

medical units. The aim of this study is to describe the healthcare needs of a population after a massive displacement by an extreme earthquake. The data covers the intermediate response time period, from ten days to nine weeks after the incident.

Methods

Study design

This is a descriptive, cross-sectional and retrospective study. We used data from a digital surveillance database, the open source platform DHIS2 (HISP Centre at the University of Oslo, Norway) [13].

Setting

The study was conducted in Hatay province in the South-West of Turkey, one of the most affected areas of the earthquake of 06 February 2023. The analysis is based on the data collected as part of a healthcare interven-

Table 1 Site Assessments, Population, Hatay Province, 16 February to 06 April 2023

District	Setting Type	Pre-Earthquake District Population*	Number of assessed locations	Pre-Earthquake Site Population	Post-Earthquake Site Population
Altınözü	Urban	60,000	0	n/a	n/a
Altınözü	Rural	60,000	6	1,000 to 1,300	1,600 to 6,000
Antakya	Urban	399,000	5	No data	30 to 1,000
Antakya	Rural	399,000	1	No data	1,600
Defne	Urban	165,000	4	900 to 3,000	600 to 3,200
Defne	Rural	165,000	7	800 to 1,100	750 to 8,000
Kirikhan	Urban	121,000	2	No data	110 to 450
Kirikhan	Rural	121,000	4	No data	200 to 1,700
Kumlu	Urban	13,000	1	950	950
Kumlu	Rural	13,000	0	n/a	n/a
Samandag	Urban	123,000	3	1,600	250 to 1,600
Samandag	Rural	123,000	9	200 to 15,000	15 to 16,000
Total		881,000	42		

Site populations refer to defined settlements

* district population is based on Turkish Population Statistics, rounded to thousands [15]. n/a: not applicable

two sites showed signs of massive overpopulation with increases of more than 100% as compared to the pre-earthquake population (Table 1).

Regarding the shelter, food, water and sanitation conditions, there were differences in trends between urban and rural locations. Occasional scattered tents were found more often in rural (16/27) as compared to urban (4/15) settings, whereas dwellings in camps was found more often in urban areas. Provision of food was more frequently done by the local autochthonous population in rural areas (12/27) as compared to urban settings (4/15). Surface water as type of water supply was only found in rural settings (7/27). Pre-existing sanitation facilities were more frequently still used in rural areas (18/27) as compared to urban areas (3/15), due to massive destruction in the latter.

The sites reported about the type of healthcare services available. In 19.5% (8/41) of the sites a local provider was available as before the earthquake. In 17.1% of sites (7/41) an external healthcare provider came already on a regular

basis. In 43.9% (18/41) of sites, some external healthcare provider has already presented after the earthquake, but came only once or irregularly. In 19.5% (8/41) no service whatsoever was available. A part of the sites were classified by the assessors with “some need” for additional health services (36.6%; 15/41). In 43.9% (18/41) there was no need for additional services, which included all sites where there was a local doctor or already a regular visit by an external provider established. In 19.5% (8/41) there was a “high need”, mostly in the sites where no services were available.

Healthcare consultations

The mobile medical units visited 36 locations, executing 3,027 healthcare consultations. Table 2 is giving an overview of the composition of the total beneficiary population.

The majority of patients visited were female with 61.0%, and of Turkish origin with 66.9% of all patients. About

Table 2 Socio-Demographic Characteristics of Patients by Origin, Hatay Province, 16 February to 06 April 2023

Origin	Number and proportion of total population	Age median (interquartile range), in years	Proportion Children < 5 years of age	Proportion Children 5 to < 18 years of age	Proportion Adults >= 65 years of age	Sex: proportion of females
Syrian	987/3,027 (32.6%)	21 (5 – 40)	215/987 (21.8%)	264/987 (26.8%)	77/987 (7.8%)	624/987 (63.2%)
Syrian with acquired Turkish citizenship	14/3,027 (0.5%)	11 (4 – 12)	3/14 (21.4%)	5/14 (35.7%)	1/14 (7.1%)	8/14 (57.1%)
Turkish	2,026/3,027 (66.9%)	33 (10 – 55)	270/2,022 (13.4%)	492/2,022 (24.3%)	313/2,022 (15.5%)	1,213/2,026 (59.9%)
Total Population	3,027 (100%)	30 (9 – 53)	488/3,023 (16.1%)	761/3,023 (25.2%)	391/3,023 (12.9%)	1,845/3,027 (61.0%)

Proportions are given as row proportions within origin groups. Denominators may vary due to missing data for age

one third of the patients indicated to be of Syrian origin (33.1%), of which 1.4% (14/1,001) had already acquired Turkish citizenship. Children below the age of 5 years made up 16.1% of all patients, their share was higher in the subgroup of Syrian origin with 21.8% ($p < 0.05$). Furthermore, 12.9% of the population was aged 65 and above (Table 3 and Figure 2). A significantly higher share of patients aged 65 and above were found in the Turkish subgroup ($p < 0.05$).

Histogram for proportion of age in years as per total population, bin width 5 years.

