MSF HEALTH SURVEILLANCE PROGRAMME

Médecins Sans Frontières
أطــبّـــاء بـلا حـــدود

EAST DARAA, SYRIA BASELINE ASSESSMENT

Centre for the Advancement
of Humanitarian Medicine
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MSF teams survey Syrians in east Daraa, Syria.

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BACKGROUND

Figure 1: Map of Conflict in Syria

The conflict in Syria is probably one of the worst humanitarian crises since the Second World War. It has claimed over a quarter of a million lives and displaced over 11 million people in only six years. It has seen a dramatic increase in sectarian violence. The rebellion was sparked in Daraa (Syria's southern governorate) and spread to Damascus, Aleppo, and eventually the entire country. Over the course of the crisis, nine million people have fled their homes, 6.5 million of whom have been internally displaced, and 1.3 million in 2015 alone (OCHA HNO, 2016). Millions more are being further displaced or trying to flee out of the country, moving through Daraa towards Syria's southern border to escape violence in conflict zones around the region.

Traversing this path to relative safety is not easy. The Syrian conflict has divided the country into a patchwork of territories controlled by three main actors. The Islamic State of Iraq and the Levant (ISIS) controls large areas in north and central Syria. Opposition forces have consolidated control in two main areas, one in the northwest and one in the south. The one in the south

mainly comprises the Quneitra and Daraa governorates, with the exception of a small strip of land that includes the road from Daraa to Damascus and is part of the city of Daraa. These latter two areas are under the control of government forces, which control most of the western border and northern territories (ISW Rus Mil Act, 2016).

Control over these areas is anything but stable, as battles rage around important strategic locations and cities such as Damascus and Daraa. These and many other urban centres continue to suffer from heavy aerial bombardment and other types of violence (ISW Syria Sitrep, April 2016). In fact, western Daraa, Daraa city and other areas in the north remain conflict zones, or areas where government, ISIS and opposition forces conduct regular offensives. Furthermore, international involvement by Russian or Coalition forces, have done little to improve the health of the population. The compound impact of these military actions is reflected in the significant displacement of the local population to "safer" or more stable zones to the east of Daraa city, and further south, into Jordan.

As a consequence, the health system in Daraa is now completely dependent on external support. MSF OCBA is extensively supporting some health facilities in the eastern part of Daraa governorate. In September 2015, MSF's support to Busra Hospital was increased to include medication, consumables, financing of human resources, and fuel. MSF's support increased gradually from simple donations to a full supply of medications, consumables, human resources financing, logistical
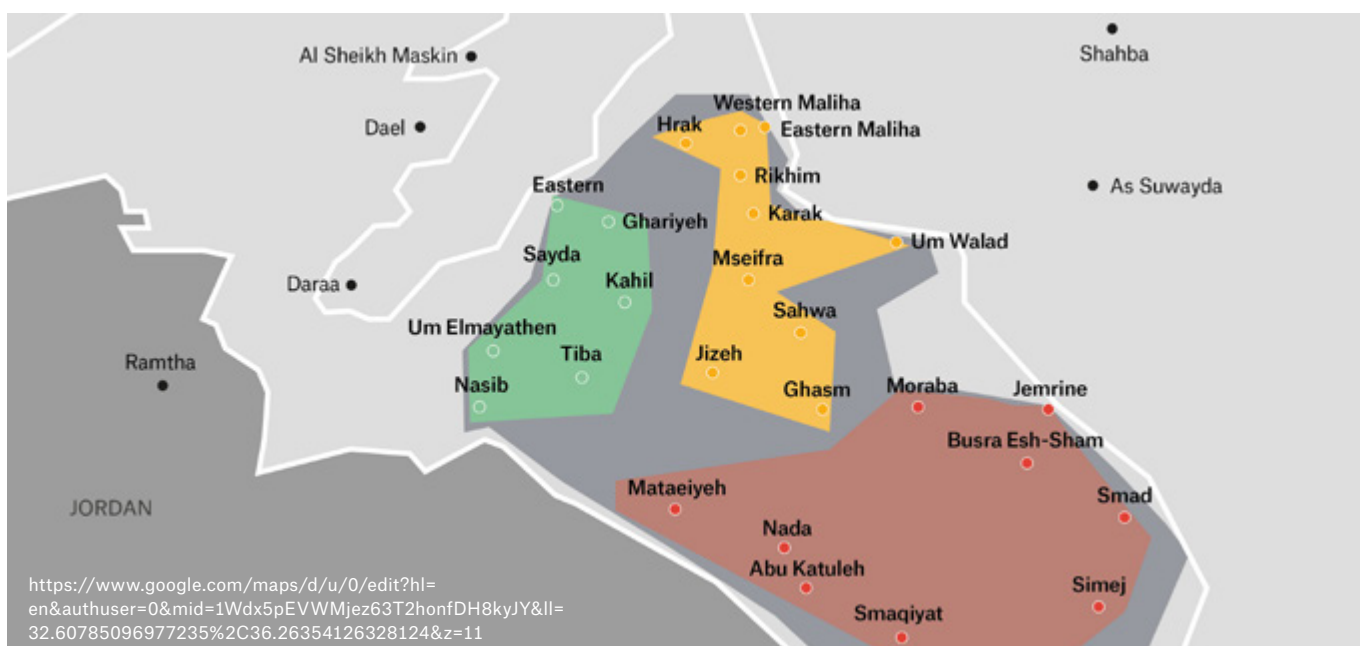
support, medical protocols and very ambitious plans for vaccination (for children less than one year old and pregnant women), physiotherapy, trauma surgery and development of the healthcare system. Nevertheless, apart from data collected at MSF facilities, nothing or very little is known of the highly fluid population living in the area where MSF operates.

In order to deliver clear and actionable data from the catchment area, and to have a better idea of the population's health needs, MSF conducted a baseline assessment of the health and essential service needs of the the crisis-affected population in eastern Daraa governorate. The assessment was conducted in July 2016 by MSF OCBA's regional Health Surveillance Programme (HSP) team and the South Syria project team from the Jordan-Syria mission. Primary findings were available in real-time via web link to a live streaming dashboard. Access to the 'MSF-HSP Dashboard' is possible via MSF-HSP administrators (see contact information below). Multi-stage cluster sampling of a well-dispersed sample from throughout the area of interest allowed investigators to draw inferences about to all persons of concern living in eastern Daraa governorate.

STUDY LOCATION

Daraa governorate is one of Syria's 14 governorates, located in the southwest of the country, close to the border with Jordan. The assessment was conducted in the eastern section of Daraa from 16 to 20 July 2016, after a three-day remote training for data collectors by the MSP-HSP project manager.

Figure 2: Study Locations in East Daraa Governorate

https://www.google.com/maps/d/u/0/edit?hl=en&authuser=0&mid=1Wdx5pEVWMjez63T2honfDH8kyJY&ll=32.60785096977235%2C36.26354126328124&z=11

STUDY OBJECTIVES

The objectives of the *East Daraa Baseline Assessment*, conducted in all study settings with the participation of all respondents, aimed to answer the following questions:

PRIMARY ASSESSMENT COMPONENTS

1. What are the critical health needs of the population currently living in eastern Daraa?
2. What is the current quality of life among those living in the area of interest?

