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RESILIENCE – DOING WELL DESPITE OF ADVERSITY

Christine (Tine) Adler¹ and Stefan Duschek²

¹ *christine.adler@psy.lmu.de*

Ludwig-Maximilians-University (LMU), Dept Psychology - PsyCris project,
Leopoldstraße 13, 80802 Munich (Germany)

² *stefan.duschek@umit.at*

UMIT - University for Health Sciences, Medical Informatics and Technology, Institute of Applied Psychology, Eduard Wallnöfer-Zentrum 1, A-6060 Hall in Tirol (Austria)

Abstract

The presented paper will describe an evaluation model based on one severely flooded community in Germany. Thus, the model tries to identify potential access-points to improve preparedness, prevention and intervention.

The 'OH-CHAMPSS' model is an extension of the previous CHAMPSS (Communication, *H*ousing, *A*wareness, *M*obility/transportation, *P*sycho-social support, *S*elf-care and *S*afety/Security) model (EnRICH Enhancing Resilience and Capacity for Health-Project, [1]). The aspects Organization and *H*uman factors (OH) are added to account for the complex interplay between security measures and existing community dynamics. The methodology uses qualitative media and interview analyses such as GABEK WinRelan and quantitative analyses of mental health screening data like Personal Health Questionnaire (PHQ). The approach has been developed as part of the PsyCris project (2013) and considers a definition of individual resilience [2] as well as the [3] definition of disaster and community resilience.

With psycho-social support being a crucial part of crisis management, such dynamics need to be understood and managed in order to sustain security and increase resilience not only in the acute phase but also for the intermediate and long-term phases of disasters.

Keywords: Resilience, crisis management, sustainable security, psycho-social support, exploratory model

1 INTRODUCTION

The amount of natural hazards like floods or extreme weather conditions has increased in Germany and other parts of Europe. The flooding 2013 in Germany is but one incident that shows the many challenges communities are facing, such as physical and mental health of victims, affected persons, first responders and red and blue light organizations as well as the overall infrastructure of the community itself.

1.1 The 2013 flood in Germany

In June 2013, Germany saw a flood with higher water levels than ever observed in the last century. The federal states Bavaria, Saxony, and Saxony-Anhalt were most notably affected. A lot of German districts had to declare a state of emergency because the rivers overflowed and a large number of levees broke, causing the surrounding areas to flood. In many places local disaster coordination and civil protection centres had to be established. Relief units from other areas as well as from the German Federal Armed Forces had to be deployed to assist the local relief and search and rescue units. Twenty-two fatalities were reported in total, including the neighbouring countries that were also affected. Some ten thousand people had to leave their homes and were evacuated, only allowed to take a few necessary things with them. A lot of people lost

their houses, properties and companies. Farms and private households were damaged severely. The re-insurance company Munich Re estimates that the 2013 flood constitutes the most expensive natural catastrophe in German history. [4]

Already in June 2013, the PsyCris project, an EU-funded project investigating psychosocial support in crisis management, started to collect articles and conduct interviews with crisis managers about the flood and its impact on a severely stricken region of the Danube Area.

The evaluated area is a community which “*is an entity that has geographic boundaries and share fate*” [2, p.128]. This community collectively experienced a potentially traumatic event. At the first glance the community seemed to be very resilient. However, the associated stressors of a flood may cause symptoms of Post-traumatic Stress Disorder (PTSD).

1.2 Resilience

Resilience could be conceptualized as a process, a phenomenon, or a trajectory, that might occur after confrontation with a stressor when certain protective factors (e.g. resources/abilities/capacities/assets) have been present. Resilience is not a trait and it is not the outcome variable. Resilience does not mean stability, but rather adaptability or flexibility [5],[6],[2].

There is a great interest in learning more about the processes and mechanisms that enable communities to “respond and recover from disasters, to absorb impacts and cope with an event, as well as post-event, adaptive processes that facilitate the ability of the social system to re-organize, change, and learn in response to a threat” as [7] describes community resilience.

Based on the combined definitions of individual resilience: “*a process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after disturbance*” [2, p.130] and disaster resilience as defined by [3] “the capacity of a system, community or society potentially exposed to hazards to adapt by resisting or changing in order to reach and maintain an acceptable level of functioning and structure” a concept for crisis evaluation was developed by the PsyCris project in 2013. This described model “OH-CHAMPSS” is based on CHAMPSS (EnRICH Enhancing Resilience and Capacity for Health-Project, [1]). However, the aspects Organization, Human factors (OH) are added to the existing modules Communication, Housing, Awareness, Mobility/transportation, Psycho-social support, Self-care and Safety/Security (CHAMPSS).

