First Aid Volunteers within Disaster Risk Management programme in Madagascar: a Community Perspective

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\textbf{Abstract} – A qualitative study was conducted in 2011 on the North-East Coast of Madagascar, to explore community perceptions on First Aid Volunteers trained through a Médecins du Monde France (MdM-F) project in line international recommendation (WHO 2007; BNGRC 2010). Group and individual interviews took place in intervention and non-intervention areas. The Disaster Risk Management cycle was used to classify roles played by community first responder (B.Wisner and J.Adams 2002). Participants’ sampling was purposive and interview notes coded into basic themes. Key results are that trained First Aid Volunteers have an impact on routine emergencies, that they contribute to improve immediate victim management irrespective of the Disaster Risk Management cycle and can have a bridging role between the State health system and the community health system. For long-term impact and increased community resilience First Aid Volunteers need to be integrated and Disaster Risk Management resources used to develop the community pre-hospital emergency system.

\textbf{Keywords} – Disaster Risk Management, First Aid, Traditional healer, Community, Pre-hospital emergency health care, Voluntary Service, Médecins du Monde

1. Background

In 2013, Madagascar was included in Maplecroft “extreme risk category” for the socio-economic resilience index (cross-analyzing exposure to natural disasters and resilience). Madagascar is exposed, very susceptible and lacks the coping mechanisms and adaptive capacities to withstand environmental hazards (UNU-EHS 2011; UNU-EHS 2012)

In addition to tragic human losses, cyclones trigger economic shocks in an impoverished population: Madagascar is ranked 151/187 countries in the Human Development Index (UN 2009; UNDP 2013). The tense political and socio-economic context is impacting on the capacity of authorities to respond disasters (ICG 2010; IRIN 2010). The National Contingency Plans forecast an increase in both disaster intensity and population vulnerabilities (INSTAT 2009; BNGRC 2010; WHO 2011; BNGRC 2012; WHO 2012).

1.1. Health Sector Disaster Risk Plan

The Health Sector is involved at each level of Disaster Risk Management (DRM) under the overall guidance of the Ministry of Home Affairs (MoHA) (BNGRC 2010). The Health Sector Disaster Plan focuses on early warning and access to emergency health care (Ministère-de-la-Santé 2010).

1.2. Area of study

The four Districts included in the study have weak socio-economic indicators, fragile health status and low levels of preparedness increase vulnerability to disasters and reduce health system resilience (UNISDR 2007; WHO 2007; UNU-EHS 2012). Médecins du Monde-France (MdM-F), with the support of DIPECHO (Disaster Preparedness, European Community Humanitarian Aid Office), developed a DRM programme supported to reduce community vulnerability and strengthen the emergency response capacity in Maroantsetra and Sambava Districts (2008-2011) (MdM-F 2010; MdMF 2011). The programme targeted Communal Committees for Disaster Risk Management(CCDRM) implementing the national strategy, reinforcing District health teams and community first responders’ capacities (Jouanin 2009; Buffet 2010). Trained community First Aid Volunteers (FAVs) by the Malagasy Red Cross Society (MRCS) were expected to reduce avoidable
mortality and morbidity at community level during disasters (MdM-F 2009; MdMF 2010). However, the extent to which the newly trained Malagasy FAVs were active, recognized, and connected to the health system and to DRM Committees has been questioned by the donor because of the lack of indicators on their impact in during the time of the project. All FAV were trained on basic First Aid based on the French Red Cross Manual. In Districts with MdM support (Sambava and Maroantsetra) FAV benefitted a pre-training community meeting to discuss their roles and responsibilities, as well as two refresher trainings and simulation exercises following the training.

2. Aim and objectives of the study

This study explores whether trained FAVs are perceived to increase at community level the effectiveness of Community-Based Disaster Response, identifying key roles played by FAVs as first responders and their interaction with other stakeholders within the Malagasy context.

2.1. Theoretical framework

This study tests the hypothesis that trained community FAVs improve victim management and facilitate access to emergency health care irrespective of the Disaster Risk Management (DRM) cycle, thus contributing to increase community resilience and reducing vulnerability. The DRM cycle was used to explore perceptions during each phase. This allowed the identification of key roles identified by the community for victim management and access to emergency pre-hospital care.