SECONDARY ASSESSMENT COMPONENTS

1. What is the demographic profile of households currently living in eastern Daraa governorate?
2. What are the medical service access issues and concerns among the overall population in this region?
3. What is the crude mortality rate among this population?
4. What are the general morbidities and prevalence of these morbidities among this population?
5. What proportion of the overall population mortality and morbidity is related to the current conflict in the region?
6. What are the recent healthcare-seeking behaviours of the overall population in the eastern Daraa governorate area?
7. What are the current sources and use of medication among this population?

8. What is the prevalence of chronic medical conditions among the population in this region?
9. What are the gaps in medical coverage among the population who have been diagnosed with chronic medical conditions in this area?
10. What type and amount of medical services are available for the population in this region?
11. What is the health services usage rate and behaviour for this population?
12. Are health service usage behaviours related to the recent displacement of this population?
13. What is the immunisation coverage, incidence of diarrhoeal disease and prevalence of respiratory infection among children under 5 years of age among the population displaced in this area?
14. What reproductive health and family planning services are utilised by women 15-49 years old in this area?
15. What is the current situation among this population related to shelter and sanitation?
16. What are the current issues among this population related to non-food items, including summer cooling supplies and bedding?
17. What are the current and future plans of the population in this area in terms of income generation and, if applicable, 'home region' repatriation?

METHODOLOGY

The population/area of interest included the cities, towns and villages of Smaqiyat, Simej, Smad, Busra Esh-Sham, Jemrine, Moraba, Nada, Abu Katuleh, Mataeiyeh, Ghasm, Sahwa, Jizeh, Mscifra, Karak, Um Walad, Rikhim, eastern Maliha, western Maliha, Hrak, Nasib, Tiba, Um Elmayathen, Kahil, Sayda, Western Gharyeh and Eastern Gharyeh. The total population in this catchment area was estimated to be approximately 200,000 people, including internally displaced people (IDPs), according to local government estimates provided. In all target locations, data collectors trained in the assessment protocol collected a systematic random sample of households by selecting every sixth dwelling.

The target sample size was a minimum of 3,500 individuals, from at least 600 households dispersed throughout 26 small communities. Within each household that met the inclusion criteria, a pre-tested, standardised, comprehensive questionnaire was administered to all persons who met the 'household definition' (see below). Dharma Mobile™ software was used for data collection, storage and some automated analytics. Data collectors used MSF-provided mobile data collection devices (iPad minis) for all collection activities. Access to the MSF-Health Surveillance Programme (HSP) web portal was made available to authorised MSF staff.

INCLUSION/ EXCLUSION CRITERIA

All persons living in the area of interest were included as participants in the East Daraa Baseline Assessment, regardless of the period of time they had been living in their current location. Syrians, Iraqis, Palestinians and people of other nationalities living in their study locations were all included as participants. There were no exclusions related to gender, age, sex, ethnicity or socio-economic status.

Inclusion: All participants in a selected dwelling that meet 'the household' definition as described below.
Exclusion: Any members of a selected dwelling that do not meet 'the household' definition as described below.
Household: Primary family members living in the same dwelling for at least one month prior to interview. In addition, any individual living and eating with primary family members for at least one month prior to interview were included.

SURVEY INSTRUMENT

A standardised questionnaire was used for the MSF-HSP: East Daraa Baseline Assessment. This instrument has been used by MSF OCG and OCBA sections since 2014, and was originally designed and implemented by researchers with the World Health Organization (WHO) in Iraq. Additional reproductive health questions were incorporated from *Knowledge, Practices & Coverage* surveys (USAID-sponsored MCHIP assessments). All addendums/additional questions were first vetted by the MSF OCBA regional medical adviser and the HSP project manager, and they were piloted during data collector training for region-specific integration prior to deployment. All question components used key WHO and Centers for Disease Control and Prevention (CDC) indicators, which matched survey research questions from UNHCR, UNICEF, MSF and WHO standards.

ADDITIONAL STATISTICAL ANALYSES

Additional secondary data analyses were conducted using STATA 14 software. Fisher's Tests were conducted for group differences of key variables by sub-population that were of particular operational interest. Fisher's Test p-values were reported, and considered statistically significant when less than 0.05. In other words, conducting these tests, and finding statistically significant differences (or not) can help to better understand group differences, and therefore understand who is at higher risk for a given health problem. Logistic regression models were used for predictive analyses of binary health outcomes of interest, and p-values under 0.05 are again considered statistically significant.

RESULTS

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An MSF data collector interviews household members in Daraa.

The following results reflect the responses of 764 households comprising a total of 4,235 individuals in east Daraa, Syria. The sample size exceeded the minimum sample size calculated, which allowed for more precise estimations of true population values. The household-level response rate for this assessment was very high at 91.2 %. Further results can be found by accessing the MSF-HSP dashboard.

HOUSEHOLD DEMOGRAPHICS

Women comprised 50 % of the sample (95 % CI: 58.6, 51.5) and men the other 50 % (95 % CI: 48.6, 51.4). The mean age of the population was 24.9 years (95 % CI: 23.9, 25.8). The mean household size was 5.7 persons per household, and 9 % of households had 10 or more household members.

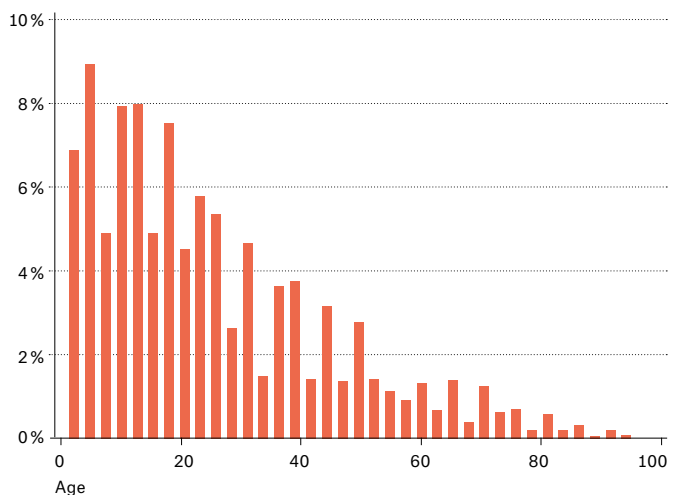**Figure 3: Population Age Distribution**
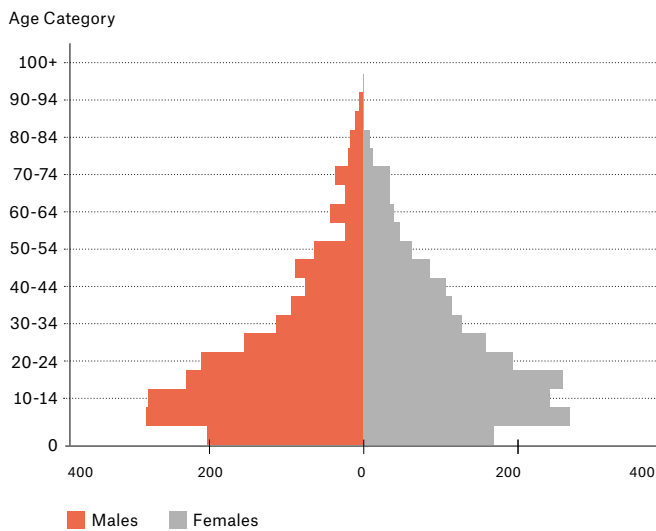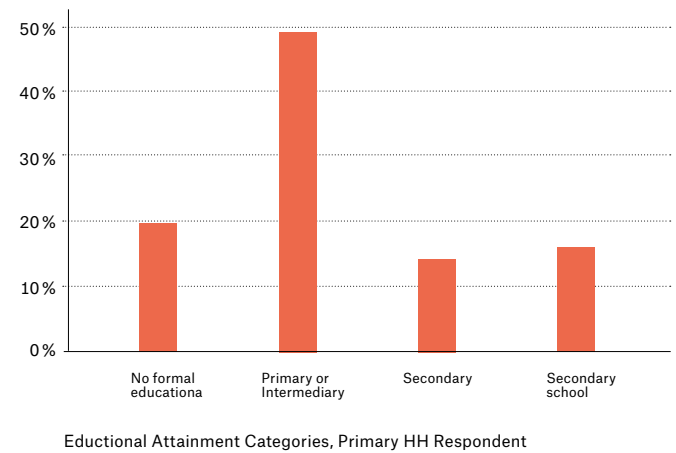
Figure 4: Sex-disaggregated Age Pyramid