2 METHODOLOGY

2.1 GABEK WinRelan

Eight semi-structured interviews (seven male; one female) with experts of the crisis management/civil protection (district administrator, on-site crisis manager fire brigade, members of district administration, squad leader and expert advisors of relief organizations, and liaison-officer of the German Armed Forces) of the area under investigation were conducted. The transcribed interviews are being analysed using the qualitative method GABEK WinRelan® [8] into linguistic networks and shown as weighted network graphs. This methodology allows uncovering of potentially significant knowledge from unordered accounts of the interviewees. In addition, existing reports and documents concerning the 2013 flooding were analysed.

2.2 Survey

A set of questionnaires for affected persons in the community was compiled and distributed 9 months after the flood. 130 persons took part, 115 responded, 110 questionnaires are used for analyses. The following instruments were included in the survey: Posttraumatic Diagnostic Scale (PDS) [10] Symptom Check List (SCL-90-R) [11]; Idler Index of Religiosity (IIR) [12], Fragebogen zur wahrgenommenen sozialen Unterstützung (F-SoZu-22) [13], socio-demographic questionnaire. Statistical analyses were based on Pearson correlations and regression models.

3 RESULTS

In the following the final results will briefly be reported according to the OH-CHAMPSS model.

3.1 Organisation

Disaster response is the responsibility of the individual states. The Disaster Response Act of the federal state of Bavaria (Katastrophenschutzgesetz) defines the respective responsibilities and capacities.

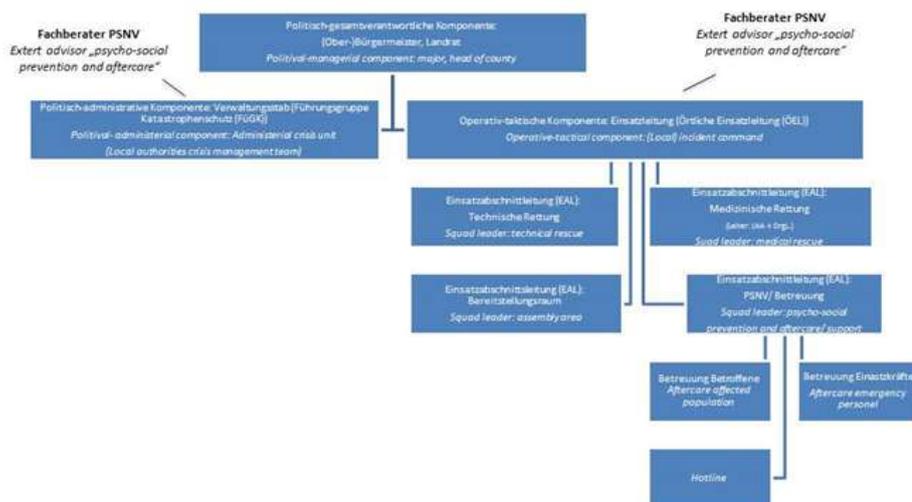


Fig. 1 Crisis Management/Civil Protection Structure

One distinctive feature in the region under investigation was the inauguration of an expert advisor for “psycho-social prevention” by the district administrator in the first days. The expert advisor was part of the crisis management group = Führungsgruppe Katastrophenschutz (FüGK).

Among the tasks and responsibilities of the organisations were: dyke reinforcements and heightenings, controlled flooding; removal of water damages; evacuation of parts of the population, air and boat transportation; safeguarding and protection measures by the police; protection of electrical power and drinking water supply; re-establishment of traffic infrastructure; filtering of toxic substances like fuel and oil to prevent environmental and health damages; organizing emergency personnel and volunteers,

planning and coordination of actions; provision and distribution of immediate financial aid.

The crisis units had to work over a long period of time (three to four weeks) under extreme conditions (physically and mentally exhausting work).

Members of crisis units are either employed from the organisation or are volunteers with special training.

3.2 Walk-in-volunteers

Walk-in-volunteers” that organize themselves via social media are a new phenomenon, which poses new challenges for the crisis management in terms of disaster resilience and security management. They are seen from two sides: one being helpfulness, when a lot of hands are required. The other being more critical, when walk-in-volunteers are ill equipped and without any structure compatible with the existing civil protection management. They are eager to help in the affected areas, but are not registered in any way and often unaware that it is still a disaster zone.

