Comparison of Health Needs of Older People between Affected Rural and Urban Areas after the 2005 Kashmir, Pakistan Earthquake

Emily Y.Y. Chan, MD, SM, PIH, DDM; Sian Griffiths, MB, BChir, FFPH, FRCP

The Chinese University of Hong Kong, Prince of Wales Hospital, Shatin, NT, Hong Kong

Correspondence:
Prof. Emily Y. Y. Chan
Room 202D
School of Public Health and Primary Care
The Chinese University of Hong Kong
Princes of Wales Hospital
Shatin, NT, Hong Kong
E-mail: emily.chan@cuhk.edu.hk

Consent and Ethical Approval
This study had consent obtained from patients and approval by the relief organizations: Merlin, HelpAge International, and Muslim Hand.

Keywords: developing countries; disaster; earthquake; health needs; natural hazards; older people; rural areas

Abbreviations:
IDP = internally displaced person
NCD = non-communicable disease
NGO = non-governmental organization

Received: 31 July 2008
Accepted: 21 November 2009

Web publication: 05 October 2009

Abstract

Introduction: On 08 October 2005, an earthquake measuring 7.6 on the Richter scale, struck Pakistan's autonomous state of Kashmir and part of Indian-administrated Kashmir. The official death toll in Pakistan was 79,000, and nearly 1,400 in Kashmir. This study reports the findings of a three-week health needs assessment to understand the needs of rural, older people post-earthquake. This study was conducted in February 2006 in the Neelum Valley of Kashmir, Pakistan, four months after the earthquake.

Hypothesis: During emergency relief, the vulnerability and health needs of older people in rural settings are different than are those in of urban areas.

Methods: A comparative, descriptive study was performed using health information to compare the differences between rural and urban health needs and the utilization of services of older people after the earthquake. Semi-structured interviews were conducted to collect information regarding demographic background, medical and drug history, self-reported health status, healthcare access and utilization, and social/financial concerns. Clinical records were reviewed and physical indicators for older patients also were collected on-site.

Results: The health profile, access to health care, service availability, and prevalence of non-communicable diseases differ between urban and rural settings. The greatest gap in health services at all sites was that non-communicable disease management was inadequate during non-acute, post-earthquake medical care. Health service utilization varied by gender, as in conservative rural areas, older, traditional women were less likely to receive medical services while older men were less likely to access psychological services in all sites.

Conclusions: This is the first study to compare the post-earthquake healthcare needs of older people in urban and rural settings. Findings highlight specific health needs and issues related to long-term, chronic disease management. Given the global pattern of aging of the population, it is important to strengthen the capacity to respond appropriately to medical disasters, which includes preparedness for treating the health needs of older people.

Chan EYY, Griffiths S: Comparison of health needs of older people between affected rural and urban areas after the 2005 Kashmir, Pakistan earthquake *Prehosp Disaster Med* **2009;24(5):365–371.**

Introduction

According to the WHO, increased life expectancy is one of the major achievements of the 20th century.[1] Nevertheless, older people have different health needs compare to younger members of a community. During emergencies such as disasters caused by natural hazards and conflict, in low-income countries, those persons >45 years of age have been found to have high mortality rates and to be the most vulnerable.[2] Reports of the impact of the Indian Ocean tsunami on older people listed isolation, health difficulties, mobility problems, limited literacy, and a lack of proper documentation to prove ownership or claim right of access as major causes of vulnerabilities among older people.[3–7] Detailed health information about the experiences and health needs of

Study	Location	Methods	Sample	Data Collection Instrument
1	**Rural** Border Mountain Clinic at Sarli Sacha	a. Retrospective review of clinical records from 21 January–20 February 2006 b. Clinical interview and physical assessment of older people from 20–23 February 2006	a. Clinical Records = 2,942 Average age of sample = 38 Age range = 0–83 b. Physical assessment = 85 Average age of sample = 58 Age range = 45–83	a. Information table b. Questionnaire
2	**Urban** IDP camp 115 km from Muzzaffarabad city	a. Retrospective review of clinical records from 21 January–28 February 2006 b. Clinical interview and physical assessment of older people on 24–28 February 2006	a. Clinical Records = 392 Average age of sample = 39 Age range = 0–69 b. Physical assessment = 40 Average age of sample = 53 Age range = 45–69	a. Information table b. Questionnaire

Table 1—A description of research design for the field assessment (age in years; IDP = internally displaced person)

older people during disasters is limited. In particular, there is a dearth of available literature on the health needs of older populations in rural areas of developing countries, where the impact of humanitarian crises tends to be strongest, and the poorest suffer the most enduring damage.