Most patients were reporting one health condition for which they sought services (2,684/3,027; 88.7%). However, in 343/3,027 (11.3%) there were multiple conditions reported. The share of patients with multiple diagnoses was significantly higher in the age group ≥ 65 years with 21.7% (85/391; $p < 0.05$). Table 3 gives an overview of the most commonly reported conditions as primary conditions for consultations.

The reported diagnoses varied by age groups. In children under the age of 5 years, the mostly reported

conditions were upper respiratory infections and diar

Table 5 Reported Health Conditions, Children Age 5 to <18, Hatay Province, 16 February to 06 April 2023

Condition	Proportion	Cumulative Proportion
Upper Respiratory Infection	289/761 (38.0%)	38.0%
Scabies	123/761 (16.2%)	54.1%
Lice	53/761 (7.0%)	61.1%
Diarrhoea	51/761 (6.7%)	67.8%
Dermatitis (allergic)	40/761 (5.3%)	73.1%

The table shows the five most frequent conditions, with proportions and cumulative proportions referring to the total population within the age group

Table 6 Reported Health Conditions, Adults Age 65 and above, Hatay Province, 16 February to 06 April 2023

Condition	Proportion	Cumulative Proportion
Hypertension	74/390 (19.0%)	19.0%
Diabetes	50/390 (12.8%)	31.8%
Myalgia (mono-symptomatic)	45/390 (11.5%)	43.3%
Upper Respiratory Infection	27/390 (6.9%)	50.3%
Diarrhoea	23/390 (5.9%)	56.2%

The table shows the five most frequent conditions, with proportions and cumulative proportions referring to the total population within the age group

Horizontal lines are indicating the most frequently reported conditions across age groups. The y-axis is representing frequencies.

The largest proportion of healthcare needs could be served immediately by the attending healthcare worker. In 89.1% of patients, medicines were directly delivered for treatment. In 1.5% (33/2,257) of cases a referral was

reported as necessary. For 33 patients (1.5%) surgical or wound dressings were applied.

Pregnancy was noted in 2.4% (22/921) of all females in the age group 18 to <65 years of age. Underage pregnancy was noted in 1.3% (6/451) of the female patients in the age group 5 to <18 years of age.

A mental condition was explicitly noted in 0.7% (21/3,021) of patients, among which in particular were noted depression in 10 cases and suspicion of post-traumatic stress disorder or anxiety in 11 cases. An internal referral towards the accompanying psychosocial support and protection officers was done in 20 cases.

Dental conditions, mostly caries, were reasons for consultations in 3.0% (91/3,021) patients, however, in the age group 5 to <18 years, 3.7% (28/761) were suffering from dental conditions.

Discussion

The main findings of our study were a substantial unmet healthcare need in most of the visited populations. About one third of the population had a migration background with mostly Syrian origin. A majority was female, and more than 16% were children under the age of five. The most frequent diagnoses were unevenly distributed across the age groups, with upper respiratory tract infections and diarrhoeal diseases most prominent in children, and chronic non-communicable diseases in the elderly.

The earthquake of 06 February 2023 in Turkey is considered a severe earthquake-driven disaster. More than 50,000 individuals lost their lives, more than 100,000 individuals remained injured, and 3 million individuals were forced to displacement [2, 3]. Only in Hatay province, more than 21,000 are estimated to have died [16].

The displacements are at large internal displacements,

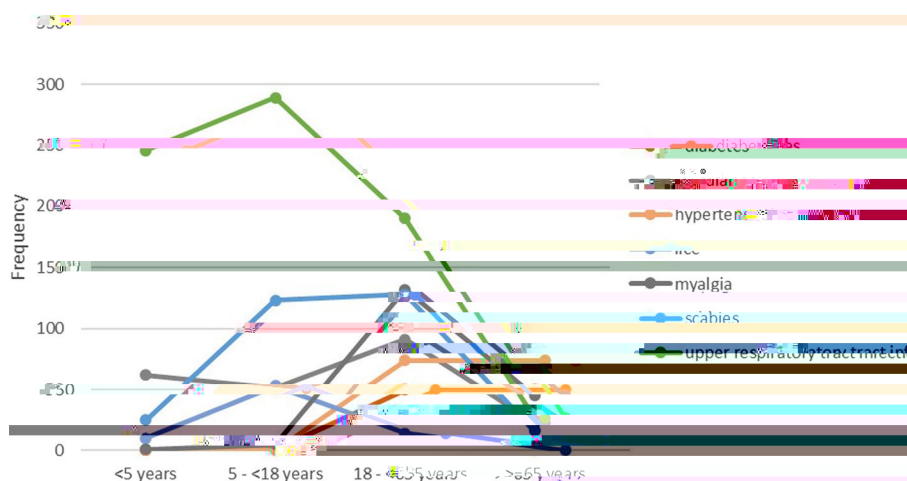


Fig. 3 Frequency of Conditions across Age Groups, Hatay Province, 16 February to 06 April 2023

mostly to surrounding areas. The immediate response was geared towards immediate lifesaving of survivors from the rubble, and relocation of survivors into temporary shelters, as has been reported also in other comparable disasters, such as the 2010 earthquake in Haiti [5, 17]. After few days to weeks, though, primary health-care needs moved into focus, whereby a large displaced population has to be served [6

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