Chapter 4 – Rehabilitation Ideas

A major objective in disaster management is the restoration of damage and disease associated with natural or manmade disasters.  The analysis, in this Chapter, considers ideas presenting rehabilitation, recovery, resilience, and response with related terms as the ideas of interest. These ideas are presented in two ways.  The first is the declaration of facts detailing what has been studied. The involved terms are displayed in the Appendix.  The second considers possible research designs by arranging the ideas in ways not previously considered.  The reader is challenged to interpret the results in terms of effective or less than effective management.  In addition, the reader is challenged to estimate the additional knowledge acquired as a consequence of the research.

This analysis involved 1197 ideas linking recovery, rehabilitation, resilience, and response with related terms. They were entered in PubMed during 1990 - 2016. Table 1 contains a partial listing of the terms linked with the primary ones. The full. dimension classified, vocabulary is given in the Appendix. Non-specific terms occurring infrequently were omitted from the classification.

Table 1. Partial List of Terms Linked with Rehabilitation and Associated terms 1990-2016

|  |  |  |  |
| --- | --- | --- | --- |
| Related | Freq | Related | Freq |
| disaster | 181 | adult | 11 |
| community | 64 | communities | 11 |
| assess | 41 | adaptive | 10 |
| emergency | 34 | demographic | 9 |
| age | 32 | disease | 9 |
| analysis | 31 | earthquake | 9 |
| communication | 21 | exposure | 9 |
| health | 18 | adolescent | 8 |
| children | 17 | adverse | 8 |
| access | 16 | anxiety | 8 |
| assist | 16 | capacity | 8 |
| clinic | 16 | change | 8 |
| crisis | 16 | climate | 8 |
| development | 15 | adaptation | 7 |
| hospital | 15 | concept | 7 |
| challenge | 14 | critical | 7 |
| accident | 13 | damage | 7 |
| behavior | 13 | emergencies | 7 |

The earliest document entered into PubMed dealing with rehabilitation and associated terms was 1990. Exhibit 1 summarizes residential choices in designated flood plains. Governmental rehabilitation programs were instrumental in residential decisions to remain in high risk sites.

**Exhibit 1. 1995 Report of Residential Locations Choices in Flood Plains.**

[Chan NW](https://www.ncbi.nlm.nih.gov/pubmed/?term=Chan%20NW%5BAuthor%5D&cauthor=true&cauthor_uid=8564454)1. Choice and constraints in floodplain occupation: the influence of structural factors on residential location in peninsular Malaysia. [Disasters.](https://www.ncbi.nlm.nih.gov/pubmed/?term=8564454) 1995 Dec;19(4):287-307. PMID: 8564454

In Peninsular Malaysia 'structural' factors are found to influence strongly people's persistent occupation of floodplains. Thus, despite a high level of flood hazard awareness, a high level of pessimism and a high level of expectation of future floods, poorer individuals seldom attempt to leave for more advantageous locations but are instead trapped in their present locations by structural factors such as poverty, low residential and occupational mobility, low educational attainment, traditional land inheritance, government aid, and government disaster preparedness, relief and rehabilitation programmes. These forces exert a strong influence upon individuals and largely control their choice of residential location in response to flood hazards, thereby reinforcing the persistent occupation of floodplains. Structural factors such as landlessness, rural-urban migration, floodplain encroachment and squatting are also highly influential in leading people to move. Even for those who move, structural factors have largely confined their choice of residential location to urban floodplains.

Exhibit 2 describes a psychosocial program designed to deal with the aftermath of disasters. Local centers are programmed to disseminate psychoeducational messages to the population following a disaster. The author stated that the civil security program has been in effect for ten years and has been effective in restoring calm. The details of that evaluation were not included.

Exhibit 2. Civil Security and Dissemination of Psychoeducational Messages following a Disaster.