Age Category

Males   Females

Figure 6: Grouped Educational Attainment, Household Level

Eductional Attainment Categories, Primary HH Respondent

The population in east Daraa was reasonably well educated. Although12.4 % of the primary household respondents could not read or write, about 31 % of the household-level respondents were educated at intermediate school level or higher. Educational attainment figures below show detailed and grouped educational achievement categories for the sample (Figures 5 and 6). The aggregated categories of "No formal education", "Primary or intermediate education", "Secondary completed" and "College or higher" were created in order to reflect that these different stages of educational attainment have social and material implications for individuals – as per the standards of sociological research.

DISPLACEMENT/MIGRATION

The vast majority of households (94.5 %) were originally from Daraa (95 % CI: 92.2, 96.8), and 60.2 % of households reported having changed their settlement location at least once since the beginning of the conflict in Syria in 2011 (95 % CI: 49.9, 70.5), reflecting the large-scale population upheaval in the region. Of the households that had resettled, the average number of times for doing so was 3.2. Most of the household movements were due to various types of violence, such as bombing or shelling (65.3 %) or violent clashes in the area (26.2 %). In additional analyses used throughout this report, this measure of having changed location at least once in the past year was used regularly to consider health risk factors since it is a measure of vulnerability.

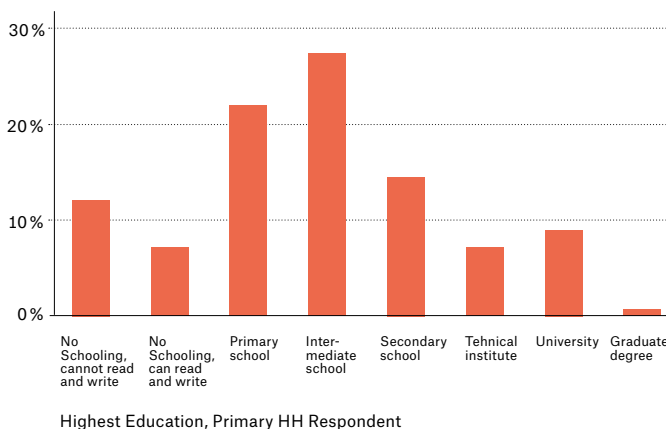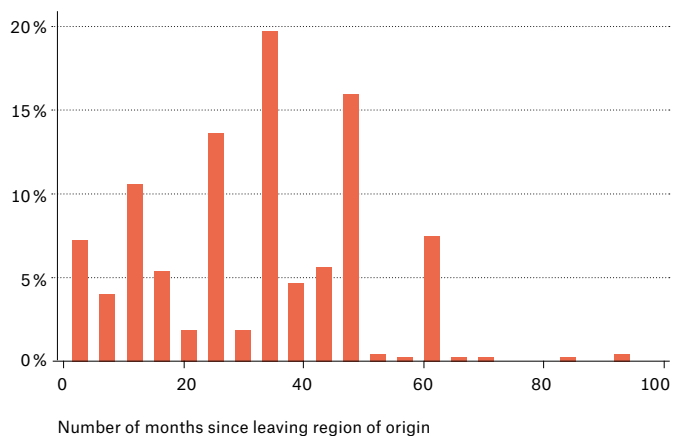**Figure 5: Detailed Educational Attainment, Household Level**

Highest Education, Primary HH Respondent

Figure 7: Time Elapsed Since Displacement

Number of months since leaving region of origin

MORTALITY

The crude mortality rate found in east Daraa was calculated at 0.3 deaths per 10,000 people per day (95 % CI: 0.2, .04).[1] Nearly 8 % (7.9 %) of households reported a death in the household in the previous 12 months (95 % CI: 6.0, 9.8). Illness and war violence were the main reported causes of death (see Figure 8).

Figure 8: Household Reported Causes of Death
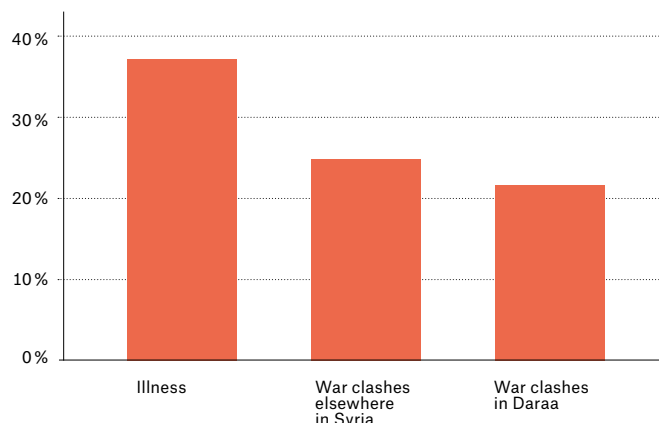
Displaced and non-displaced households were equally likely to report a household death in the previous year. However, some descriptive variations in the cause of household death were reported, and the main causes of death by displacement status are shown in Figure 9.

