two heads. You feel like your whole insides are on show to everybody, cut open and on display. People stare at you when you write your address and you feel like saying, ‘Yes I know, I do live in Weston Village, I live on chemicals’ (Sarah)

Community impacts

The incident has had a major and overwhelmingly detrimental impact on the community. Prior to the incident this had been a close and very connected community. However the shock caused by the incident itself and the way it was managed generated divisions and conflict within the community, which increased the pressure on day to day interpersonal relationships.

Division

Divisions developed between residents with strong ICI connections, who appeared reluctant to criticise the company, and residents who are generally concerned about the contamination and are prone to be highly critical of the company. There were also divisions between people who wanted to stay and those who were leaving and between non-council residents, who were able to sell their houses at above market valuation and council residents who were offered packages to move to what they believed to be lower quality areas. For example Tom’s comments on the nature of “divisions”:

There are enormous divisions here, people that go, against people that want to stay who think they didn’t care about us, people in the blue zone against people in the green zone, ICI people against non ICI people, owner occupiers against council tenants. The council tenants say its OK for you because you can’t go wrong and in cold calculated facts we can’t go wrong (Tom)

The compensation issue also contributed to divisions. The decision to create two zones for compensation and house value protection was upsetting for many people, especially those close to the blue–green compensation boundaries and those who fell outside of the zones.

Inevitably in this type of incident there were people who fell beyond the designated compensation zones but who nevertheless suffered similar consequences to those within the zones with additional anger and stress resulting from the fact that they felt they had been treated unjustly by the relevant authorities. There were a number of houses within the village excluded from the compensation scheme and many others which fell just outside Weston Village, but which are closer to the edge of the north quarry than houses within Weston included in the zones. Some of these people, like Richard, had formed their own campaign group to fight for air monitoring and house value protection:

Why aren’t we in the blue or green zones as houses much further away than 250 m have been included but we haven’t. ICI just says we’re not affected because chemicals won’t travel that way. Noone trusts ICI or the council, it seems wrong that the perpetrator of this is calling the shots (Richard)

Resentment was also expressed by a couple of people towards those people they believed had left the village...
for financial gain instead of trying to salvage the community. Generally however these divisions have been privately expressed and have not resulted in open confrontations. The subtlety of criticism is exemplified by David’s comment about “stepping up the ladder” and “load of cash in my hand”:

There’s a lot of people round here who are not frightened but have jumped on the bandwagon. People have thought what a great way of making a step up as someone’s buying the house and I’ve not to worry about selling mine anymore. I would have thought a lot quicker about moving if I owned my house, then it wouldn’t have been a case of weighing up the problem of the chemicals and the village life going down the hill, my priority would have been weighing up whether I could afford not to move because they’d given me a step up the ladder and a load of cash in my hand (David)

Empty houses

The housing issue was a major concern for informants. They identified a number of dimensions to the “housing issue” which had implications for their lives. The rapid vacation of houses in some areas caused considerable distress for those left behind who may have been intending to stay. A domino effect developed and people felt themselves under pressure to leave simply because they had become isolated by the loss of neighbours. The following comment by Sarah indicates how deeply some resident’s expectations about their community had been shaken:

The lady who welcomed us into the village has gone and it broke my heart that day the gentleman along the road, I didn’t know he was going until I saw the removal van, he’s about 70 and he always said they’d take me out in a box from here. so I went up to this old man and shook his hand and he said don’t worry…You see the wagons pull up at 8 O Clock in the morning and by the time you get home they’re gone (Sarah)

Council tenants felt resentful that they were not given the same choices as private tenants. Though council tenants had been given the opportunity by the Local Authority to move to houses elsewhere, the tenants saw this as a retrograde step as most of the houses offered to them were on large estates with well-publicised social problems. Paula summarises the frustration that such a lack of choice presents:

We wouldn’t stay if we lived in a private house… or maybe we would because you’d have the choice, you could give it 5 years. The only choice we have is to stay here or to move to a run down estate where noone wants to live (Paula).

Loss of trust

Many residents had lost faith in the agencies responsible for the management of the crisis. This had also exposed wider anxieties about other issues of environmental protection in this heavily industrialised area.