On 08 October 2005 at 08:50 hours (h), an earthquake measuring 7.6 on the Richter scale struck Pakistan's autonomous state of Kashmir and part of Indian-administered Kashmir. As described by United Nations Environmental Programme (UNEP), 3.7% of Pakistan's 158 million population is >65 years of age.[8] To assess the health needs of older people in this disaster-prone area, a field study was performed in Neelum Valley, a mountainous region in Pakistan-administrated Kashmir, four months after the earthquake.[9] The region was close to the epicenter, and destruction was nearly 100%.[10] The aims of this study were to answer three major questions: (1) compare and understand the difference between the disease patterns of older people post-earthquake in affected rural and urban areas; (2) analyze the health service utilization pattern of the older population; and (3) discuss the current inequities experienced by older people during post-earthquake medical relief.

Methods

Study Design

This was a descriptive study performed in difficult circumstances, three months after the earthquake in Kashmir, Pakistan. Quantitative data were collected using a convenience sample of older patients who attended two different types of post-earthquake relief clinics during a 17-day field health needs assessment during February 2006. The data collection sites included:

1. *Rural (Site 1)*—A mountainous border clinic at Sarli Sacha, set up post-earthquake and supported by Merlin, a UK charity. The clinic provided services for a cohort of 30,000 rural residents of the sparsely populated Pakistan/India border area; and
2. *Urban (Site 2)*—An internally displaced person (IDP) camp, located with an in-camp clinic, 45 miles from Muzzafarabad city, organized by Muslim Hand at Chella Band, a local non-governmental organization (NGO). This clinic served 382 displaced people.

The research design for the field assessment conducted around Muzzafarrabad city and in rural Kashmir, Pakistan is described in Table 1.

Old age can be defined in many ways, particularly between different societies. In rural Pakistan, it would be impractical to define old age by adopting the United Nation's chronological definition of older people ≥60 years of age, because the official life expectancy in Pakistan in 2005 was 61.2 years for males and 60.9 for females.[8] Considering the functional capacity and social expectations of people in rural Pakistan who tend to marry young and become grandparents in their mid-forties, the definition of *older age* in this study was context-specific and defined as a self-reported age of ≥45 years.[2]

Data Collection Tools

Data were collected using research documentation tools designed for this context. These tools included a study questionnaire for clinic attendees and retrospective clinical information tables.

The questionnaire was designed to guide interviewers to capture the general health needs in both study sites. The survey included questions regarding demographic background, medical and drug history, self-reported health status, current and past symptoms, mental health, healthcare access and utilization, and post-earthquake livelihood-related issues. A mini mental health test and physical health indicators such as weight, height, mid-arm circumferences, spot blood glucose, spot blood cholesterol level, and blood pressure also were collected to detect potential underlying medical conditions not captured during previous clinical consultations. The physical examination consisted of measurements of height, and body weight, blood pressure, blood glucose level, and blood cholesterol. An information table also was designed to record retrospective clinical information from clinic medical records during the study period. Case number, dates of clinic attendance, gender, age, diagnosis, and medication/treatment given were recorded in the information table.

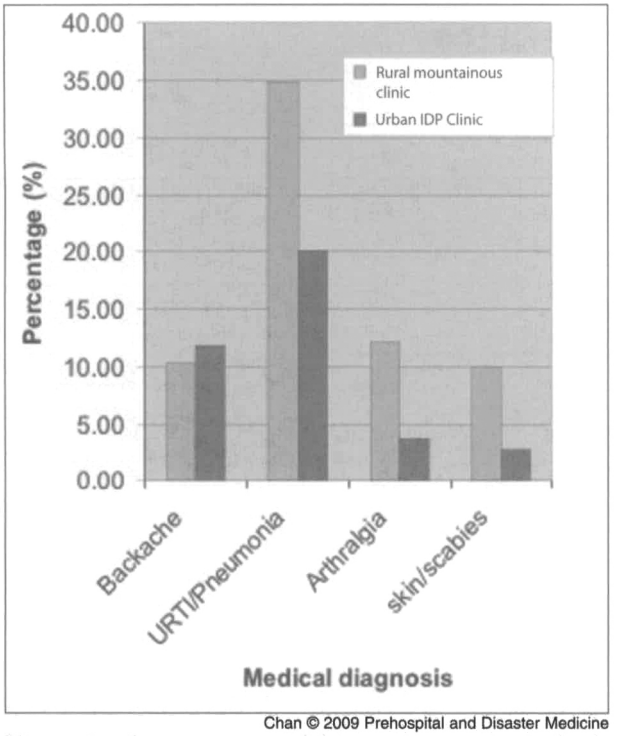

Figure 1—A comparison of the most common medical diagnoses* between rural and urban clinics as recorded in medical consultation records from January to February 2006