Figure 9: Household Cause of Death by Displacement Status

Host Population   Displaced Population
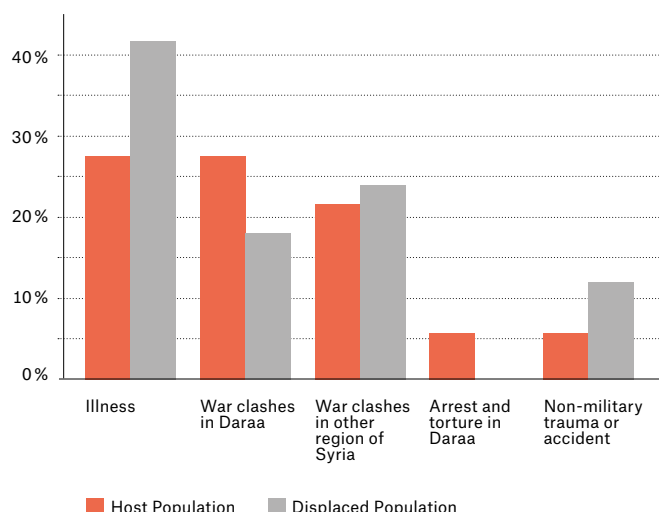
CHRONIC DISEASE BURDEN

About 15.8 % of the sample reported that they had a chronic illness (95 % CI: 12.6, 18.9). The most commonly reported chronic illnesses were hypertension (34.6 %. 95 % CI: 29.6, 39.5), chronic joints disease (33.6 %. 95 % CI: 29.8, 37.5) and diabetes mellitus (20.6 %. 95 % CI: 15.9, 25.3). Most people reporting these main morbidities were receiving treatment.

Figure 10: Chronic Disease Type
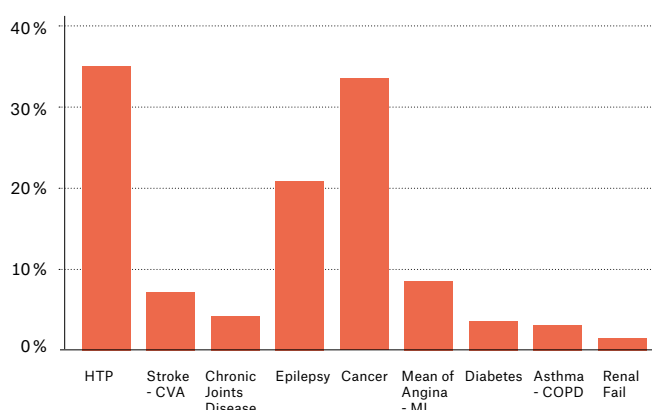
Further analyses were conducted on the three most commonly reported chronic illnesses: hypertension, diabetes and chronic joints disease. This allowed a better understanding of correlates of these diseases and the ability to target those at risk with screenings or interventions when the opportunity allows for operations to resume in the region. Women were significantly more likely than men to suffer from both hypertension and joints disease, but not from diabetes. Women comprised 58.7 % of those reporting hypertension and men 41.3 % (Fisher's Test p-value= 0.005). Women represented 59.3 % of sufferers of joints disease while men represented 40.7 % (Fisher's Test p-value= 0.004). There are no statistically significant gender differences in diabetes.

While displacement in the previous year was correlated with other health outcomes in the assessment, it was not associated with any of the top three most commonly reported chronic illnesses. The same is true for being a smoker. Men were much more likely to smoke than women; in fact, more than half of men interviewed reported they smoked (51.3 %) while only 3.2 % of women

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1 Note on crude mortality rate: Retrospective assessments were used to estimate mortality. This methodology has been shown to be flawed for the estimation of conflict- and migration-related mortality. The investigators do not consider these findings reliable, and they should only be used as a reference point for further research and general comparison.

did so. However, smoking status was not correlated with hypertension, diabetes or joints disease. For both being displaced and smoking, it is possible that these factors could be more distantly related with chronic illness. In other words, the effects of displacement stress and smoking may take longer to manifest in chronic illness prevalence at the population level.

Respondents in households with some food insecurity (where the primary household respondent had skipped a meal in the past month) had significantly lower rates of diabetes. While seemingly intuitive, in many places food-insecure populations have access to poorer quality foods than more affluent populations, and so there can be a burden of diabetes both among the more affluent and among the poor. However, this does not appear to be supported by the data in east Daraa.

HEALTHCARE-SEEKING BEHAVIOUR

Need-Seek-Receive Model
One-quarter (25 %) of respondents reported they had needed some form of medical care in the previous 30 days (95 % CI: 17.8, 32.2). The most common medical condition for which care was needed was respiratory problems (23.4 %), followed by joints disease (8.7 %) and gastrointestinal problems (7.6 %).

Of those who reported needing care, 87.7 % sought care (95 % CI: 84.5, 90.9), and of these, 90.6 % reported receiving care when it was sought. Most sought care at a private clinic (42 %) or received care at home (16.9 %) (see Figure 11).

Figure 11: Healthcare-seeking Locations
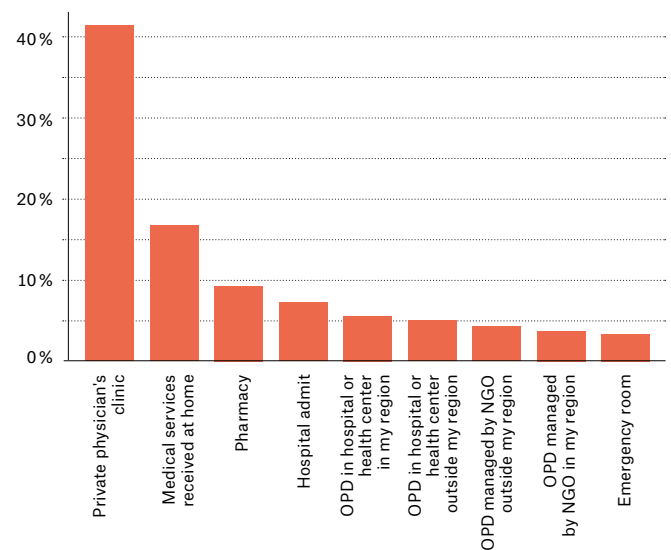
According to this data, there is little indication that the hospital system is overburdened by healthcare seekers, or alternatively, that healthcare seekers do not have access to hospitals – only 9.5 % of respondents reported an overnight hospital stay in the previous year (95 % CI: 6.5, 12.4). The heavy reliance on private physicians and home medical visits found in this assessment likely reflects a fear of seeking care in larger institutions since they are frequently the target of violence in the conflict. In addition, larger facilities, such as hospitals, that would normally receive the bulk of patients, have been overburdened, impacted by the conflict or depleted of the material and human resources necessary to provide adequate care.

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Survey teams carefully collect detailed data on non-communicable diseases.

Who is likely to have needed care in the past month? Predictive Analysis - "Needed Care"

Regression analyses conducted to better understand what factors predict the outcome that a respondent would have a need for medical attention suggest several factors which are shown in the logistic regression table below. The three models presented in the table control for various characteristics. The first model tests the effects of household size, household-level education, displacement status, gender and age on whether a person "needed care" in the previous 30 days. The second model retains these same demographic control variables and adds whether or not a person has a chronic illness. Model 3 includes all variables from Models 1 and 2 and adds a variable of whether the respondent felt emotional suffering in the previous 30 days. The emotional suffering question is the most conservative estimate of mental health from these data. Coefficients in the table below are presented as odds ratios.