Most informants believed that the Local Authority had not fully represented the interests of the residents
and had been too close to ICI, a big contributor to the local economy. An example is Tom’s comments about actually being more frustrated with local government than ICI itself:

There’s too many people playing politics with people’s lives... I’m more annoyed with the council now than I was with ICI, the council is my body, my taxes go to them and they’ve done nothing for me cos ICI put more money into the pot than I do so ICI’s their friend, you put 2 and 6 in, they put in a million so they’ve started to side with ICI and that annoys me cos they’ve got no bloody right to do that (Tom)

There was general bewilderment that ICI continued to be responsible for the air monitoring and establishing the extent of the contamination. For example, Steven believed that the Environment Agency or other third-party public sector body should have been much more prominent in the follow-up of the incident:

Someone else should be taking charge of the air monitoring, use ICI’s labs and facilities but someone like the health authority or the Environment Agency should be doing the testing. We need someone to explain what the results really mean (Steven)

The health services were criticised for failing to address the social health needs of the residents. Many people expressed the view that little had been done to address the enormous stress experienced by the community. People had been forced to turn to each other or to their physicians for help but, as Elizabeth points out, some felt this to be inadequate:

For me because I worked for NHS and believed in the ideal, I’ve felt very let down, they just weren’t there, they’re here now but we’re in June now. We needed people sent out in January and February (Elizabeth)

Toxic contamination worries

Although most respondents indicated that their anxieties were focused on the social upheaval that the incident had caused, some were suffering stress due to fears of potential illness caused by exposure to the chemical. For others such as Gordon it was a submerged or suppressed concern that did not always surface but meant that he could never feel the same way about living in this area again:

I don’t worry much about the chemicals. I just think there’s too much wind here but then sometimes you wake up in the night and think to yourself there’s 3 million tons of chemical waste down there and then you start to think is this really where you want to be (Gordon)

Many people indicated that the incident had made them more conscious of other pollution incidents associated with the nearby factory and the Runcorn area. Several mentioned a pollution incident at the factory that occurred shortly after the quarries announcement, as well as other incidents that they had disregarded in the past. For people like Richard, this exposed wider concerns about living in the region at all:

It’s not just about ICI now, it’s that people refer to this area as ‘chemical alley’ and I’d never thought about it before, suddenly I think about the high incidence of mortality and infant mortality in Runcorn as one of the highest in the country. There’s got to be a reason for that hasn’t there? It’s brought to mind wider issues of pollution in the area. My wife’s of the same opinion, you think to yourself there are better places to live (Richard)

Thus, world views changed because of the incident whereby these residents have become more sensitised to being in a region that is generally polluted.

Uncertainty

A complicating influence on community upheaval was the uncertainty associated with the incident. This uncertainty had partly arisen from a lack of data about the effect of the main chemical contaminant and what the safe limit might be. Another area of uncertainty was whether the south quarry was also a source of contamination. This quarry is much closer to the main part of the village and rumours had spread that potentially the pollution from this quarry may be worse.

There were also fears about other chemicals, in addition to HCBD, that had been disposed of in the quarries and whether these chemicals also presented a risk to human health. Linking all these areas of uncertainty was a widespread impression that agencies involved in the incident were withholding information that was important to residents in Weston. Margaret describes how a lack of clear information about this has led to rumour and increased anxiety:

People will say never mind the HCDB, what else is down there and you know what minds are like, you’ve only got to get 2 or 3 people talking and a 4th listening and the 4th person going away thinking, we’re all doomed and this is what is happening, people talk about it all the time, it’s the only topic of conversation (Margaret)

The future

Many indicated that their initial optimism that the community could be saved had diminished. This
appeared to be due to a rapid increase in the number of residents who had moved out and continued uncertainty about the extent of contamination. For those who intended to wait and see three factors were generally key to their decision. Concern about what would happen to the empty houses; ongoing uncertainty about the level of chemical contamination and potential spread of contamination from the north and south quarries; and concern about Weston reemerging as an attractive place to live once again.