*Older patient: One among 2,942 medical records at Sarli Saccha mountain clinic; three among 392 medical records at the urban MH Chella Bandi IDP clinic

Data Collection

Translators converted questionnaires into Urdu from English. Both questionnaires were piloted with patients at each site the night before the actual interviews so that necessary modifications could be made in Urdu. Gender-specific healthcare workers fluent in Urdu and English were employed to administer the questionnaires, and the assessment team provided training to ensure consistency in data quality. Since illiteracy rates are high in the region (80%), verbal consent with witness verification was obtained from patients before interviews and physical examinations were conducted. Patients attending the consultations were invited to participate in the study and were reassured that their participation in the study would be independent of their eligibility to receive medical care/treatment. If the patient agreed to participate, a research team member conducted the interview while the patients were waiting for their consultation. All physical examinations and indicator measurements were performed by the assessment team physician (EC). Due to the instability of electronic appliances in areas of high-altitude and extreme temperature, all medical and health records were handwritten. Clinical records were reviewed manually and all basic calculations were performed on-site. Medical records from the previous month were reviewed on-site and relevant information was recorded in the information table.

Results

A total of 125 questionnaires and examinations were completed on-site (85 in the mountainous clinic and 40 in the IDP camps) (Table 1). In addition, the clinical records of 2,942 and 392 consultations from the mountainous clinic (Site 1) and the IDP medical services (Site 2) respectively, were reviewed, during the defined study period, 21 January–20 February 2006.

Specific Health Care Needs of Older People

The most common medical diagnoses and underlying medical conditions reported for older people in urban and rural setting are compared in Figure 1. Examination of the clinical records and the disease patterns among the older population were similar in both study settings. Backache/myalgia, upper respiratory tract infection (URTI)/pneumonia, heartburn/gastritis, and arthralgia were the most common medical conditions recorded. This pattern also was similar to that of urban older people. Dr. N.A. Sherich of Central Military Hospital, Muzaffarabad, the main referral hospital in the city, confirmed that the most common medical conditions observed that in the urban hospital during the study period were respiratory infections and skin infections such as scabies.

While the medical records showed similar disease patterns, a comparison of self-reported health status between older people in the remote mountainous area and IDP camps showed significant differences. Twice as many older people in the remote mountain area (68%) reported that their health was worse post-earthquake than did those in the IDP camp, although neither group of respondents sustained any injuries due to the earthquake. A chi-square comparison indicated that remote mountain respondents complained of higher frequencies and increased severity of clinical symptoms such as headache (40% vs. 23%, $p = 0.04$), psychosocial distress (72% vs. 44%, $p < 0.001$), and sleeplessness (65% vs. 45%, $p < 0.001$) when compared with affected individuals living in the IDP camps. In terms of specific physical complaints, older people from mountainous areas in Study 1 had more dental, hearing, eating, and visual difficulties compared to their IDP counterparts. The severity of dental problems was confirmed in reports of weight loss (75% vs. 50%, $p < 0.001$) and eating problems (87% vs. 50%, $p < 0.002$) among older people. The results of selected, self-reported health statuses and well-being of older people are in Table 2.

Of note, clinical records reviewed in all study locations showed a systematic absence of documentation of common chronic diseases. Specifically, records showed that only acute medical complaints were managed in these clinics. There was little or no record of common cardiovascular conditions (e.g., hypertension, cardiovascular accidents, or diabetes mellitus) or nutritional status of the older age groups in either the mountain clinics or the IDP camps, unless it was reported as a chief complaint during the consultations (e.g., hypertension). Chronic conditions such as diabetic mellitus and hypertension, and basic anthropometric data such as body mass index (BMI) were not recorded. On other hand, findings of the self-reported health surveys illustrated that 25–38% of the respondents were aware of the existence of at least one unmanaged, underlying medical problem. The three-day, on-site physical examination in the mountainous clinic confirmed this finding by indi-