The most salient predictors from Model 3 of having needed care in the previous 30 days are summarised here. Only variables that were statistically significant should be interpreted by the reader:

- Displaced persons were 1.9 times more likely than those non-displaced to "need care" (OR 1.85. 95 % CI: 1.4-2.4). In fact, 72.9 % of those needing care were displaced persons while they only make up 62.8 % of the population.
- Compared to men, women were 1.5 times more likely to have needed care (OR 1.47. 95 % CI: 1.2-1.8).
- Respondents with chronic diseases were 3.2 times more likely to have needed recent care (OR 3.2. 95 % CI: 2.3-4.4).
- Respondents reporting emotional suffering (a conservative measure of mental health) were 2.6 times more likely to have needed care recently (OR 2.57. 95 % CI: 1.6-4.0).

Needed Care Previous 30 Days
Odd rations (95% confidence intervals) of outcome "needed medical care in the previous 30 days" - 3 Models

Variables	MODEL 1 HH Size, Education, Displacement, Status, Gender, Age	MODEL 4 HH Size, Education, Displacement, Status, Gender, Age, Chronic illness presence	MODEL 3 HH Size, Education, Displacement, Statue, Gender, Age, Chronic illness presence, Emotional Suffering
Displaced	1.92*** (1.36-2.72)	1.85*** (1.30-2.61)	1.85*** (1.42-2.41)
HH Size Above Mean	0.78* (0.60-1.00)	0.76* (0.59-0.98)	0.84* (64-1.10)
Education			
> No formal	Reference	Reference	
> Primary	0.85 (0.64-1.13)	0.89 (0.66-1.18)	0.80 (0.59-1.09)
> Secondary	0.70 (0.46-1.05)	0.74 (0.51-1.08)	0.65 (0.44-0.94)
> College or higher	0.65 (0.46-1.05)	0.71 (0.47-1.06)	0.68 (0.42-1.09)
Female	1.20* (1.03-1.40)	1.21** (1.06-1.38)	1.47*** (1.24-1.76)
Age	1.01* (1.01-1.02)	1.00 (1.00-1.01)	1.00 (0.99-1.01)
Chronic illness		4.09** (3.14-5.33)	3.19*** (2.34-4.36)
Emotional Suffering			2.57*** (1.64-4.04)

*** p<.001   ** ps.01   * ps.05

BARRIERS TO ACCESS

Among the 9.4 % of respondents who sought medical care, but did not receive it, 40.7 % reported that the care they needed was unavailable at the facility where they sought it, and 18.6 % reported that the cost was prohibitive (see Figure 12). Among those who did not seek care for their medical condition, cost was the reason cited by 48.1 % of respondents, while distance (29.5 %) and lack of knowledge about where to go (17.8 %) were also commonly cited reasons for not seeking care in the first place (see Figure 13).

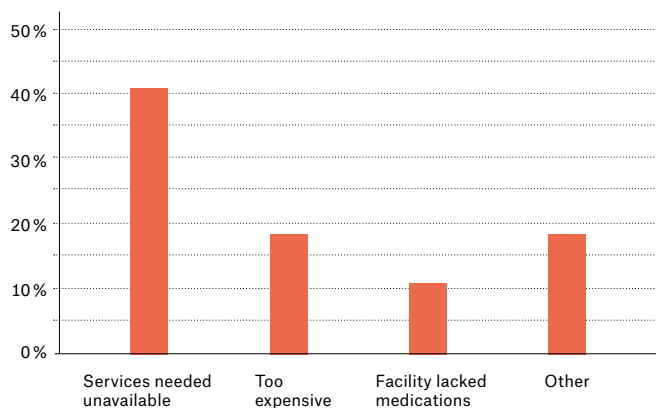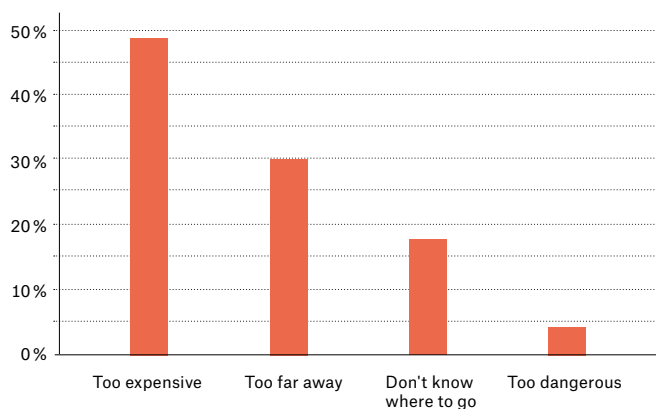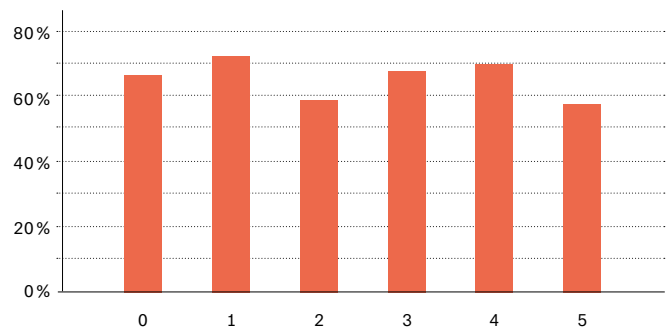**Figure 12: Reason Care Not Received When Sought**

Figure 13: Reason for Not Seeking Care

PAEDIATRIC HEALTH

About 65 % of the sample of children in the assessment had been displaced. The breakdown by age is shown in Figure 14.

Figure 14: Displaced by Age Group, 5 and Under


RESPIRATORY INFECTIONS

Approximately one-sixth (16.4 %) of children in the sample experienced respiratory illness, defined as having a cough and difficulty breathing within the previous two weeks. Most of the children (62.4 %) experienced only a blocked or runny nose, and 29.4 % had chest problems only, while 4.6 % presented both sets of symptoms. Respiratory illness was reported more often for displaced children (19.8 %) than non-displaced children (10.4 %) (Fisher's Test p-value= 0.002). In total, 89 % of children received medical treatment for their respiratory illness. Almost half (45.4 %) of children were treated with broad spectrum antibiotics, which suggests an overreliance on antibiotics which is problematic for the possible development of antibiotic resistance in the region.

DIARRHOEAL EPISODES

Just over one-quarter (26.1 %) of children in the sample experienced a diarrhoeal episode within the previous two weeks (95 % CI: 18.0, 34.2). Only 77 % of these children received medical care for their diarrhoea. Displaced children were more likely to have had a recent diarrhoeal episode. 30.4 % of displaced children reported recent diarrhoea compared to just 18.7 % of those who had not been displaced (Fisher's test p-value= 0.001). Additional analyses were conducted to assess whether other factors such as household education level, gender or household size were correlated, or if analysed together in a regression model they predicted recent paediatric diarrhoeal incidence. With the exception of having been displaced, no support for any of these other hypotheses was found. Paediatric Diarrheal Incidence (in the past 2 weeks) by displacement status showed that diarrhoeal incidence in the past 2 weeks among displaced children was 30.35 % (95 % CI: 21.32, 41.20) and among host children 18.67 % (95 % CI: 13.87, 24.67). This difference is highly statistically significant with a Fisher's Test p-value= 0.001.

