Communicating about risk following a nuclear incident

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Living in an age of risk?

► We have *always* lived in a world where there are numerous risks: natural (e.g. tsunami), technological accidents (e.g. mining disaster), human-actions (e.g. crusades, wars).

► But nowadays risks rapidly "dip under borders" (Beck): events one side of the globe rapidly effect others:

– both materially/ economically (e.g. pollution, terrorism, mass movements)

– and psychologically (through rapid spread of risk information).

► "Age of uncertainty" (Twenge, 2000): even before 9/11 significantly greater anxiety in US in 1993 vs. 1952

Different disasters, different impacts

▶ Natural disasters (earthquake) -> World is uncontrollable

▶ Technological disaster (e.g. Fukushima): often unfold over time. Radiation "invisible force".

▶ Person-made disaster (e.g. terrorism) -> question benevolent nature of others.

▶ Often causes/ effects overlap e.g. flu (biology* environment * behaviour). Tsunami → radiation leak → economic crisis.

▶ Frequently attributions 'irrational' (including earthquakes)

Usually..

▶ We overestimate risks of unusual events and underestimate common ones e.g. car crash

▶ Natural disasters – feel humbled but not unsafe in the future; others also understand and provide support.

▶ Technological disasters – 'blame' even when purely accidental/natural e.g. sense of guilt for co-workers

▶ Terrorism – seems to be random, indiscriminate, leads to helplessness.

▶ Mass casualties, and witnessing loss of life, more traumatic than property loss. House destruction sometimes no more traumatic than ambiguity about housing e.g. in Fukushima

Differences in reaction

▶ Much depends on where you live + previous experiences with event (e.g. earthquakes, terrorism). "Similar event inoculation" (Bonnano et al, 2010)

▶ Personal appraisal of event important: both initial evaluation and secondary assessment of coping resources (Lazarus & Folkman)

▶ Well-adjusted 'hardy' personalities more resilient; strong locus of control and self-esteem helps. Also these people more likely to get help from others.

▶ Values help drive responses: those high on security, conformity and tradition values ('conservation') worry more (Schwartz et al)

Groups, and others

▶ Individuals are nested in families and communities: social class, ethnic group, sex etc. influence reactions to trauma. The poorest/ least resourced usually suffer the most.

▶ Often events and appropriate responses are ambiguous – how should I behave in this new situation?

▶ Other help guide our responses. Emotions can be 'contagious'; we observe others whose fears help guide our response (e.g. on an airplane). "Observational fear learning"

Cultural variations

▶ 'Cultural baselines' help guide our responses

▶ These rooted in both specific and broader historical experiences of disaster + current societal events and resources e.g. atomic bomb experience in Japan.

▶ Some cultures fatalistic: "today will be worse than yesterday, better than tomorrow" (Hungarian phrase)

▶ Japanese *shouganai* ("it can't be helped").

Communication is important

▶ Finnish saying: "The one who adds information, adds pain". Trust vital: communications must be trustworthy

▶ Impacts of traumatic events more widespread than just those directly effected. TV exposure better predictor of stress following 9/11 than direct exposure (Silver, 2013).

▶ Social Media serves various functions e.g. can monitor the situation

▶ … but can lead to problems. Rubin et al after Fukushima: those listening to government websites too more distressed.

Social media

- Typhoon Haiyan: social media mediated relationship between exposure and stress. More Twitter, more distress (Goodwin et al, 2014). Facebook can provide distressing images

- Social media can also lead to rumours, and is likely to be uneven in access e.g. power blackouts.

- Of course hard often to work out if it's the anxious that pay particular attention … or other way around.

Research example

▶ We (Goodwin et al, 2012, PLoS One) collected data from 3 regions: 1) Miyagi 2) Tokyo + Chiba 3) Nagasaki + Yamaguchi (total N = 814). Data collected May 2011, 3 months after earthquake.

▶ Sought to understand individual values, family assessments of risk, their sense of control over risk and their trust in official notices

▶ Respondents students in 7 major Universities.

▶ Perceived risk itself measured by 2 items, assessing perceived risk from a further earthquake, and risk from future nuclear incident.

Example (cont)

▶ Analyses using AMOS (SEM)

▶ Fear of future earthquake: predicted by conservation values + family/ friend fears. Fear ~ preparing earthquake kit + modifying house.

▶ Greater risk perception in Tokyo > Miyagi > West Japan

▶ Fear of nuclear incident: predicted by conservation values, family/friend fears, trust in government advice, sense of personal health control.

▶ Risk ~ avoiding going out, wearing masks, considering leaving Japan

Example (cont)

- Nuclear risk, not continuing earthquake threat, led to stocking up of food and drink, reflecting uncertainty about food and safety following Fukushima . Nuclear risk too, not earthquake hazards, predicted a willingness to consider leaving Japan.