[Martel C](https://www.ncbi.nlm.nih.gov/pubmed/?term=Martel%20C%5BAuthor%5D&cauthor=true&cauthor_uid=18253571). [Psychosocial intervention in civil security in Québec.]. [Sante Ment Que.](https://www.ncbi.nlm.nih.gov/pubmed/?term=18253571) 2000 Spring;25(1):45-73. PMID: 18253571

Ten years after its creation, psychosocial intervention in civil security in Québec has established solid bases thanks to its integrated approach, its training program, its various tools and its experimentation. Thus, when disaster strikes, psychosocial services are delivered by local community centres (CLSC) in collaboration with local partners. This type of intervention supports the process of rehabilitation according to the premise that the majority of people are able to deal with a stressful situation. A psychoeducational approach is adopted and a message of normalization of reactions is sent. In Québec, personnel in charge of psychosocial intervention faced three important disasters: the Saguenay floods in 1996, the bus accident in Saint-Joseph-de-la-Rive in 1997 and the 1998 ice storm. These disasters highlighted important elements on a psychosocial level (verbalization, return to normal life, quality of municipal services, intrusion, evaluation) as well as the development of a culture of civil security in Québec. Taking into account its realizations, the psychosocial aspect of civil security of Québec arouses interest in Québec as well as abroad.

Exhibit 3 describes a US Navy unit responsible for providing rapid psychological care to sailors following a disaster aboard ship. This intervention offers consultation and education leading to self-resiliency. The research findings supporting these claims were not included.

Exhibit 3. Special Psychiatric Rapid Intervention Team (SPRINT)

[Millegan J](https://www.ncbi.nlm.nih.gov/pubmed/?term=Millegan%20J%5BAuthor%5D&cauthor=true&cauthor_uid=27849509)1, [Delaney EM](https://www.ncbi.nlm.nih.gov/pubmed/?term=Delaney%20EM%5BAuthor%5D&cauthor=true&cauthor_uid=27849509)2, [Klam W](https://www.ncbi.nlm.nih.gov/pubmed/?term=Klam%20W%5BAuthor%5D&cauthor=true&cauthor_uid=27849509)1. Responding to Trauma at Sea: A Case Study in Psychological First Aid, Unique Occupational Stressors, and Resiliency Self-Care. [Mil Med.](https://www.ncbi.nlm.nih.gov/pubmed/?term=27849509) 2016 Nov;181(11):e1692-e1695. PMID: 27849509

The U.S. Navy deploys Special Psychiatric Rapid Intervention Teams (SPRINT) to sites of military disasters to assist survivors and the command. SPRINT functions primarily as a consultant to help commands effectively respond to the mental health needs of their service members following a traumatic event. Utilizing the principles of psychological first aid, the overall goal of SPRINT is to mitigate long-term mental health dysfunction and facilitate recovery at both the individual and unit level. We present a case study of a SPRINT mission to a deployed U.S. Navy ship in response to a cluster of suicides and subsequent concerns about the well-being of the remaining crew. Throughout this mission, important themes emerged, such as the impact of accumulated operational stressors and the subsequent development of mental health stigma. Also, this case study demonstrates the potential effectiveness of introducing resiliency self-care meditation training to remote environments that lack ready access to mental health resources. From here, SPRINT can provide a model for immediate disaster mental health response that has potential relevancy beyond the military.

Research Designs Possible?

The ideas involving – rehabilitation, recovery, resiliency, or response – as the primary terms, may be used as independent building blocks. This fact raises the possibility that new research designs might be identified. Table 3 lists the terms linked with rehabilitation, recovery, resilience, and response, classified into dimensions. The dimensions (Chapter 1) are organized from Personal 🡪 Methods.

# Table 3A. Terms Linking with Rehabilitation, Recovery, Resiliency, and Response Ideas as Building Blocks – Personal, Environmental, Subject Dimensions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Personal** | **Freq** | **Environment** | **Freq** | **Subject** | **Freq** |
| **age** | **46** | **community** | **247** | **disaster** | **830** |
| **behavior** | **38** | **social** | **86** | **emergency** | **269** |
| **victim** | **36** | **communities** | **62** | **earthquake** | **65** |
| **children** | **34** | **environment** | **58** | **hurricane** | **55** |
| **vulnerability** | **31** | **worker** | **46** | **crisis** | **51** |
| **resident** | **24** | **global** | **44** | **hazard** | **51** |
|  |  | **international** | **37** | **emergencies** | **45** |
|  |  | **climate** | **36** |  |  |
|  | Etc. |  |  | **Etc.** |  |