2.2. Methodology, study area and participants

A review of health indicators, DRM activities and the presence of trained FAVs were mapped in areas regularly affected by cyclones. Four Districts were purposively sampled, with different types of interventions and disaster history. The selection of Communes and Villages (Fokontany) factored in different distances from the District capital city. The sample corresponds to a very focused and specific geographic area: this represents a limitation for a broader use of the results. However, within the targeted

Table 1: Cyclones in Madagascar in the past decade. Source: (Madagascar Ministry of Home Affairs, NBDRM, 2010, 2012.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cyclone</th>
<th>Homeless or displaced</th>
<th>Dead</th>
<th>Missing</th>
<th>Total population affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>1997</td>
<td>Gretelle</td>
<td>80’000</td>
<td>140</td>
<td>Not specified</td>
<td>600’000</td>
</tr>
<tr>
<td>2000</td>
<td>Eline</td>
<td>10’000</td>
<td>130</td>
<td>Not specified</td>
<td>736’000</td>
</tr>
<tr>
<td>2004</td>
<td>Elita and Gafilo</td>
<td>360’000</td>
<td>363</td>
<td>Not specified</td>
<td>990’000</td>
</tr>
<tr>
<td>2006-2007</td>
<td>Tropical storms and Cyclones</td>
<td>Not specified</td>
<td>180</td>
<td>Not specified</td>
<td>2’000’000</td>
</tr>
<tr>
<td>2008</td>
<td>Tropical storms and Cyclones</td>
<td>Not specified</td>
<td>Not specified</td>
<td>260</td>
<td>525’000</td>
</tr>
<tr>
<td>2009</td>
<td>Tropical storms and Cyclones</td>
<td>8100</td>
<td>29</td>
<td>Not specified</td>
<td>122’000</td>
</tr>
<tr>
<td>2011</td>
<td>Bingiza cyclone</td>
<td>Not specified</td>
<td>34</td>
<td>11</td>
<td>216’000</td>
</tr>
<tr>
<td>2012</td>
<td>Cyclones</td>
<td>55’060</td>
<td>112</td>
<td>Not specified</td>
<td>332’000</td>
</tr>
</tbody>
</table>
geographic area (4 Districts and 12 Fokontany) we could compare the community perceptions of having First Aid Volunteers trained vs. no FAV trained within the community in a common ethnic and cultural practices background.

A total of 253 persons participated in 73 interviews (66 interviews in the field, and 7 interviews at Regional and National levels) and all provided oral consent for the public use of the data.

2.3. Data collection methods

A thematic interview grid was developed through 23 exploratory interviews. The data was coded into a list of five (5) themes:

- Role of trained FAVs for the access to health care in case of emergency.
- Role of trained FAVs related to the community vulnerability to natural disasters.
- Role of community First Aid Volunteers in the different phases of the DRM cycle.
- Interactions of FAVs with other Community Health actors.
- Presence/Absence of first aid material

Interviews conducted in Malagasy were semi-structured and notes were taken in French. The interviewer was trained on qualitative methodologies and both interviewers were briefed on qualitative methods. Most interviews were conducted in closed settings; however, some interviews were organized in open areas, allowing the community to spontaneously comment. Group interviews explored community perceptions of FAV roles and interactions. Individual interviews allowed a deeper investigation of sensitive subjects with authorities, traditional healers, health personnel and health staff. Observation explored evacuation means and the presence of complete First Aid (FA) kits in the communities.
2.4. Data analysis

Interview data was coded into 5 essential themes and classified in a computerized grid. Every administrative level (District, Commune and Fokontany) was represented in the study. This thematic summary allowed the identification of consensus or disagreements (colored) between interviews in relation to the essential themes. Consensus or disagreement was analyzed within and between Districts. A color code allowed a visual analysis of consensus or differences: similar answers were calculated to obtain a numeric result. The analysis focused on differences of perceptions and interactions between actors within an administrative level.