- Trust in the government in relation to the nuclear risk significant predictor of anxiety about nuclear risk

- Follow up data: significant differences between those using anonymous internet bulletin boards (e.g. BBS 2 ch) and those using more traditional media, with bulletin board users less trusting of government advice

Data from Miyagi refugees

- All refugee families living in Miyagi were sent a questionnaire 10-12 months after the disasters. 21 981 participants (73%) returned questionnaires.

- Questions assessed psychological distress, dysfunctional behaviours, demographics, event exposure, change in physical activity, household visitors and emotional support.

Miyagi (2)

▶ 9% percent risk of severe mental illness. Psychological distress greater in Fukushima refugees than those in Miyagi. **Distress levels relatively low. Inoculation?**

▶ Demographic variables, family loss, illness history, change in physical activity ~ psychological distress and dysfunctional behaviours. Both disease history and current disease problematic, as was family loss.

▶ Associations between psychological distress and dysfunction and visitors / supporters depended on relation to supporter. Child / daughter-in-law visit ~ sleeplessness, home visits from daughter-in-law morning alcohol use.

Implications for wider society

▶ Social networks very important in framing individual responses to events. Need to understand how these operate during disasters

▶ Communities may come together initially after a disaster – but all communities contain different sub-groups, and pre-existing tensions can rapidly re-emerge (or worsen). Some rejected. Some may feel let family/ community down e.g. by practising Tendenko

▶ Effective communication often means using

  – those trusted by the hardest to reach (often young, already relatively 'disconnected)

  – but only *selective* use of social media, as might increase anxieties.

Further implications

- Victims stigmatised as violate non victims illusions of stability and security. Fukushima workers seen as 'benefitting' from handouts but also responsible for disaster.

- Technological disasters erode community sense ,and sense of suspicion and cover ups. "Postdisaster bitterness" as groups squabble over resources.

- New patterns of interaction e.g. following 9/11 number of interactions with others similar but now more in pairs than group.

- Much depends on specifics of situation e.g. Ebola vs. terrorist attack. Also whether there is shared sympathy

Practical suggestions

- Emergency planning must include campaigns targeting
  - those hardest to reach (e.g. by recognising their individualistic values)
  - reassure already concerned individuals/groups (usually high in conservation values).

- Social networks in known 'at risk' communities need to be mapped - and used to help drive desired behaviours

- Community interventions need to be sustained, to prevent build up of 'community bitterness' over time.

- Vulnerable groups need protection during crises (e.g. *hibakusha*)

- Key communicators need to carefully monitor and react to social media to prevent damaging rumours.

Vulnerable groups often include

▶ A. Disabled

▶ b. Unemployed

▶ c. Evacuees (both compulsory and voluntary)

▶ d. Women, Children

▶ e. Bereaved

▶ f. Targets of negative public responses

▶ g. Workers
  – i. First responders and recovery workers (e.g., firefighters, police)
  – ii. Government workers
  – iii. Professional workers without disaster training (e.g., healthcare workers, teachers, dentists)

Layperson communications

▶ Explain radiation (and other) risks in relative terms, meaningful. Audiences 'anchor' understanding to other events (e.g. Hiroshima A-bomb), and may 'personalise' event

▶ Give clear advice from trust experts on actions needed. Communicating to different ages piloted using appropriate representatives (not 'grown-ups' guessing what young people like!). Values of audiences influence response.

▶ Not just about communicating knowledge – but about tackling lay beliefs and concerns. Recognise diversity of audiences even in 'homogenous' Japan

▶ Remember audiences might be moving particularly after a mass event e.g. Fukushima, tsunami. Language reflect knowledge, but must not patronise. Includes appropriate non-verbal language of communicator and how they dress.

Media responses

- Clear lines of communication with trusted officials and experts. Regular information in consistent format

- Use credible communicators e.g. from TV but realise, as with the population, media is diverse

- Powerful role of Twitter and other social media e.g. Mixi. Have official 'response pages', interactive with information and advice. (But note that those who attend to such pages may not be representative)

- Mass media is not only means of mass communication – may need additional information on posters, house-to-house leafleting etc to ensure message spread.

Sustaining communities

- As far as possible physical relocations should recognise existing family/ community networks – best if not 'random' as risk support networks

- Affected individuals with enduring problems (e.g. physical problems even before earthquake) need extra assistance, as do others now less mobile. Volunteers can help displaced (but less mobile) spend time with family members and friends.

- Financial allocations need to recognise ongoing disabilities and needs *plus* social needs e.g. travel back to former communities to assess situation and reconnect with former colleagues, friends and family.