# Table 3B. Terms Linking with Rehabilitation, Recovery, Resiliency, and Response Ideas as Building Blocks – Interventional, Outcome, and Methods Dimensions.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Intervention** | **Freq** | **Outcome** | **Freq** | **Methods** | **Freq** |
| **management** | **150** | **health** | **222** | **research** | **128** |
| **intervention** | **115** | **response** | **142** | **support** | **100** |
| **hospital** | **109** | **mental** | **112** | **training** | **80** |
| **medical** | **92** | **stress** | **111** | **assess** | **79** |
| **government** | **63** | **recovery** | **103** | **model** | **71** |
| **policy** | **49** | **exposure** | **69** | **planning** | **63** |
| **resilience** | **45** | **survivor** | **37** | **development** | **62** |
| **rescue** | **40** |  |  | **survey** | **58** |
|  |  |  |  | **framework** | **57** |
|  |  |  |  | **communication** | **54** |
|  | **Etc.** |  | **Etc.** |  |  |

Table 4 shows some of the research designs. Each design shows one term from each of the dimensions. The selection is based on the most frequently cited, then the next most frequently, etc. The ideas can be combined because of their independence. The challenge is to determine the potential benefit in terms of increased knowledge. To do that, one approach would be based on the hypothesis or problem statement addressed. To construct those descriptive statements, the dimensions are considered from right to left, beginning with the outcome dimension. Some of these are shown in Exhibit 4. The Appendix displays the terms linked with – Rehabilitation, Recovery, Resiliency, and Response – classified into dimensions.

Table 4. Possible Research Designs based on Frequency of Citation.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **First Design:** |  |  | | |  |  |
| **Personal -->** | **Environment -->** | | | **Subject -->** | **Intervention -->** | **Outcome** |
| **Age** | **community** | | **disaster** | | **management** | **Health** |
| **First Hypothesis:** |  | |  | |  |  |
| **Outcome -->** | **Intervention -->** | | **Subject -->** | | **Environment -->** | **Personal** |
| **Health** | **management** | | **disaster** | | **community** | **Age** |
| **First Statement:** |  | |  | |  |  |
| **Recovery from disasters requires community management to restore health to all** | | | | | | |
| **age groups.** |  | | |  |  |  |
| **Second Design:** |  | | |  |  |  |
| **Personal -->** | **Environment -->** | | | **Subject -->** | **Intervention -->** | **Outcome** |
| **Behavior** | **social** | | | **emergency** | **Intervention -->** | **Response** |
| **Second Hypothesis:** |  | | |  |  |  |
| **Outcome -->** | **Intervention -->** | | | **Subject -->** | **Environment -->** | **Personal** |
| **Response** | **Intervention** | | | **emergency** | **social** | **Behavior** |
| **Second Statement:** |  | | |  |  |  |
| **Rehabilitation involves response to the interventions designed to cope with the emergency and improve social behavior.** | | | | | | |
| **Third Design:** |  | | |  |  |  |
| **Personal -->** | **Environment -->** | | | **Subject -->** | **Intervention -->** | **Outcome** |
| **Victim** | **communities** | | | **earthquake** | **hospital** | **Mental** |
| **Third Hypothesis:** |  | | |  |  |  |
| **Outcome -->** | **Intervention -->** | | | **Subject -->** | **Environment -->** | **Personal** |
| **Mental** | **hospital** | | | **earthquake** | **communities** | **victim** |
| **Third Statement:** |  | | |  |  |  |
| **Rehabilitation in earthquake communities may require hospitalization in mental institutions.** | | | | | | |

Table 4 shows three of the research designs and their associated statements. Each of the terms in the vocabulary can be selected for inclusion in a design. Not all combinations will be considered informative in terms of new knowledge. Many will. The interesting feature of this construction process is that both qualitative and quantitative designs may be formulated. Accordingly, the design process is simplified by using this algorithm. The creative path leading to the hypothesis/problem statement is clear. The particular arrangement of ideas used in the design may be based on frequency of citation (see Table 4) or on the human analyst’s preferences (see Appendix). In either case, the selection can be made transparent and human creativity/intelligence are maintained in a world where artificial intelligence is intriguing. The assistance in developing effective research designs is clear.

Table 5 illustrates that process by selecting the least frequently cited ideas from the dimensions.