Many informants realised that the area would no longer be considered a desirable place to live and it would be difficult to attract people to live in the village. Although nobody believed that the houses should be left empty, many were concerned that the area would become a dumping ground for ‘undesirables’ from other areas. Many said that if this happened they would leave. To avoid this those such as Tom believed that the community should have input into deciding the future of the houses and it should not be left just to ICI and the Local Authority:

The thing that’ll move us if there’s lots of derelict property or if ICI don’t honour their agreement and sell them to scumbags and we get not nice people up here (Tom)

A view was widely held that people in the village should be given the opportunity to move into empty houses that might be bigger or better than their existing homes, or further from the quarries. It was also felt that extended family members of existing residents should be given priority within applications for the houses.

Although a few people dreaded the thought of major remediation work, most respondents were of the view that some form of remediation would be required if the village was to revive in the long term. Some felt that independent expert confirmation of no risk to health in the blue zone would be satisfactory. Thus, remediation issues add another form of uncertainty about the future. David’s discussing of possible options indicated how no clear view had been taken about which, if any, would be selected:

There has to be remediation of some sort. I don’t know what… At first I thought dig it up and take it away but now I think that’s not practical and will make things twice as bad. I think they’ve got to do something like cap it or build a wall around the edge of the quarry. They’ve bought most of the houses in the green zone and if they buy them all, perhaps they could dig down and build some sort of wall (David)

Most informants believed that the village would only have a long-term future if it became a place where people wanted to live again. Some people believed that it would be important to develop new community facilities in the village, which would make it a more attractive place to live. Most expressed the view that it was vital to guarantee the future of the school, the post office and the shop for the foreseeable future:

The people this side have a young daughter of three and they say they’ll stay as long as the school stays open (Carol)

However many informants had become pessimistic about the likelihood of these initiatives coming to fruition or making a difference. For most, the future seemed like more of the same. Informants who wanted to stay questioned why it was that so much money was being spent paying people to leave when nothing was available for people who wished to stay.

There was a strong feeling that if ICI and the public agencies wished to preserve a sustainable community in Weston then they needed to begin to address the social issues much more in their dealings with the community. Questioned about ICIs response to the incident Tom complains that they have treated the issue like a business matter with “no understanding of the social issues”:

All they want to talk about are the technical issues, ppbs [parts per billion] and ppts [parts per trillion], if you’re running a business you don’t want to hear about personal stuff, the mortgage, the family, the dog. You just keep it business. There’s no understanding of the social issues (Tom)

Few informants could see an end to the crisis and many expected to have to confront the decision of whether to leave on many more occasions. For some such as Jenny their own uncertain future was having a damaging impact on their own quality of life and relationships and she wished the decisions could be taken out of her hands. The common strand was that almost everyone was uncertain whether they would still be living in Weston a year from then:

This was where we were settled for the rest of our life and now we’re not. We don’t want to go, we think of driving past in 2 years time and seeing other people renting this cottage, I couldn’t bear to go past and see someone living in my house (Margaret)

I just wish they’d waited until they could have said everyone needs to get out of here or just a few people need to leave and the rest are fine. Instead they’ve destroyed this area by buying people out and wrecking it for the rest of us. My husband wants to leave, our children tell us we should leave before they [ICI] change their minds and I just can’t decide what to do. We never argued before this (Jenny)

The reactions of people in Weston to the contamination incident were influenced by the place that Weston was before the incident, the very different place that it
had become since the incident and the uncertainty about the place it would become in the future. Many informants in the interviews had decided to remain in the village in the hope that the community that they knew before could be rebuilt. Unfortunately most doubted that this would happen and for this pessimism to end, the constant uncertainty about the future needed to end quickly. If it did not end it seemed unlikely that there would be much of a community to save.

Discussion

The health and social impact of the Weston quarries incident is clearly reflected in the experiences of other communities, which have been blighted by toxic chemical contamination. All of those interviewed at Weston reported enhanced levels of stress and a few participants were severely distressed by the incident and its implications for their lives. Several people reported that their marriage had come under strain and many reported that their relationships with family, friends and work colleagues outside the village had been adversely affected because they did not comprehend what the residents were going through.