The rate of diarrhoeal episodes decreased with the age of the children (see Figure 15).

Figure 15: Recent Diarrhoeal Episode by Age
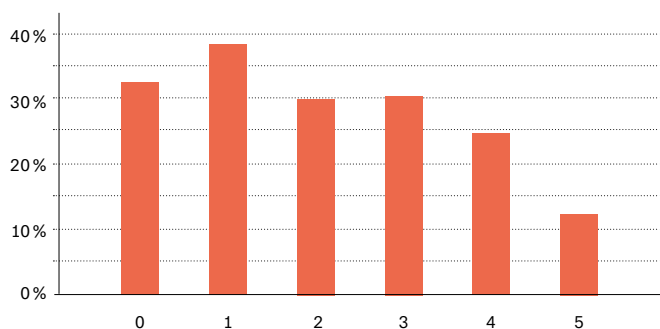
IMMUNISATION DATA

All 505 children surveyed were assessed for immunisation data, and with some methodology limitations the assessed information was generated by asking the following questions:
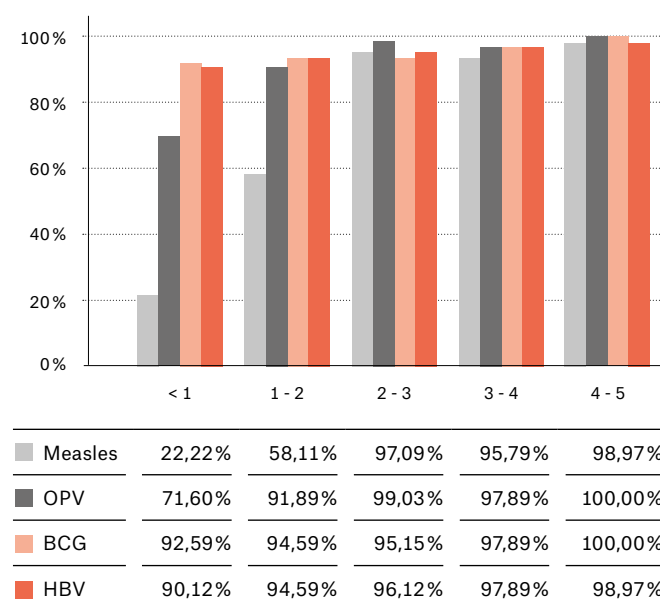
- Did the child receive at least one dose of any vaccine?
- Is there a vaccination card to record the information from?
- Did the child receive at least one dose of the following vaccines: OPV, HBV, BCG, measles, TDP and/or penta
- Where did children receive vaccines?
- What barriers were there for non-vaccinated children to access vaccinations?

The results generated by these questions were interesting but also need to be interpreted carefully. It was known by MSF teams that there were repeated interruptions in the vaccines supply chain in the assessed location that commenced approximately 15 months prior to the assessment.

The vast majority (97.9 %) of children have received at least one vaccine (95 % CI: 96.8, 99.0). This high rate reflects the fact that there is still a partially functioning immunisation system on the ground that can be used if required; yet further data analysis reflects a significantly lower vaccination rate for children aged less than two years (who should be chronologically affected by the breakdown of vaccines availability) compared to older children.

Because of the assessment limitations, we were not able to evaluate whether the child had received all required vaccine doses for their age (i.e. OPV3, TDP3 or HBV3). We recorded instead the minimum of either one dose or one vaccine (antigen). Furthermore, the MMR and measles vaccines data were both collected or considered as one entity and labelled as "measles" in this report. The information below was captured directly from immunisation cards in 96 % of the assessed sample size (CI 93.80 %, 98.23 %).

Vaccine/Age For Childern <5yrs in East Daraa

	< 1	1 - 2	2 - 3	3 - 4	4 - 5
Measles	22,22%	58,11%	97,09%	95,79%	98,97%
OPV	71,60%	91,89%	99,03%	97,89%	100,00%
BCG	92,59%	94,59%	95,15%	97,89%	100,00%
HBV	90,12%	94,59%	96,12%	97,89%	98,97%

TDP &/Or Penta for Children <5yrs in East Daraa

	< 1	1 - 2	2 - 3	3 - 4	4 - 5
TDP	51,85%	72,97%	89,32%	93,68%	97,94%
Penta	67,90%	81,08%	94,17%	95,79%	100,00%
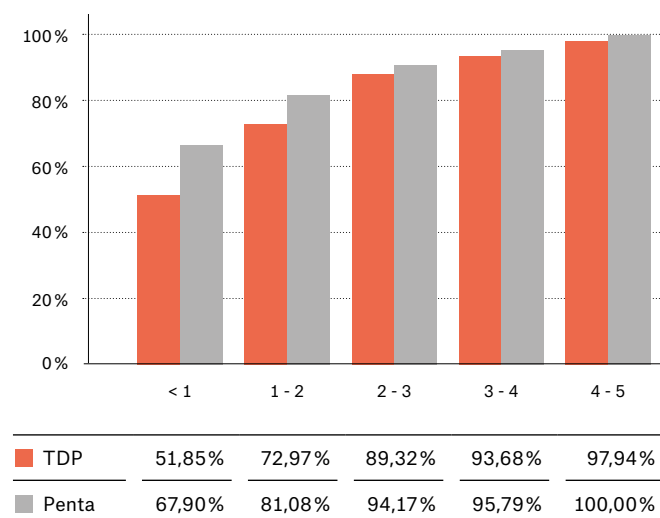
TDP and pentavalent (TDP + HiB + injectable polio) vaccines were assessed together because it was estimated that older children had received the TDP vaccine before the Syrian national Expanded Programme of Immunisation (EPI) shifted to the pentavalent vaccine.

It was surprising that the rate for BCG coverage was still high, even in children less than two years of age. Findings from further discussions at the community level in east Daraa after obtaining these results revealed that most families with newborn infancts visited government-controlled areas in Daraa city to get official birth certificates for their newborns and at the same time they received all available first doses of different vaccines.

The findings of the low vaccination rates of penta, measles and OPV vaccines in children less than two years oldare likely to be strongly associated with low full coverage rates of all vaccines that require more than a single dose.

Comparing vaccination differences between displaced and non-displaced children, it was noted that slightly fewer displaced children (96.94 %) had received any vaccination as compared to non-displaced children (99.59 %) (Fisher's Test p-value= 0.023). No differences in vaccine-specific vaccination rates were found between these two groups.

Locations where vaccines were received are listed in the below table:

Answer	Percentage	CI
Others/DK	1.99 %	(0.71 %, 3.27 %)
Vaccination campaigns	72.85 %	(67.23 %, 78.47 %)
Hospital outside my region	5.83 %	(2.61 %, 9.05 %)
Hospital in my region	17.48 %	(10.61 %, 24.36 %)
Health centre outside my region	20.40 %	(10.55 %, 30.25 %)
Health centre in my region	90.64 %	(85.22 %, 96.07 %)

Very few children in the sample had never been vaccinated. The reasons given for never being vaccinated were: "I do not want to vaccinate my child" (35.71 % of non-vaccinated), "Current vaccinations are of unknown source" (21.43 %), "I do not know where to get vaccinations (28.57 %) and "The vaccination location is too far" (14.29 %).