Table 5. Formulation of the Hypothesis for a Research Design involving the lowest frequency ideas.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Last Design:** | |  |  |  |  |  |
| **Personal** | | **Environment** | **Subject** | **Interventional** | **Outcome** | **Methods** |
| **vulnerabilities** | | **wastewater** | **volconic** | **replacement** | **satisfaction** | **statistical** |
| **Last Hypothesis:** | | |  |  |  |  |
| **Outcome** | **Intervention** | | **Subject** | **environment** | **Personal** |  |
| **Satisfaction** | **Replacement** | | **volconic** | **Wastewater** | **Vulnerabilities** |  |
| **Statement:** |  | |  |  |  |  |
| **Rehabilitation involves satisfaction in reducing vulnerabilities due to volcanic wastewater.** | | | | | | |
|  |  | |  |  |  |  |

Subject specialists will have to decide the merits of each design. Even the lowest frequency organization of ideas may have merit.

Appendix

The terms linked with rehabilitation, recovery, response, and resilience are organized by dimension. Frequency of citation is used to organize the ideas within each dimension. Omitted from this listing were non-specific terms infrequently cited.

|  |  |  |
| --- | --- | --- |
| Term | Freq | Dimension |
| community | 247 | Environment |
| social | 86 | Environment |
| communities | 62 | Environment |
| environment | 58 | Environment |
| worker | 46 | Environment |
| global | 44 | Environment |
| international | 37 | Environment |
| climate | 36 | Environment |
| natural | 29 | environment |
| public | 29 | environment |
| humanitarian | 28 | environment |
| economic | 26 | environment |
| nation | 23 | environment |
| people | 23 | environment |
| cities | 22 | environment |
| population | 21 | environment |
| demographic | 19 | environment |
| ecological | 15 | environment |
| political | 15 | environment |
| society | 15 | environment |
| cultural | 13 | environment |
| families | 11 | environment |
| field | 11 | environment |
| financial | 9 | environment |
| workforce | 9 | environment |
| capital | 8 | environment |
| coastal | 8 | environment |
| insurance | 8 | environment |
| ecosystem | 7 | environment |
| housing | 7 | environment |
| industrial | 7 | environment |
| industry | 7 | environment |
| region | 7 | environment |
| rural | 7 | environment |
| state | 7 | environment |
| workshop | 7 | environment |
| civilian | 6 | environment |
| economy | 6 | environment |
| geographic | 6 | environment |
| societal | 6 | environment |
| culture | 5 | environment |
| market | 5 | environment |
| nature | 5 | environment |
| poor | 5 | environment |
| shelter | 5 | environment |
| sichuan | 5 | environment |
| societies | 5 | environment |
| chernobyl | 4 | environment |
| climatic | 4 | environment |
| income | 4 | environment |
| jurisdiction | 4 | environment |
| religious | 4 | environment |
| urban | 4 | environment |
| wenchuan | 4 | environment |
| citizen | 3 | environment |
| domestic | 3 | environment |
| employee | 3 | environment |
| employment | 3 | environment |
| enforcement | 3 | environment |
| ethnic | 3 | environment |
| japanese | 3 | environment |
| legislation | 3 | environment |
| residence | 3 | environment |
| workplace | 3 | environment |
| worldwide | 3 | environment |
| bank | 2 | environment |
| continent | 2 | environment |
| epicenter | 2 | environment |
| groundwater | 2 | environment |
| haitian | 2 | environment |
| household | 2 | environment |
| landscape | 2 | environment |
| poverty | 2 | environment |
| socioeconomic | 2 | environment |
| volunteer | 2 | environment |
| australian | 1 | environment |
| campus | 1 | environment |
| canadian | 1 | environment |
| college | 1 | environment |
| freshwater | 1 | environment |
| school | 1 | environment |
| wastewater | 1 | environment |
| management | 150 | intervention |
| intervention | 115 | intervention |