	Rural Site Mountainous Clinic* (%)	Urban Site Internally Displaced Person Camp** (%)	*p*-value
Selected Physical Health-Related Problems			
Dental Problems	100	25	<0.0001
Visual Problems	75	38	<0.0001
Weight Loss	75	50	0.001
Eating Problems (indigestion, lack of appetite)	87	50	0.002
Hearing Problems	54	40	0.043
Other physical complaints			
Headache	40	23	0.043
Dizziness	34	20	0.07
Joint/Muscle Pain	54	50	0.10
With known underlying medical problems:	25	38	0.02
Of which:			
a. without treatment/never had treatment	65	30	<0.001
b. treatment before disaster	35	35	<0.001
Discontinue treatment post-disaster	80	40	<0.001
Selected Psychosocial Health-Related Problems			
Experience death (at least one family member/close relative)	90	40	<0.001
Loss of possessions			
Some	30	30	0.1
All	50	40	0.07
Refused to answer	20	30	0.06
Feeling depressed and helpless	72	44	<0.001
Sleeplessness	65	45	<0.001
Feeling lack of resources:			
Medical	60	20	<0.001
Food	25	5	<0.001
Clothes	20	5	<0.001
Shelter	70	20	<0.001
Financial support	90	55	<0.001
Social support	60	20	<0.001
Most cited other needs:			
Cooking utensils	40	5	<0.001
Overall worsening of health post-earthquake (4 months after)	68	34	<0.001
Social-Related Issues			
Currently living alone	10	2	<0.001
Living with family	50	70	0.04
Living with friends/neighbor	40	28	<0.01
Living in:			
Houses	30	10	0.03
Tents	60	90	0.02
Received assistance post-earthquake (aside from medical services)	50	100	<0.01

Table 2—Selected self-reported health status of older people in two different settings
*Results abstracted from mountainous clinic: 85
**Results abstracted from internally displaced person camp clinic: 40

https://doi.org/10.1017/S1049023X00007159 Published online by Cambridge University Press

Location	Rural Mountainous Clinic*	Urban IDP Camp**
Total attendees	2,942	392
Service taken up by older people†	14%	26%
Male/Female	7:3	3:4

Table 3—Utilization pattern of older people in various healthcare setting according to clinical records from January to February 2006
*Merlin's P3, Sarli Saccha Clinic
**Muslim Hand IDP camp in Chella Bandi
†According to UNHCR, population ≥45 years of age constituted to approximately 19% of the population in that area. 8

cating that 38% of the examined patients (31 of 85 patients) had at least one type of underlying chronic condition. Furthermore, the most common under-diagnosed or managed chronic condition found during on-site physical examination was diabetes mellitus (22%, 19 of 85 patients).

There also were increased disparities in access to care for chronic medical conditions among both study population groups post-earthquake. Before the earthquake, only 35% of older people living in the mountains had received medical management for their underlying chronic medical problems, compared to 70% of the older people who lived near the city IDP camp. Post-earthquake, among those who had chronic medical treatment prior to the earthquake, 80% of those living in the remote mountain area reported losing access to chronic medical treatment compared to 40% of those who were living near the city IDP camp. Moreover, clinical records showed discrepancies between diagnoses and drugs prescribed and an over-prescription of antibiotics across all age groups.

Healthcare Utilization of Older People in Different Settings

Healthcare services utilized by older people are in Table 3. Fewer older people attended the remote mountainous clinic (Site 1) compared to the IDP clinic. This suggested geographic access barriers may exist in remote areas. This also is supported by the internal survey of Merlin's airlifted, medical mobile clinic in the remote areas of Neelum Valley (Zabbar, Konka, and Telegra), which showed older people comprised approximately 45% of the consultations at the medical service outreach services to the remote area.[9]

Differences in gender utilization of health services by older people were found in both settings. Men were predominant users of services (70%) in the mountainous clinic (Study 1), but utilization by older women was inversely related to the travel distance to the clinic (i.e., the use of services was greater the shorter the distance from home).

Access Issues

On-site visits also indicated that although direct treatment costs were not a major issue for access to health/medical services for the respondent, an important unintended barrier to service access reported by urban and rural respondents was that men had no access to psychosocial support because most programs were targeted exclusively to women and children. In addition, a recurrent theme found among men in both clinics was "a feeling of limited access to international relief services because they are for the vulnerable groups: women and infant". On the other hand, another barrier to access for older women in rural areas was related to the gender of service providers. Clinic attendance records in mountainous clinic showed that during days when solely male doctors provided clinical services, medical services utilization decreased by 30%.