In this assessment, a question regarding why vaccination was not completed was not asked or included in the questionnaires, which is why we cannot differentiate between being able to access vaccination services and being able to complete the vaccination schedule.

SEXUAL AND REPRODUCTIVE HEALTH

Family planning

The estimated crude birth rate in east Daraa, based on information from this assessment, is approximately 25.7 births/1000 people.[2] Only 16.9 % of women of reproductive age reported currently using family planning (i.e. birth control methods) (95 % CI: 14.4, 19.3), and 81.2 % of women using any family planning were using a modern method (95 % CI: 63.9, 91.3). The most common modern methods of family planning being used were the pill (42.5 %) and IUDs (35.6 %). Interestingly, a rather large number of respondents who reported using family planning said that they did not know what kind they used (28.7 %). This may be an artifact of the data collection process whereby people were hesitant to discuss reproductive health and family planning because they feared being overheard or were interviewed in a mixed-gender environment. Reasons for the high percentages of "do not know" responses should be investigated further.

Slightly more displaced women of reproductive age reported using some method of family planning than women who had not been displaced in the past year. Overall, 18 % of displaced women reported using contraception (95 % CI: 14.3, 22.4) compared to 14.6 % of non-displaced women (95 % CI: 12.4, 17.0), although this 3.5 percentage point difference is not statistically significant (Fisher's Test p-value= 0.15). Displaced women also have a slightly higher rate (83.1 %) of exclusively using a modern method of contraception compared to a rate of 76.0 % among non-displaced women, but this again is descriptive and not statistically significant (Fisher's Test p-value= 0.5). The relatively small number of women of reproductive age who are using contraception presents a challenge for detecting statistically significant group differences.

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2 In this assessment, live births were reported for the past 24 months. In order to estimate the birth rate for one year, the investigators halved the two-year report of live births, which makes a large assumption that the rate of birth was the same over that two-year period. Therefore, this CBR should be considered a rough estimate.

Antenatal care: access and usage

During the assessment, 9.4 % of women were currently pregnant (95 % CI: 7.6, 11.3) and only 70.3 % of these pregnancies were intended and timed. Most pregnant women (80.2 %) were receiving antenatal care (ANC) services during their pregnancy. Women who were not receiving ANC for a pregnancy cited long wait times (40 %), not knowing it was necessary (35 %) and cost (30 %) as the main reasons. Most ANC was being conducted by a private doctor (55.6 %) or by a midwife (27.2 %). Only 65.4 % of pregnant women reported having access to emergency transportation if needed (95 % CI: 51.1, 79.6). Antenatal tetanus vaccinations were rare in the assessment; 80.3 % of pregnant women did not have any antenatal tetanus shot, let alone the two recommended vaccinations.

Almost one-quarter (22.4 %) of women had been pregnant within the past two years (95 % CI: 19.6, 25.1) and they were asked about medical care during their recent pregnancy. Most of the recently pregnant women surveyed (87.1 %) received ANC for the recent pregnancy (95 %CI: 81.5, 91.3). The number of ANC visits reported by women who were pregnant during the previous two years is shown below.

Figure 18: Number of ANC Visits for Pregnancy Within Previous Two Years
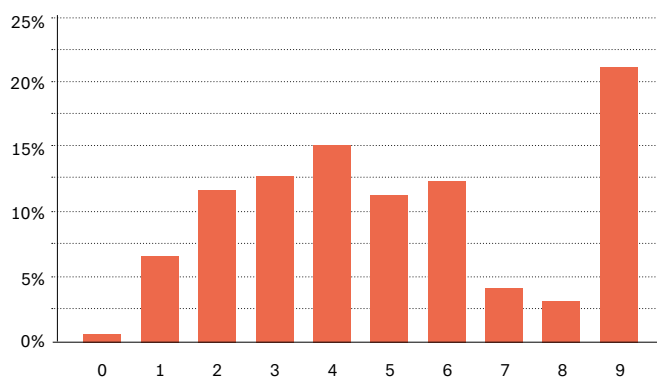
Recent pregnancy outcomes

Reported pregnancy outcomes in the past two years are as follows: 64.6 % were live vaginal births, 26.3 % were live caesarean sections, 7.1 % resulted in spontaneous abortion, and 2.1 % of pregnancies resulted in stillbirth. The majority (59.2 %) of women who had recent pregnancies did not experience complications. Of those that did, 10.2 % reported recurrent urinary tract infections, 10.2 % reported premature labour and 9.2 %

reported they had gestational hypertension. More than one-third (37.8 %) of recent pregnancies were delivered at home (95 % CI: 27.5, 49.3). A significantly smaller percentage of displaced women had home deliveries than those not displaced. Nearly half (47 %) of non-displaced women gave birth at home, while only 32.9 % of displaced women delivered at home (Fisher's test p-value= 0.037).

MENTAL HEALTH

About one-fifth (21.3 %) of the sample reported experiencing "emotional suffering" in the previous 30 days. Most (83 %) of these respondents experienced these feelings for more than six months. Secondary analyses of emotional suffering – a conservative mental health measure – show that mental health status is a predictor of needing physical medical care (see regression analysis results in the Need-Seek-Receive section).

Emotional suffering is correlated with the requirement of medical care in the previous month. Over half (50.1 %) of the respondents reporting emotional suffering had needed care recently, compared to only 23.1 % of those who did not report emotional suffering (Fisher's Test p-value= 0.000). Respondents experiencing emotional suffering were also slightly more likely to be smokers (29.9 %) than people who did not report emotional suffering (25.2 %) (Fisher's Test p-value= 0.000).

Not surprisingly, the presence of a chronic illness and emotional suffering are highly correlated and influence each other reciprocally. One possible interpretation is that people who have a chronic illness are more likely to experience mental health problems: 34.8 % of those with a chronic illness reported emotional suffering, compared to just 17.3 % of those who did not have a chronic illness (Fisher's Test p-value= 0.000). An alternate interpretation is that mental health influences the presence of chronic disease, many of which are related to stress: 37.3 % of respondents reporting emotional suffering also had a chronic illness compared to a chronic illness rate of only 18.9 % among those without emotional suffering (Fisher's Test p-value= 0.000). Both figures are higher than the reported 15.8 % prevalence of chronic illness, simply because emotional suffering symptoms were only being assessed among people aged 15 years and older.

The first and third most commonly reported chronic illnesses in this study were hypertension (34.6 %) and diabetes (20.6 %) both of which have been linked to psychological stress and other mental health issues. These correlations between mental health outcomes and chronic illness merit further exploration.

MATERIAL LIVING CONDITIONS

Shelter and home quality

Most respondents lived in completed houses (67.6 %) or damaged houses (27.4 %), and a few lived in apartments (2.9 %). At the household level, 35.9 % of displaced families lived in incomplete/damaged houses, which is significantly more than the only 18 % of non-displaced families who lived in damaged houses (Fisher's Test p-value= 0.000).