Weston Village is undoubtedly a community in crisis. In little over half a year, the people of the village went from living in a pleasant close-knit community, to living in a blighted, contaminated, divided community that was disintegrating on a daily basis. Couch’s (1996) description of a community that is trapped in the warning, threat, and impact stages of a disaster with no sign of an end to the stress, anxiety and uncertainty about the future is resonant to the experience in Weston. The prolonged uncertainty about issues such as compensation, deciding whether or not to move, and the extent and seriousness of contamination threatens psychological illness for those with limited capacity to cope (Lazarus & Folkman, 1984).

Community divisions were present in Weston which have increased psychosocial stress on individuals. Many of these divisions were linked to the fact that a significant minority of residents depended on ICI for their jobs or pensions and were seen to be less likely to be critical of the company. Some of these people were accused of failing to acknowledge the harm that the incident had caused to the community. This reinforces existing findings that people with financial dependence on a company responsible for community contamination will often be less hostile to it than other residents. (Baxter et al., 1992; Gould, 1991; McGee, 1999).

However in the main divisions were privately expressed and did not result in the sort of open confrontations that have characterised some previous incidents (Couch & Kroll-Smith, 1994). Sadness and resignation over the loss of community is perhaps a better description of the reactions from the Weston respondents. Such a difference may be linked to the role of compensation, whereby Weston residents were provided an opportunity to leave the community, though many did so reluctantly. This contrasts with instances of community contamination where debate about appropriate courses of action (e.g. compensation, evacuation) is more protracted and uncertain and may be unfeasible due to devalued properties (Couch & Kroll-Smith, 1994; Eyles et al., 1993). However evacuation under compensation can still have profound effects on world views, such as the expectation that your neighbours do not just pick up and leave without due notice.

There are additional differences between Weston and other documented toxic contamination incidents. Most of the literature suggests that it is the direct impact of toxic contamination which is responsible for the stress that ensues (Edelstein, 1988). However in Weston most respondents reported suffering stress due to the secondary effects of toxic contamination, that is, the demise of the community, worry about the future of the village. This resonates with Kasperson and Kasperson’s (1996) risk amplification framework whereby debate over hazard risks can have widespread “secondary effects” or “ripple effects” out from the hazard event itself. These residents feel that Weston is a village worth preserving though most seem to accept that it may never be the same kind of place it once was.

Another difference is that most other reported incidents have involved relatively small companies or companies which have ceased to exist (e.g., Fowlkes & Miller, 1982). Thus, the issue of compensation directly from the company responsible was not as large a factor in community concerns. By contrast ICI is a well-known multinational corporation with a very high profile. The incident thus possessed characteristics which ensured that it attracted a lot of attention from newspapers and television during the first few months, providing ICI with damaging publicity. In the wake of the compensation package announcement the media interest for the story rapidly dwindled. The view widely held by participants in this study, is that the Local Authority and most people in Runcorn beyond Weston now believe that ICI has treated the residents fairly. This view from outsiders starkly contrasts the views from insiders affected by the nuances of compensation delivery and the attendant community upheaval.

Whether motivated by concern for the welfare of the residents or by public relations anxieties, ICI have ensured that there are no households in the designated zones (though not outside1) who should be financially

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1 People living close to the quarries but beyond the designated zones believe that the value of their houses has been reduced as a result of the incident.
disadvantaged by the incident or who will be forced to remain in the village if they do not wish to. Weston residents have therefore been spared the stress of finding their homes valueless, which previous studies have shown can be a significant cause of stress (Edelstein, 1988). However, in meeting the financial anxieties of some in the village they may have intensified the social and psychological insecurity of many others. Many residents undoubtedly felt a strong affinity for Weston the place and had built their whole futures on life in the community there. The discovery of chemical contamination followed by the disintegration of the community which followed ICIs compensation package left many shocked and bewildered. Those residents who had turned to their neighbours for support following the initial news of the contamination were particularly badly affected by the loss of neighbours and the decline of the community. Many are gripped by uncertainty about whether to stay or go, which is contributing to conflict in the home and additional stress.