Discussion

Overall, post-earthquake health needs identified during the assessment were compatible with other findings of older people's health needs in crisis/unstable settings such as Darfur and Sierra Leone.[6,14] Although the burden of older people's post-disaster medical needs made up a significant proportion of the services utilized, particularly in the most remote areas, the main findings of this study indicate that the needs of older people were not formally considered during the first four months of the post-Kashmir earthquake relief effort.

Stakeholder interviews[9] conducted to understand how older people's issues were dealt with by NGOs in the Pakistan Kashmir relief and rehabilitation-planning phase showed that 95% of the stakeholders agreed that ">45 years old" was a reasonable definition for old age. While almost all of the relief stakeholders regarded older people an important population group, most respondents admitted, at most, a "reactive" approach toward the problems of older people was adopted as they assume the medical problems of older people would be dealt with by the medical relief groups and none of those interviewed were aware of the *HAI Guidelines for Best Practice for Older People in Disaster and Humanitarian Crises*.[4] Meanwhile, discussions with the medical relief groups indicated none of the medical relief groups had regarded older people as a separate group from general population. Thus, no special consideration was given to their needs such as chronic disease management and medication provisions. Some stakeholders believed older people issues were beyond their mandates and should be dealt with by development agencies.

In addition, findings show the post-disaster management of chronic disease was suboptimal and reveal a missed opportunity for older patients to receive good quality clinical treatment. For instance, although most relief healthcare settings had the necessary drug procurement for basic treatment of common chronic medical problems (e.g., diabetes mellitus or hypertension), there was a general reluctance to manage non-acute conditions. The lack of awareness of underlying medical problems and absence of technical expertise in the setting rendered most of the stockpile medication useless. The 2nd edition of the Sphere Project (2004) sets the minimum standard to be observed by relief groups and recommends that, although life-saving therapy should be given post-disaster for patients with chronic condition, there is a need to establish standards and guidelines for the management of existing chronic diseases to complement the management of acute situations. Strategies to address chronic diseases by promoting technological transfer (e.g.,

older patient management and health training for medical and health personnel) and investment in local structures (e.g., dental, eye, and psychosocial services) during the rehabilitation phase are needed.

In addition, gender inequality in health service access exists and agencies that are interested in the provision of services in rural setting should increase their sensitivity toward potential cultural barriers. This is particularly relevant as the health utilization pattern in this study confirms that in traditional, conservative, rural Pakistan, women do not travel far from their households

Data Collecting Challenges and Information Quality

Similar to other disaster field assessments,[12] the lack of technical and situational resources was the major challenges encountered during the Kashmir field health needs assessment. In terms of technical challenges, the efficiency of this field assessment was hampered by the lack of appropriate needs assessment tools and medical/health guidelines to deal with health needs of older people in disaster situations. Generic health assessment tools have limitations in eliciting information about older people's health problems and needs, capturing mental health status or adequately reflecting living hazards relevant to the setting (urban/rural/mountain life). In addition, language dialect and cultural specificity in the mountain region made a rapid, in-depth, qualitative analysis of health needs a daunting task. As a result, the combination and modification of several health needs assessment tools were necessary for this study; however these *ad hoc* assessment tools may raise questions about validity and consistency of the study results.

In addition, there is a lack of available, accurate baseline data. For example, the urban clinic was selected as it was considered by the United Nations Children's Fund (UNICEF) to be one of the largest IDP camps with 2,700 displaced people. However, this assessment identified, at most, 400 residents in the camp. This could have been due to population movement resulting from IDPs voluntary repatriation to their place of origin. Camp officials also admitted that there might be population inflation of clinical records by local indigenous populations to use the camp health services. This was compounded by a lack of accurate recording of clinical data. Possible explanations for the absence of recording within the clinical records could be the lack of relevant equipment (e.g., blood glucose monitoring), equipment failure (subzero temperature), or unawareness of the importance of collecting and keeping records of medical information.

Previous disaster studies have shown that cluster surveys are an appropriate methodology to capture populations during disasters.[13] However, given the situational challenges and time constraints in Kashmir, a formal cluster survey was rendered infeasible within the limited time frame. Difficult terrain, weather uncertainty, and landslides also posed major difficulty in planning and impeded this assessment team from venturing into home settings in the remote mountains. As a result, this limited the assessment team's ability to investigate the needs of the most vulnerable, immobile older population. Moreover, as helicopters were used as the primary mode of transportation in Neelum Valley, our access to clinics was subject to weather constraints and flight schedule limitations.