Protection from the elements (wind and rain) was insufficient as 27.8 % of the homes were not protected from rain. Most households (89.2 %) had access to electricity provided by the city (96.4 %) and from batteries (93.9 %). Most households received water from a water truck (51 %) or from water piped into their home (47 %). Private toilets were available to most households (92 %), and the majority of toilets had some form of modern plumbing. Nearly all households (90.4 %) had a private shower facility.

Less than half (43.9 %) of households reported no regular income source. Only 4.1 % of the households had someone with a full-time job providing a regular income.

Food insecurity

Over one-quarter (29.4 %) of household-level respondents reported being worried about running out of food in the previous 30 days, 25.8 % reported skipping a meal in the previous 30 days, and 13.6 % reported that the household ran out of food due to a lack of money. Households that had been displaced in the past year were significantly more likely to report that the primary household respondent had skipped a meal in the past 30 days. Nearly one-third (30.6 %) of displaced primary household respondents reported skipping a meal and only 18.6 % of non-displaced primary respondents reported the same (Fisher's Test p-value= 0.000). Food insecure households were significantly more likely to be residing in incomplete or damaged buildings. Nearly half (48.1 %) of the households in which the primary respondent reported skipping a meal were located in damaged buildings, compared to 21.8 % for households not reporting skipped meals (Fisher's Test p-value= 0.000).

Dwellings where people live in Daraa include partially damaged houses (above photo) and incomplete houses (below photo).

SUMMARY & RECOMMENDATIONS

MSF teams visiting displaced family from rural Damascus currently living in Daraa.

The assessment's mental health outcomes suggest that mental health problems are prevalent, and that mental health status is affecting the physical health and quality of life of the population in this region. For example, there is ample evidence from the field of social epidemiology that chronic stress contributes to poor health outcomes (Krieger, 2001). The first and third most commonly reported chronic illnesses in this study were hypertension (34.6 %) and diabetes (20.6 %), both of which have been linked to psychological stress (Cuffee et al., 2014; Lloyd et al., 2005). Better understanding the ways in which living under chronic stress may be affecting physical health through a mediating stress process might elucidate ways that this stress can be mitigated through positive coping mechanisms.

The measure used for these analyses is a conservative one. Respondents were asked if they "experienced emotional suffering in the past 30 days". Asking this question is considered a very conservative way to estimate actual emotional suffering, because when asked directly about emotions, respondents often underreport these experiences. In addition, cultural and gender-based differences in expressing mental health experiences are widely documented. Reflecting on this, and through collaboration with MSF mental health experts, future assessments will incorporate a short battery of measures that have been validated among culturally similar, displaced populations, such as the Refugee Health Screener or a similar set of measures. Continuing to understand mental health needs in Syria and other areas is important, especially considering the chronic stress that members of these communities experience are under. This should be done by quantitative assessments and explored via qualitative work with community members or health workers familiar with the community.

Sexual and reproductive health gaps in the assessed population are evident. Low rates of uptake of modern methods of family planning are concerning, especially for a community that is experiencing such hardship. The high number of "I don't know" responses when asked about the type of family planning used highlights the fact that researchers should identify ways to ensure that respondents feel comfortable providing sensitive information. Women and families should be able to time and prevent pregnancies to meet the needs of their families and ensure their own wellbeing. The pregnancy outcomes from the past two years reported by many respondents are of great concern. A high percentage of women gave birth at home, and these women were more likely to report pregnancy complications. The high rates of pregnancy complications should be investigated, and they indicate a need for sexual and reproductive health interventions in the community.

As identified in the healthcare-seeking behaviour section, patients prefer to seek care at private clinics or at a home, probably due to hospitals being targeted by the parties to the conflict. Humanitarian and medical actors should take this into consideration when designing medical programmes and services. Facility-based interventions may not be the most appropriate solution to provide healthcare services to the population in this area, and humanitarian actors in the region should consider programmes such as mobilising community health workers, who may achieve a higher level of success in reaching the people most in need.

A major paediatric concern with operational implications for MSF is how to reach children under one year old who were impacted by disruptions to vaccine availability in the area. Disseminating this information to local health directorates that may be in a stronger position to respond quickly is necessary. Diarrhoeal incidence among children up to five years old is also concerning. Access to clean water should be improved, and information about water treatment and other sanitation issues for children should be disseminated to relevant actors.

INDICATOR TABLE

Indicator	Value	95 % CI
Healthcare usage rate: percentage of the total population who received medical services within 30 days of interview	19.7	13.8, 25.5
Crude mortality rate: number of deaths per 10,000 persons per day	0.3	0.2, 0.4
Health services received: percentage of persons needing medical services that received care at a facility in the region	87.7	84.5, 90.9
Shelter size: percentage of the affected population with a living area of less than 3.5m2 per person	0.7	0.1, 1.2
Non-food items: percentage of affected population targeted for non-food items assistance who have not received any non-food item assistance to date	9.8	6.4, 13.1
Antenatal care (ANC): percentage of mothers of children under two years of age who had two or more comprehensive antenatal visits when they were pregnant with their youngest child	81.3	77.3, 85.3
Skilled birth attendant (SBA)-assisted delivery: percentage of pregnant women who deliver assisted by skilled health staff (midwife, doctor, nurse; not TBAs)	95.0	91.9, 98.2
Access to safe delivery: percentage of total recent pregnancies where skilled provider was present	95.0	91.9, 98.2
Maternal tetanus coverage: percentage of total pregnant women who received tetanus vaccination prior to child's birth	19.8	12.1, 27.4
Crude birth rate: number of births per 1,000 people per year	28.4	25.5, 31.1
Diarrhoea prevalence: percentage of children <5yrs with diarrhoea in the two weeks preceding the survey	26.1	18.5, 33.7
Fluid treatment and diarrhoea: percentage of children <5yrs offered more fluids during the last diarrhoeal illness	55.7	45.3, 66.1
Appropriate care-seeking for pneumonia: percentage of children with chest-related cough and fast and/or difficult breathing in the last two weeks who were taken to an appropriate health provider	91.8	85.4, 98.3
Measles vaccination coverage: percentage of children aged 6 months to 15 years that have received measles vaccination	83.9	79.1, 88.6
Family planning: percentage of mothers of children aged 0-23 months that are using a modern contraceptive method	18.7	13.5, 23.8
Access to improved water source: percentage of population with access to improved water supply	99.2	98.5, 99.9
Food security: percentage of population experiencing mild, moderate or severe food insecurity	32.7	18.0, 47.4

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ACRONYMS

ANC	Antenatal Care
CDC	Centers for Disease Control and Prevention
CI	Confidence Interval
HSP	Health Surveillance Programme
IDP	Internally Displaced Person
ISIS	Islamic State in Iraq & Levant
ISW	The Institute for the Study of War
IUDs	Intra-Uterine Contraceptive Devices
MSF	Médecins Sans Frontières
OC	Operational Centre (of MSF Sections)
OCBA	Operational Centre Barcelona-Athens
OCG	Operational Centre Geneva
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
TDP	Tetanus-Diphtheria-Pertussis Vaccine
UNICEF	United Nations Children's Fund
UNHCR	United Nations High Commission for Refugees
USAID	United States Agency for International Development
WHO	World Health Organization

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