| hospital | 109 | intervention |
| medical | 92 | intervention |
| government | 63 | intervention |
| policy | 49 | intervention |
| resilience | 45 | intervention |
| rescue | 40 | intervention |
| clinic | 38 | intervention |
| nursing | 32 | intervention |
| psychological | 32 | intervention |
| medicine | 26 | intervention |
| mitigation | 26 | intervention |
| evacuation | 21 | intervention |
| psychosocial | 20 | intervention |
| military | 19 | intervention |
| policies | 18 | intervention |
| radiation | 17 | intervention |
| prevention | 15 | intervention |
| rehabilitation | 14 | intervention |
| federal | 12 | intervention |
| treatment | 11 | intervention |
| mitigate | 9 | intervention |
| surgical | 9 | intervention |
| guidance | 8 | intervention |
| reduce | 8 | intervention |
| ambulance | 7 | intervention |
| control | 7 | intervention |
| protective | 7 | intervention |
| restoration | 7 | intervention |
| administration | 6 | intervention |
| authorities | 6 | intervention |
| firefighter | 6 | intervention |
| reduction | 6 | intervention |
| caregiver | 5 | intervention |
| police | 5 | intervention |
| prevent | 5 | intervention |
| protection | 5 | intervention |
| psychologic | 5 | intervention |
| defense | 4 | intervention |
| manage | 4 | intervention |
| nurse | 4 | intervention |
| authority | 3 | intervention |
| paramedic | 3 | intervention |
| planner | 3 | intervention |
| psychiatric | 3 | intervention |
| therapeutic | 3 | intervention |
| vaccination | 3 | intervention |
| vaccine | 3 | intervention |
| agencies | 2 | intervention |
| amputation | 2 | intervention |
| irradiation | 2 | intervention |
| physician | 2 | intervention |
| psychopathology | 2 | intervention |
| radiological | 2 | intervention |
| resuscitation | 2 | intervention |
| surgery | 2 | intervention |
| therapy | 2 | intervention |
| analgesic | 1 | intervention |
| caregiving | 1 | intervention |
| chemotherapy | 1 | intervention |
| helicopter | 1 | intervention |
| immunization | 1 | intervention |
| managerial | 1 | intervention |
| psychologist | 1 | intervention |
| remediation | 1 | intervention |
| replacement | 1 | intervention |
| research | 128 | method |
| support | 100 | method |
| training | 80 | method |
| assess | 79 | method |
| model | 71 | method |
| planning | 63 | method |
| development | 62 | method |
| survey | 58 | method |
| framework | 57 | method |
| communication | 54 | method |
| challenge | 47 | method |
| strategies | 46 | method |
| analysis | 39 | method |
| concept | 38 | method |
| evidence | 38 | method |
| assist | 31 | method |
| provide | 29 | method |
| explore | 24 | method |
| security | 23 | method |
| access | 22 | method |
| investigate | 22 | method |
| simulation | 21 | method |
| process | 20 | method |
| evaluation | 19 | method |
| experience | 18 | method |
| growth | 18 | method |
| strategy | 17 | method |
| symptom | 17 | method |
| change | 16 | method |
| surveillance | 16 | method |
| construction | 15 | method |
| service | 15 | method |
| adaptive | 14 | method |
| capacity | 14 | method |
| program | 14 | method |
| reconstruction | 14 | method |
| adaptation | 13 | method |
| demonstrate | 13 | method |
| investigation | 13 | method |
| promote | 13 | method |
| source | 13 | method |
| enhance | 12 | method |
| structure | 12 | method |
| studies | 12 | method |
| develop | 11 | method |
| problem | 11 | method |
| activities | 10 | method |
| examine | 10 | method |
| finding | 10 | method |
| objective | 10 | method |
| review | 10 | method |
| competencies | 9 | method |
| consequence | 9 | method |
| deployment | 9 | method |
| evaluate | 9 | method |
| infrastructure | 9 | method |
| organization | 9 | method |
| diversity | 8 | method |
| logistic | 8 | method |
| measure | 8 | method |
| score | 8 | method |
| assistance | 7 | method |