The assessment mission also was complicated by the unstable political climate with major demonstrations against the Danish cartoon incident occurring across the Muslim world.[13] There were several occasions when the assessment team unwillingly, but inevitably, had to drive through mobs of demonstrators in rural villages with a potential security risk of inciting sentiments with the sight of foreigners inside of a motor vehicle.

Limited timeframe, unavailability of certain key stakeholders for interviews, and logistic complications (e.g., expensive transportation) had posed further complications in the assessment.

Conclusions

There was an unmet need among rural, older people after the earthquake. Some examples of potential health interventions to address the needs gap include active management of chronic diseases, gender-specific outreach medical services, specific health services for psychosocial problems, dental care, and ophthalmology.

The quality of care could be enhanced through training activities, specialist support, and the presence of agencies that advocate on behalf of older people and coordinate older people's care.[9] Moreover, the ongoing, non-communicable disease (NCD) burden of local older populations could be reduced by establishing a long-term NCD strategy during the recovery phase. As most of the health issues of older people indicate the need for longer-term care, collaboration with local partners and technical groups would be important to ensure that older people are not forgotten during the recovery phase. In addition, to be effective, NGOs in relief settings should increase their sensitivity towards challenges faced by older people during disasters and plan their interventions accordingly.

Recent research on the roles that older people play in emergencies have shown that they make significant contributions both economically and socially to local relief efforts.[7] To maximize community potential and recovery, policy-makers should take the opportunity to invest in the health of older people so that they can continue to contribute to society.

Acknowledgements

The study was commissioned by HelpAge International and conducted by an assessment team composed of Emily Chan, Vincent Gainey, and Mr. Aftab Parwaz. Help from Mr. Asif Iqbal (A.I.), local research assistant and interpreter; Dr. Maung, Field Medical Coordinator of Merlin at Muzzafarrabad; Mr. Raja Muhammed Rafique of Muslim Hand, and various research helpers in Muslim's hand clinic was received. The authors are grateful for the support of Bill Grey, Director of Emergency (HAI); JF Briere, Merlin's Country Director; Paula Sansom, Merlin's country Health Director; Lloyd Donaldson, Jon Ward, Christine Wilson, Bushra Shezadi, and Dr. Abdul Haleem of Merlin's P3 Clinic.

References

1. World Health Organization (WHO): Health and Ageing: A Discussion Paper. WHO Department of Health Promotion, 2002.
2. Davis A: Targetting the vulnerable in emergency situations: Who is vulnerable? *Lancet* 1996;348:868–871.
3. HelpAge International (HAI): *The Impact of the Indian Ocean Tsunami on Older People. Issues and Recommendation*. HAI, 2005.
4. UNHCR, HelpAge International: *Older People in Disasters and Humanitarian Crises: Guidelines for Best Practices*. Available at http:www.helpage.org/Resources/Manuals#1118336526-0-10. Accessed 23 September 2009.
5. Borrel A: *Addressing the Nutritional Needs of Older People in Emergency Situation in Africa: Ideas of Action. Africa Regional Development Center*. London: HelpAge International, 2001.
6. HAI: Health and Nutritional assessment of older people-West Darfur. HelpAge International, 2005.
7. Wells J: Protecting and assisting older people in emergencies. *Humanitarian Network Paper*, 2005.
8. Pakistan, 2005: Demographic characteristics of Pakistan in 2005.
9. Chan EYY, Gainey V: Older People Health Need Assessment in Kashmir Pakistan. HelpAge International, 2006.
10. Merlin: Emergency Reactivation and provision of primary health care services in the lower Neelum Valley Following the October 2005 Earthquake: Merlin, 2005:18.
11. Sphere: Minimum Standards in Health Services. In: *Humanitarian Charter and Minimum Standards*. Sphere Project, 2004.
12. Reymond AD: Needs Assessment of Humanitarian Crises. In: Redmond AD, Mahoney PF, Ryan JM, Macnab C (eds): *ABC of Conflicts and Disaster*. Blackwell Publishing, BMJ Books, 2006:7-9.
13. BBC: Danish Cartoon Incident. BBC News: BBC, 2006.
14. HelpAge International, WHO: Humanitarian action and older persons: An essential brief for humanitarian actors. Available at http://www.helpage.org/Resources/Manuals#1118336526-0-10. Accessed 23 September 2009.