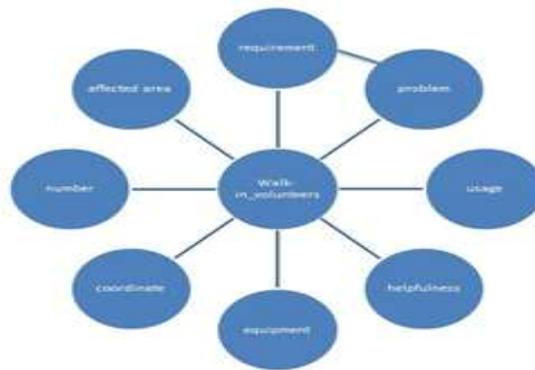


Fig. 2 Walk-in- volunteers

“We were under the impression that the flood united the German population. The Germans helped each other selflessly in the face of this natural disaster: some of them volunteered to reinforce the dams, and some of them helped to transfer sand and filled the bags. Local residents made sandwiches, hot dogs, salads, tea, and coffee for the workers. Someone brought pallets with drinking water and juices (not even once did we see a place with volunteers that had no water supply).” [14]

3.3 Human Factors

3.3.1 Main burden and stress

In the interviews the experts listed the following main challenges: lack of sleep, length of the operation, huge amounts of water they were not prepared for, risk of extreme flooding if dykes do not hold and the breach of some dykes which caused additional stress and danger.

“Stressor number one was the breach of the dyke. I was above it in the helicopter when it broke. Seeing the people struggling and fighting for their lives, that was extremely stressful” (B59)¹

¹ Citation is according to the coding of the interviews in GABEK WinRelan

3.3.2 Survey results

The sample of the survey includes 110 inhabitants (56 male and 54 female, 87.2% are living with other persons in their household, 11.8% persons are living alone. The population in the community has an average age of 33.9 years. At the time of the survey, 77.3% are only recently living in the community. On average the inhabitants were forced to leave their homes for 19 weeks.

The screening suggested that all subjects had already experienced a stressful life-event during the flood, and 62.7% of them described the disaster as the most stressful event experienced during their lives. 31.8% of the sample exhibited a positive PTSD screening according to the PDS. All clinical parameters (PTSD, depression, anxiety, somatization, aggression) correlated significantly negative with social support indexed by the SoZu-22. In hierarchic linear regression, bureaucratic struggle (post-disaster stress factor) predicted all clinical parameters (depression, anxiety, full PTSD). Binary logistic regression on positive PTSD screening (yes-no) according to PDS revealed social support as a significant negative and religious belief (IIR) and female sex as positive predictors of the occurrence of PTSD. Furthermore, living alone was a marginally significant positive predictor.

3.4 Communication

Examining the network graph shows that communication/information means taking decisions under stress. The breach of the dykes entails the need to be informed by the population, which in turn has to be responded to by the district office. The task of communication is organised by the FügK. Additional information is also provided via social media.

However, social media, such as Twitter and Facebook sometimes distribute misleading information, which adds to the existing stress levels. *“In former times the district administration was able to coordinate provision of information, but today with the use of Twitter or Facebook or whatever ... people post we are planning to blast the dyke and then the worried citizens call in”*(C49)

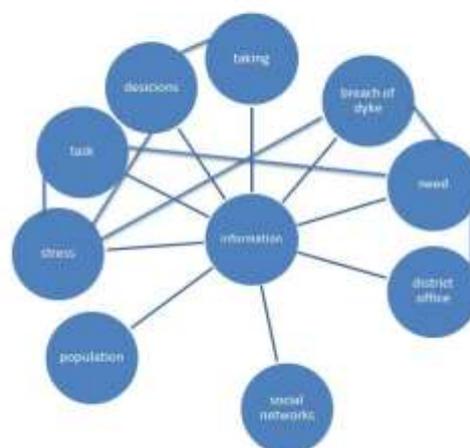


Fig. 3 Communication/Information

3.5 Housing Evacuation

The evacuation of the community was in some cases difficult. Some people refused, because they did not trust the relief organizations' assessment that the situation is becoming more severe, arguing that they are used to floods. *"It was very clear that they didn't take us seriously"* (F14).

Some people had to be rescued from the roof tops after they waited too long. Evacuation often took place at night, so it was more dangerous for the people as well as for the rescue units. Also animal evacuation was a topic.

Returning to their homes the first time to pick up some personal items after evacuation while the area was still flooded was very unsettling.

After nine months 77.3% are recently living in the community. On an average the inhabitants were forced to leave their homes for 19 weeks.

A lot of houses must be demolished, because they are damaged by oil spillages. The process of damage assessment and reconstruction negotiations is still on-going.