| equipment | 7 | method |
| propose | 7 | method |
| telemedicine | 7 | method |
| address | 6 | method |
| coordination | 6 | method |
| protocol | 6 | method |
| ability | 5 | method |
| action | 5 | method |
| association | 5 | method |
| construct | 5 | method |
| create | 5 | method |
| decision | 5 | method |
| detection | 5 | method |
| dimension | 5 | method |
| project | 5 | method |
| cohort | 4 | method |
| computer | 4 | method |
| design | 4 | method |
| forensic | 4 | method |
| learning | 4 | method |
| network | 4 | method |
| skill | 4 | method |
| cognition | 3 | method |
| concentration | 3 | method |
| consensus | 3 | method |
| convention | 3 | method |
| empirical | 3 | method |
| guideline | 3 | method |
| mechanism | 3 | method |
| method | 3 | method |
| regression | 3 | method |
| sample | 3 | method |
| technology | 3 | method |
| triage | 3 | method |
| active | 2 | method |
| activity | 2 | method |
| application | 2 | method |
| correlate | 2 | method |
| correlation | 2 | method |
| detectable | 2 | method |
| educator | 2 | method |
| etiology | 2 | method |
| hygiene | 2 | method |
| internet | 2 | method |
| lesson | 2 | method |
| regulation | 2 | method |
| seismic | 2 | method |
| adjustment | 1 | method |
| algorithm | 1 | method |
| allocation | 1 | method |
| anthropological | 1 | method |
| average | 1 | method |
| calculate | 1 | method |
| case-control | 1 | method |
| category | 1 | method |
| checklist | 1 | method |
| classification | 1 | method |
| data | 1 | method |
| dataset | 1 | method |
| epidemiologic | 1 | method |
| epidemiology | 1 | method |
| episode | 1 | method |
| examination | 1 | method |
| experiment | 1 | method |
| qualitative | 1 | method |
| screening | 1 | method |
| statistical | 1 | method |
| health | 222 | outcome |
| response | 142 | outcome |
| mental | 112 | outcome |
| stress | 111 | outcome |
| recovery | 103 | outcome |
| exposure | 69 | outcome |
| survivor | 37 | outcome |
| outbreak | 35 | outcome |
| barrier | 31 | outcome |
| critical | 31 | outcome |
| traumatic | 29 | outcome |
| depression | 28 | outcome |
| coping | 26 | outcome |
| benefit | 20 | outcome |
| distress | 20 | outcome |
| coalition | 18 | outcome |
| accident | 17 | outcome |
| death | 17 | outcome |
| recover | 17 | outcome |
| risk | 15 | outcome |
| immune | 14 | outcome |
| outcome | 13 | outcome |
| safety | 13 | outcome |
| adverse | 12 | outcome |
| awareness | 12 | outcome |
| important | 12 | outcome |
| depressive | 10 | outcome |
| emotional | 10 | outcome |
| advance | 9 | outcome |
| complication | 9 | outcome |
| conflict | 9 | outcome |
| improvement | 9 | outcome |
| living | 9 | outcome |
| violent | 9 | outcome |
| contamination | 8 | outcome |
| disruption | 8 | outcome |
| loss | 8 | outcome |
| responder | 8 | outcome |
| significant | 8 | outcome |
| sustainability | 8 | outcome |
| adversity | 7 | outcome |
| burden | 7 | outcome |
| failure | 7 | outcome |
| importance | 7 | outcome |
| morbid | 7 | outcome |
| survival | 7 | outcome |
| attack | 6 | outcome |
| efficacy | 6 | outcome |
| morbidity | 6 | outcome |
| deterioration | 5 | outcome |
| discharge | 5 | outcome |
| quality | 5 | outcome |
| beneficial | 4 | outcome |
| fatality | 4 | outcome |
| mortal | 4 | outcome |
| prevalence | 4 | outcome |
| resistance | 4 | outcome |
| responding | 4 | outcome |
| severity | 4 | outcome |
| suicidal | 4 | outcome |
| communicable | 3 | outcome |
| displacement | 3 | outcome |
| respond | 3 | outcome |
| sensitivity | 3 | outcome |
| avoidance | 2 | outcome |
| collision | 2 | outcome |
| destruction | 2 | outcome |
| devastation | 2 | outcome |
| efficiency | 2 | outcome |
| impairment | 2 | outcome |
| innovative | 2 | outcome |
| surviving | 2 | outcome |
| abnormal | 1 | outcome |
| absenteeism | 1 | outcome |
| acceptance | 1 | outcome |