2.5. Methodological limitations

Oral accounts do not always reflect the reality and interviews therefore focused on concrete examples: narratives were cross-checks within groups. Note taking (instead of recording) and the translation into French influenced the accuracy of the data: to minimize this, the study systematically confronted the content of the notes, including a final reformulation to the participants. A significant number of participants were included in very diverse areas within the specific region targeted, providing a relatively broad
attendance at each administrative level. We are therefore confident that the results represent a representative spectrum of perceptions in the Districts included in the study.

3. Results

The key result is that FAVs trained for disaster response play an essential role in the community management of victims and referrals during the four phases (Normal, Alert, Emergency and Recovery) of the DRM cycle, a role which increased in the disaster phase.

3.1. Role of trained FAV for the access to health care in case of emergency

FAVs re-established a link with health services in remote areas. In some cases, FAV were also described by the community as pressurizing the health system to screen and refer patients quickly to a higher level of care. FAVs unexpectedly shed light on the weak emergency health care system during all DRM phases: the difficult access to health care is reflected in the very low consultation coverage: all Districts included in the survey have a history of low consultation coverage (less than 35%) in the two years preceding the study in 2009 and 2010 (Jouanin 2009; DHS-Madagascar 2011). Trained FAVs facilitate the transport of patients (trauma cases or deliveries) and are often recognized as "stretcher men" by even the most vulnerable members of the community, and operate voluntarily. Local communities strongly agree that "economic factors" (linked to services and transport) were the key barrier to access emergency health care, despite indigents' list and solidarity funds (Ministère-de-la-Santé 2004; Rachou, Andrianahenina et al. 2010). However, health authorities' perception at different levels converged to identify "local beliefs" as the key barrier: this is the most important discordance between community members and health authorities identified during the study. FAVs can have a bridging role to conciliate those views, as are familiar with the community constraints while referring patients to the health system.

In Districts affected by the Bingiza Cyclone (2011), many mentioned difficulties in accessing health care because of floods. None of the three Districts hit by Bingiza were visited by a mobile health team. Several staff at the Basic Health Centre (BHC) reported difficulties assessing remote and cut off areas when communities were isolated, in which case it is impossible for the FAV to refer patients. It appears that during disasters, there is a stronger consensus that geographical and climatic conditions are the major barrier to access.

3.2. Role of trained FAV related to the community vulnerability to natural disasters

Non-trained community "First Responder" who often are lay people with some relation to health care (traditional healer, traditional birth attendant, community health workers) had limited success in responding to emergencies, engaging in practices such as "putting hair in the wound to stop the hemorrhage" (group of women). Training community members in First Aid reinforced the principle of "First do no harm". FAVs can act as catalysts for a community response: "Since the (FAV) training we changed our practice for open wounds if available: now we use Sûr'Eau or alcohol instead of chilli, salt or various plants" Traditional healers in Anteviala - Tangalamena and TBAs. Sometimes FAVs re-established a link with the health centre: "before I did not know what was happening in some of the villages" commented the Head of a Basic Health Centre (BHC). In some cases, FAVs represented the only physical link between the health centre, the DRM Committee, the Malagasy Red Cross Society, administrative authorities, traditional healers and other community health workers: FAVs can reinforce community dynamics as they often are the only community member present at different levels, providing information and feedback. In one Fokontany, FAVs could trigger a change of perception and practices related to hygiene for First Aid (Dunston, McAfee et al. 2001). Some health staff feared that FAVs would behave as "little doctors", representing a risk if they transcended their specific role. In practice, that bias was controlled by a clear description of FAV roles during the training coupled with weekly radio messages during several months at the start of the project on "consequences of illegal medicine practices", the message being diffused by District health authorities. However, trained FAVs also expressed the difficulty managing high community expectations (treat a fracture, a deep open wound) in remote places.