The reality is that although ICI may have recognised residents’ worries about both the impact of the incident on their circumstances and the chemical risks, they may not have understood the implications of their actions on the community in Weston and the psychosocial impact of its decline. This emphasises the importance for organisations handling these types of incident to take account of what Giddens (1991) described as our need for ontological security. This expresses a need for a stable mental state, order and continuity in our lives. Ontological security has become increasingly difficult to sustain in a world of constant change and where established meaning systems such as religion, community and family have become weaker. Increased knowledge has produced growing uncertainty and ever-increasing threats to our health and well-being. The news of the contamination incident in Weston exposed many anxieties about people’s health. The rapid demise of the community, precipitated by ICIs compensation package, destroyed one of the most effective mechanisms for coping with the contamination.

Couch (1996) concluded that within a badly contaminated community there are two stark options in the long-term, some form of physical remediation of the contaminated land or relocation of the community. Whether the extent of the contamination in Weston requires such a drastic response remains unclear. There is however a general expectation that people in the green zone, close to the contaminated houses will eventually all be relocated. People in the blue zone however are confused by the information they are receiving. On the one hand they are told there is no evidence that their houses are contaminated, on the other they sense that the community is being relocated because there are financial benefits for leaving but not for staying. Such mixed messages are reported in related studies concern-

ing the decision whether or not to evacuate from acute events—decisions that are left to the residents who are provided scant information (Eyles et al., 1993).

It will now be an uphill struggle to preserve a sustainable community in Weston. The informants indicate that in a continuing climate of uncertainty it is likely that more people will decide that the physical, social and psychological costs are enough to induce them to move elsewhere.

Conclusion

Incidents of toxic chemical contamination within communities almost invariably lead to worry and anxiety in the local community. This is often compounded by the relevant agencies focusing overwhelmingly on the uncertain affects of the chemical contamination and a tendency to pay much less attention to the social impact of these incidents.

The Weston incident therefore provides an important case study to inform the future management of similar incidents. Though the effects of contamination are likely to be uncertain, an incident such as this demands a rapid and decisive response. In Weston, many residents were desperate for answers about the extent of contamination, potential threats to health, the future of their community, when things would return to normal and the value of their houses. ICIs compensation package addressed only the last of these issues and became available long before the answers to the other issues became clear. Although the compensation package had many inconsistencies in that some houses very close to the quarries were excluded, many other houses at some distance from the quarries were included and this only served to increase suspicions that the situation was worse than residents were being told. In addition by paying well above market value for houses along with free removal and legal expenses they also provided an incentive to leave which was not available to those who wished to stay and preserve the community. Therefore, many residents concluded that the only effective remedy to their stress was to leave the village. For the majority, who initially preferred to wait and see, the rapid depopulation of the village and the fact that the whole village became dependent on ICI left them sad and increasingly insecure and ultimately convinced some of them that they too should move on. ICIs response was therefore much less sensitive to the broader social impact of things like compensation, health risk communication and the decline of community than it was to financial worries.

Rather than be over-critical of ICI, one should acknowledge that they did at least attempt to address people’s concerns by providing compensation packages to most of those directly affected, and in so doing went
much further than most companies involved in this type of incident have done previously. However, their failure to take account of the wider health and social impact emphasises the important contribution that social health practitioners and researchers can make if properly consulted by teams managing this type of incident. There was undoubtedly a substantial gulf between the thinking of the ICI management team and the views of the wider community in the early stages of this incident, which can easily be explained by the anger felt by the community towards ICI and a breakdown in communications. ICI and the community would have benefited had some attempt been made at this point to understand the community and lay perspective (Williams & Popay, 1994). This could have been achieved by contracting a local university to do some work in the community. It is quite likely that just a few weeks of qualitative research in the early stages of the Weston incident would have been beneficial in terms of obtaining the community perspective and could have resulted in decisions which better met the long-term needs of most people in the village.

A holistic approach must therefore be taken to the management of these issues from the outset. Identification of the exact level of contamination and its likely health impact is bound to remain equivocal, or at least, disputed (Frank et al., 1988). For the people of Weston the concentration on the potential risks from chemical contamination has resulted in decisions that may have contributed to psychosocial harm.

This study reveals that even when the financial needs of residents are met the impact on individuals and the community is still severe. Unless carefully managed it can lead to community depopulation and a growing impact on the psychosocial health of the remaining residents and a breakdown of community dynamics. It therefore highlights the importance of attention to secondary, community-level and interpersonal-level health impacts in the face of epidemiological uncertainty.

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