| achievement | 1 | outcome |
| adherence | 1 | outcome |
| adoption | 1 | outcome |
| aggressive | 1 | outcome |
| ameliorate | 1 | outcome |
| assault | 1 | outcome |
| birth | 1 | outcome |
| competence | 1 | outcome |
| competency | 1 | outcome |
| destructive | 1 | outcome |
| disastrous | 1 | outcome |
| discover | 1 | outcome |
| eruption | 1 | outcome |
| fatalities | 1 | outcome |
| feasibility | 1 | outcome |
| invasive | 1 | outcome |
| lifesaving | 1 | outcome |
| lifestyle | 1 | outcome |
| life-threatening | 1 | outcome |
| mortality | 1 | outcome |
| occurrence | 1 | outcome |
| satisfaction | 1 | outcome |
| age | 46 | personal |
| behavior | 38 | personal |
| victim | 36 | personal |
| children | 34 | personal |
| vulnerability | 31 | personal |
| resident | 24 | personal |
| adult | 19 | personal |
| person | 19 | personal |
| anxiety | 16 | personal |
| expert | 13 | personal |
| gender | 12 | personal |
| parent | 11 | personal |
| adolescent | 10 | personal |
| women | 7 | personal |
| childhood | 6 | personal |
| female | 5 | personal |
| relative | 5 | personal |
| attitude | 4 | personal |
| homeless | 4 | personal |
| behaviour | 3 | personal |
| student | 3 | personal |
| administrator | 2 | personal |
| child | 2 | personal |
| race | 2 | personal |
| veteran | 2 | personal |
| veterans | 2 | personal |
| vulnerabilities | 2 | personal |
| client | 1 | personal |
| disaster | 830 | subject |
| emergency | 269 | subject |
| earthquake | 65 | subject |
| hurricane | 55 | subject |
| crisis | 51 | subject |
| hazard | 51 | subject |
| emergencies | 45 | subject |
| disease | 38 | subject |
| flood | 37 | subject |
| education | 34 | subject |
| nuclear | 31 | subject |
| damage | 30 | subject |
| disorder | 24 | subject |
| injuries | 21 | subject |
| terror | 20 | subject |
| disability | 19 | subject |
| epidemic | 19 | subject |
| infectious | 18 | subject |
| pandemic | 17 | subject |
| terrorist | 16 | subject |
| chronic | 15 | subject |
| disabilities | 15 | subject |
| physical | 15 | subject |
| infection | 14 | subject |
| injury | 14 | subject |
| casualty | 13 | subject |
| catastrophic | 13 | subject |
| resource | 13 | subject |
| business | 11 | subject |
| drought | 9 | subject |
| biodiversity | 8 | subject |
| casualties | 8 | subject |
| chemical | 8 | subject |
| literature | 8 | subject |
| cognitive | 7 | subject |
| crises | 7 | subject |
| disturbance | 7 | subject |
| illness | 7 | subject |
| inflammatory | 7 | subject |
| institution | 7 | subject |
| baseline | 6 | subject |
| dysfunction | 6 | subject |
| typhoon | 6 | subject |
| cancer | 5 | subject |
| stroke | 5 | subject |
| trauma | 5 | subject |
| violence | 5 | subject |
| alcohol | 3 | subject |
| dementia | 3 | subject |
| discipline | 3 | subject |
| famine | 3 | subject |
| inflammation | 3 | subject |
| malnutrition | 3 | subject |
| nutrition | 3 | subject |
| respiratory | 3 | subject |
| sanitation | 3 | subject |
| scientific | 3 | subject |
| terrorism | 3 | subject |
| tornado | 3 | subject |
| abilities | 2 | subject |
| availability | 2 | subject |
| cyclone | 2 | subject |
| emotion | 2 | subject |
| english | 2 | subject |
| explosive | 2 | subject |
| fungal | 2 | subject |
| knowledge | 2 | subject |
| wound | 2 | subject |
| abdominal | 1 | subject |
| advocacy | 1 | subject |
| antigen | 1 | subject |
| antioxidant | 1 | subject |
| aquatic | 1 | subject |
| atomic | 1 | subject |
| bacterium | 1 | subject |
| biology | 1 | subject |
| biomarker | 1 | subject |
| breast | 1 | subject |
| calamities | 1 | subject |
| cardiopulmonary | 1 | subject |
| cerebral | 1 | subject |
| dental | 1 | subject |
| endemic | 1 | subject |
| hiv | 1 | subject |
| insect | 1 | subject |
| landslide | 1 | subject |
| psychiatry | 1 | subject |
| tsunamis | 1 | subject |
| volcanic | 1 | subject |