3.6 Awareness

Lot of crisis units of relief organizations, medical rescue organization, technical relief organizations, members of FÜGK, fire brigades had to coordinate their work. Therefore they needed situational awareness. *"It is crucial for us working at the FÜGK to get on-site information. The flow of information has to be 100 percent"* (F41). *"But we also had problems with the flow of information. Some got stuck at e.g. fire brigades"* (J89).

3.7 Transportation/Mobility

Mobility and transportation was highly restricted for the population as well as for the rescue units. Boats and helicopters were needed. Transportation of e.g. sand bags became more difficult by the time. Inhabitants were no longer able to use their own vehicles.

3.8 Psycho-social support

Crisis intervention teams were alarmed relatively early through the medical care system. Crisis Intervention Teams (KIT) and emergency counsellors provided psychological and psycho-social support for the affected population.

Care centres for the affected population were installed and operated by the Rapid-Response-Team (Schnell-Einsatz-Gruppe, SEG) within the structure of crisis management.

In addition, relief personnel were supported by SBE/SVE (Association for stress management after potentially traumatic incidents) -Teams.

Expert advisors for psycho-social prevention and aftercare were appointed by the administration officer and advised crisis management teams and (local) authorities.

The psycho-social support was offered in a street-work-structure, which means that two-person-teams were visiting the affected areas either by boat or truck and regularly visited the helpers at the different sites. This operation lasted several weeks and continued after the flooding.

A coordination office with social workers and psychologists was opened after the acute phase to support the population in all kinds of matters (e.g. bureaucracy for damage loss, psychological counselling)

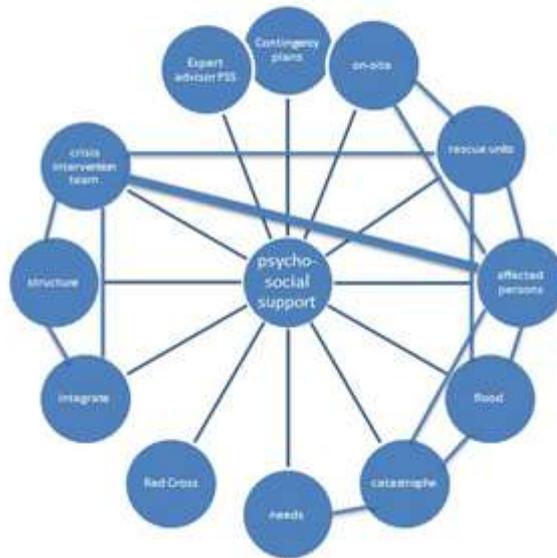


Fig. 4 Psycho-social support

The study showed that most of the affected population has strong ties to the larger community. Binary logistic regression on positive PTSD screening (yes-no) according to PDS may provide valuable information for post-disaster risk analysis and contingency planning. In particular, female gender and lacking social support turned out to be risk factors of the occurrence of PTSD.

3.9 Self-care Daily Living Tasks

Donations from all over Germany made it possible to immediately help people to get their daily necessities with little bureaucracy. An association of youth organizations (Kreisjugendring) organised the collection of clothing, food and household items, which were donated. In the acute phase the SEG provided food and shelter.

3.10 Safety/Security

Safety and security was particularly important for the rescue units themselves and for the directly affected population. Looters were a problem so police had to patrol the area. The breach of dykes endangered human life.

4 CONCLUSIONS

Resilience as a comprehensive and sustainable security approach needs a “shift in focus away from centralized state protection and threat prevention, encouraging citizen to make measures that increase their personal security, and contribute to the security of the society” [15], cited in [16, p. 62]. Bruneau et al. (2003) [17] are describing four constituting factors of resilience: robustness, redundancy, resourcefulness, and

rapidity. To raise resilience Cutter et al. (2013) [18] propose that communities should learn from their experiences. The OH-CHAMPSS model is one possibility for evaluating and learning from a disaster. The following recommendations can be summarised from the data:

- The data show that psycho-social support is crucial for the individuals and the community as a whole.
- Psycho-social support not only for affected individuals, but also as an integrated part of civil protection and crisis management can increase resilience. It should also not only be offered in the acute phase but for the intermediate and long-term phase of disasters, too. Encouraging citizen should be the main focus of the work.
- Bureaucracy should be avoided where ever possible.
- While walk-in-volunteering is a fairly new phenomenon it can be an important aspect for disaster resilience and security/crisis management. Such dynamics need to be understood and managed in order to sustain security and make crisis management robust.
- Communication via social-networks is part of situational awareness of individuals in disasters. Crisis management has to find answers to integrate the information into their disaster communication system as a resource, which processes information or rumours more quickly.