3.3. Role of FAV related to the DRM cycle

There was a very strong community consensus on the fact that trained FAVs play a key role during emergencies (from routine to exceptional conditions), irrespective of the DRM cycle phase. Trained are perceived as facilitating the access to emergency health care and contributing to diminish community vulnerability. However, during the cyclone Bingiza, their response capacity varied between MdM intervention and non-intervention Districts:

a) In MdM-F intervention Districts, FAVs were all integrated in the Local Committee for Disaster Risk Management (LCDRM). In Maroantsetra District (hit by Bingiza cyclone) and FAVs have alerted the population and evacuated vulnerable people (as well as cattle). During the Response and Recovery phases, FAVs assessed immediate needs (presence of injured, sick and destruction) in collaboration with the Local Committee for Disaster Risk Management. A systematic inclusion allows a much more effective collaboration between authorities, the LCDRM in case of disaster.

b) In Districts without MdM-F intervention, trained FAVs remained at the Commune level, and their number was not sufficient to be part of the disaster response. In that case, non-trained community first responders were mobilized (such as
mother and child health workers). In addition the small number of FAVs present at commune level was not systematically included in Local Committees for Disaster Risk Management.

3.4. Interactions of FAV with other Community Health actors

There was strong consensus on open wounds being managed by FAVs and referred to the health centre and, closed fractures being shown to the traditional healer first, as “only him can really make the bone solid again” (a Tangalama). Following an anthropological study, MdM-F included traditional healers at Fokontany level (Bouchon 2010). This reinforced the link between traditional healers and health services in the second phase of the project. Community members describe traditional healers’ skills as a gift from Zanahary “the unique god at the origin of all things and all beings in the universe”, transmitted to the community (Gallimard 2010). Traditional healers in turn said they have “no choice but to practice” and payments (in cash or kind) are a symbolic way of thanking Zanahary for the gift. Interrupting this circle is believed to curse the community – the healer and the patient: Traditional Birth Attendants (TBA) mentioned they experience pain if the patient does not pay. For FAVs, their skills result from training, thus making it possible to work as volunteers and their roles are clearly described as being different by a vast majority of community members. The fact that FAVs have been trained (and that the community could see the training and simulation exercises) has an impact on FAVs ability to work voluntarily. Voluntary work is possible if the volunteer has been trained which, is not the case for TBAs or traditional healers.

The need for clear integration of FAVs in the health system was expressed by both FAVs and health staff. Trained FAVs produced through “DRM projects” are challenging for health staff in charge because “DRM trained FAVs” are often disconnected from the health system. In one Commune however, the head of health facility had been training and supervising FAVs and receiving regular feedback on their activities. This contributed to building mutual trust and effective collaboration. When coordination exists, it is beneficial for both FAVs and health services. However, “disconnected FAVs” also can play a reactive role when official rules of access to health care are not respected by health staff (asking for consultation fees when they should not) and then, the FAVs can report abuses to Fokontany authorities, as they do not depend on the health system exclusively.

4. Discussion, recommendations and conclusion

4.1. Discussion

In Madagascar, FAV trainings can be funded by various Institutions with different objectives (urban violence prevention, ambulance staff training, private institutions or Community-Based DRR programs) not systematically linked to DRM or to the health System. In our study, whenever FAVs were not properly incorporated to DRM and health networks, this led to the perception that there was no sustainable strategy in place. This was observed in communities where FAVs were not part of the Disaster Risk Management Committees or not connected to the health system and confirms challenges identified internationally: namely that Disaster Risk Management needs to be integrated into development, decision-making and planning processes at all levels involving different sectors (BNGRC 2010; UNISDR 2013). Despite MdM-F coordination efforts to ensure the restocking of medical kits, many FAVs met during the study had empty kits. The development of a sustainable strategy for the kits could benefit stronger support to maintain the FAVs’ credibility. Several patients mentioned bringing gauze and alcohol spontaneously when visiting the FAV, which is an indication that skills are valued but could benefit a logistical and institutional sustainable support during all phases of the DRM cycle (WHO 2004). FAVs are the only DRM Committees actors playing an active response role in the non-disaster phases and are perceived by the community as key actors for different types of emergency response irrespective of the DRM cycle. FAVs are often recognized with technical skills for specifically open wounds (burns, cuts) and referrals (“stretchers men”) – for closed fractures there was a community consensus on bring the patient to the traditional healer (Tangalama). If we look at the perceived impacts of FAVs in the community, the most positive ones confirm the need to consider Disaster Risk Management activities as part of community development connected to the emergency health care system.