But we have to take into consideration that resilience is a phenomenon. It is a process that might occur after confrontation with a disaster. Investing in building and creating protective factors might lead communities to do well despite adversity.

5 PERSPECTIVE

More research needs to be done to learn about the factors that contribute to making a community resilient. A follow-up survey is planned in the next two years. The phenomenon of walk-in-volunteers needs to receive further attention. The OH-CHAMPSS model may be used for evaluation of other communities affected by a disaster.

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REFERENCES

- [1] O'Sullivan, T.L., Toal-Sullivan, D., Charles, K., Corneil, W. & Bourgoin, M. (2013). The CHAMPSS Functional Capabilities Framework for Mapping Assets and Needs for Support. Retrieved July 8th, 2013, from www.enrichproject.ca
- [2] Norris, F. H., Stevens, S- O., Pfefferbaum, B., Wyche, K.F., & Pfefferbaum, R.L. (2008). *Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness*. American Journal of Community Psychology, 4 (1/2), 127-150
- [3] UN/ISDR (2005). Hyogo framework for 2005-2015: Building the resilience of the nations and communities to disasters.

<http://www.unisdr.org/2005/wcdr/intergover/official-doc/L-docs/Hyogo-framework-for-action-english.pdf> , Retrieved November, 8th, 2013.

- [4] <http://www.munichre.com/de/reinsurance/business/non-life/georisks/natcatservice/default.aspx>, Retrieved June 23th, 2014.
- [5] Luthar, S.S., Cicchetti, D., Becker, B. (2000). The Construct of Resilience: A critical Evaluation and Guidelines for Future Work. *Child Development*, 71(3), 543-562.
- [6] Master, A. S. (2001). Ordinary Magic. *American Psychologist*, 56(3), 227-238.
- [7] Wilson, G. A. (2012). Community resilience, globalization, and transitional pathways of decision-making. *Geoforum*, 43(6),1218-1231.
- [8] J. Zelger and J. Schönegger. (1994-2014) GABEK Win-Relan Ganzheitliche Bewältigung von Komplexität: Ein PC-unterstütztes Verfahren zur Wissensorganisation. [Online]. Available: <http://www.gabek.com/>
- [9] K. Heinzl. (2014) Mögliche Folgen einer Naturkatastrophe auf die psychische Gesundheit, dargestellt am Beispiel des Hochwasserereignisses 2013 in Deggendorf/ Niederbayern, Bachelorthesis LMU München.
- [10] Ehlers, A., Steil, R., Winter, H., &Foa, E. B. (1996). Deutsche Übersetzung der Posttraumatic Stress Diagnostic Scale (PDS). *Unpublished manuscript, Warneford Hospital, Department of Psychiatry, University of Oxford, UK.*
- [11] Franke, G.H. (2002). *SCL-90-R, Symptom-Checkliste von L:R: Derogatis-Deutsche Version*. Göttingen: Beltz.
- [12] Idler, E.L. (1987). Religious involvemnr and the health of elderly Some hypotheses and an initial test. *Social Forces*, 66(1), 226-238.
- [13] Fydrich, T., Sommer, G., &Brähler, E. (2007) *F-SozU, Fragebogen zur sozialen Unterstützung*. Göttingen: Hogrefe.
- [14] www.airpano.com, Retrieved June 23th, 20].
- [15] Godschalk, D.R. (2000). Urban Hazard Mitigation: Creating Resilient Cities. *Natural Hazards Review*, 4(3), 136-143.
- [16] Prior, T., Roth F. (2013). *Disaster, Resilience and Security in Global Cities*. *Journal of Strategic Security* 6, 2, 59-69
- [17] Bruneau, M., Chang, S. C., Eguchi, R. T., Lee, G. C., O'Rourke, T.D., Reinhorn, A.M., Shinozuka, M., Tierney, K., William A. Wallace, and Detlof von Winterfeldt (2003) A Framework to Quantitatively Assess and Enhance the Seismic Resilience of Communities. *Earthquake Spectra*: November 2003, Vol. 19, No. 4, pp. 733-752.
- [18] Cutter, S. L., Ahearn, J.A., Amadei, B., Crawford, P., Eife, E.A., Galloway, G.E., & ... Zuback, M (2013). Disaster Resilience: A National Imperative. *Environment*, 55 (2), 25-29. Doi:10.1080/00139157.2013.768076