The link between poor resources and increased mortality and morbidity in emergency situations has been widely documented (WHO 2004; Olive C.Kobusingye, Hicks et al. 2005; Nakahara, Saint et al. 2010). The importance of trained FA responders at community level has been described in other contexts (WHO 2004; Sudha Jayaraman; Jacqueline R. Mabweijano; Michael S.Lipnick, Miyamoto et al. 2009) and in remote Nepali communities (2003) researchers found an increased number of patients referrals following a traditional healers training (including basic First Aid) (K.Poudyal, Jimba et al. 2003). The interaction between community response capacity, emergency pre-hospital services and Disaster Risk Management (DRM) has been well articulated; particularly the need to develop “All-Hazard” and “Whole health” approach, linking all components of health services potentially disrupted by a disaster (WHO 2004; Olive C.Kobusingye, Hicks et al. 2005; Raissi 2007; WHO 2007; Djalali, Khankeh et al. 2011). Literature linked to Climate Change Vulnerability and DRM often guide Regional and National Disaster Risk Management Strategies and Plans and there is a consensus on the fact that a poor resource setting is an additional vulnerability and a barrier to long term sustainable development (UNISDR 2007; UNISDR 2008; BNGRC 2010; NRRC 2011; UNISDR 2013). In practice however, DRM plans and strategies are led by Ministries distinct from the health sector, while health is considered as one essential component in terms of mea-
Table 3: Expected and unexpected perceived impact of the intervention. Source: (Lereche, 2011)

<table>
<thead>
<tr>
<th>Impact</th>
<th>Positive expected</th>
<th>Positive unexpected</th>
<th>Negative expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victim Management</td>
<td>• Improved quality of First Aid at community level</td>
<td>Mobilization of referral health care actors (hospital and health centre)</td>
<td>Overstepping of responsibility correctly managed so far by MdM in collaboration with health authorities, through radio messages.</td>
</tr>
<tr>
<td></td>
<td>• Transport easier with stretcher</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Immediate access to FA material</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Health Care Network</td>
<td>• Active Interactions with traditional healers, cooperation for fractures follow-up.</td>
<td>• Re-establishment of links between the community and the BHC</td>
<td>• Very high community expectations</td>
</tr>
<tr>
<td></td>
<td>• Dynamic links between different community health actors</td>
<td>• Mobilization of the head of the BHC to support FAVs</td>
<td>• Tensions during the selection process with traditional healers</td>
</tr>
<tr>
<td>Health System wandered Bingiza</td>
<td>• Information on communicable diseases transmitted as well (diarrhoea and fever)</td>
<td>Change of practice and hygiene in some communities for wounds care</td>
<td>• Payments problems sometimes mentioned</td>
</tr>
<tr>
<td></td>
<td>• Patients transfer</td>
<td></td>
<td>• Some heads of BHC want to over-control FAVs</td>
</tr>
<tr>
<td>Emergency Response during Bingiza</td>
<td>Active role for the needs assessments for wounded, sick and material losses after Bingiza.</td>
<td>Integrated to the Local Committee for DRM and collaboration for alert and evacuations.</td>
<td>-</td>
</tr>
</tbody>
</table>
grams and activities often focus on readily observable results and are primarily linked to the Disaster phase. Factors such as structural and economic barriers, the weaknesses of the administrative and health system, as well as weak partner agencies’ capacities all create the illusion that a short-term focus is more effective. However, this study confirms that communities are continuously coping with emergencies and disasters, doing the best they can to respond to emergencies - being sometimes the worst such as “putting hair in a wound to stop the hemorrhage” (Leresche 2011). The MdM-F programme in Madagascar showed that multiple single emergency interventions (direct support and training during the Response phase) are not effective and not sustained from one disasters to the other (Buffet 2010). This study reiterates the importance of considering the health system as a whole to be effective during the Disaster phase (WHO 2007; WHO 2007; UNISDR 2013). If the 4 Districts of the north-eastern cost of Madagascar represent a geographically small and specific context, several factors can be similar to other economically and socially fragile environments (extreme remoteness, important community vulnerabilities, presence of traditional healers) in disaster prone countries (UNU-EHS 2011; UNU-EHS 2012). The recommendations emerging from a specific study in four Malagasy Districts can enrich Disaster Risk Management programs including community members trained and active as First Aid volunteers in similar contexts.

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