Fighting Hunger Worldwide

Reaching Hidden Populations with an Innovative Two-Stage Sampling Method

A case study from the refugee population in Turkey

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Abstract

• Background

Turkey currently hosts almost 4 million registered refugees; it is the largest refugee-hosting nation in the world. As in many humanitarian contexts, there is a gap in the available data. This may be partially driven by the lack of a complete sampling frame, which makes it difficult for survey data to be representative of the refugee population. Sub-groups of the population are hidden, limiting the understanding of the needs of specific groups. This lack of evidence hinders a targeted response.

• Objective

Within the scope of the Emergency Social Safety Net programme, the World Food Programme (WFP) aimed to fill this data gap in partnership with the Turkish Red Crescent. To this end, WFP combined two innovative sampling methodologies to result in one representative dataset. The result is the third round of the Comprehensive Vulnerability Monitoring Exercise (CVME3), the first monitoring exercise representative of refugees across Turkey, regardless of registration or ESSN application status.

• Methods

To have a representative sample of the refugee population living in Turkey, the Vulnerability Analysis & Mapping (VAM) team of the WFP Turkey Country Office developed a two-stage sampling methodology. The method does not require population information, as in probability sampling, but still allows the sample to be representative. The first stage is Simple Spatial Sampling (S3M) to obtain clusters inside Turkey, resulting in a single GPS point per cluster. The second stage is Respondent-Driven Sampling (RDS), a methodology based on social network theory. RDS calculates snowball sampling mathematically so that weights allow the sample to be representative.

• Results & Implications

This methodology is put forth as an example to be used in other settings, when needs analysis of sub-groups is required but no sampling frame is available. CVME3 sample allows a general understanding on the vulnerability of refugee population and more targeted awareness. While WFP did not specifically design the CVME3 to understand the needs of children, the methodology allows also for this. Thus, in future, if other humanitarian actors wish to collect statistically representative child-related data in a difficult context, the S3M and RDS sampling combination offers a promising solution.

The CVME3 was not a perfect exercise; the lessons shared in this paper are intended to allow other actors to improve the methods, resulting in better evidence to support decision-making. The RDS methodology can be adapted to the purpose of the survey; weights can be calculated for specific age groups, allowing more reliable insight into the needs of children. Thus, the CVME3 methodology need not be replicated exactly, but rather, can be adapted to the purposes of future surveys.

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Section 1: Introduction & Background

1.1 Context: Historically, Turkey has been a country of emigration rather than immigration. However, over the past 8 years, Turkey has experienced a massive influx of refugees, the majority of whom are from Syria. The conflict in Syria has caused large-scale displacement of people, with an estimated 5.6 million Syrians[1] having fled the country since 2011. According to official Government statistics, Turkey hosts the largest number of refugees in the world: around 3.6 million Syrian refugees had been registered as of 27 December 2018,[2] in addition to 170,000 Afghans, 142,000 Iraqis and 56,400 from Iran, Somalia and other nationalities,[3] a total of nearly 4 million registered refugees. 47% of the registered Syrians are children below 18 years.[4]

Without a doubt, the role of Turkey within the global migration context has increased; This sudden change in the migration profile of the country resulted in a need for reliable data to shape current government policies as well as to provide humanitarian assistance to those in need.

In response to the massive population influx, the Government of Turkey has adapted existing systems to include refugees in national systems, such as identity and address registration, and provide access to basic services, such as education and health. In addition, a variety of national NGOs, INGOs, UN agencies and other international organisations are working actively to support the refugee population living in Turkey.

One such assistance programme is the Emergency Social Safety Net (ESSN) programme. It is designed to help cover the basic needs of the most vulnerable individuals living outside of camps under temporary or international protection in Turkey. The ESSN provides unconditional monthly unrestricted cash transfers to beneficiary households. The programme rolled out across Turkey in November 2016 and is implemented by the Turkish Red Crescent (TRC), the Turkish Ministry of Family, Labour and Social Services (MoFLSS) and the World Food Programme (WFP) with funding from the European Civil Protection and Humanitarian Aid Operations (ECHO).[5] By January 2019, the total number of applicants had reached 2.5 million; of these, the programme supports 1.5 million who meet the eligibility criteria. The applications cover 66% of all registered urban refugees in Turkey.[6]

1.2 Definition of Terms: Throughout this paper, we use a variety of terms to refer to different population groups. Below are definitions of all these terms.

- **Registered**: Individuals who have registered their identification documents with the Directorate General of Migration Management (DGMM), a national institution working under the Ministry of Interior. Registration grants individuals legal stay in Turkey, and provides access to public services and assistance.[7]

1UNHCR Operations Portal : Syria Regional Refugee Response, Dec 2018 https://data2.unhcr.org/en/situations/syria
2 http://www.goc.gov.tr/icerik6/temporary-protection_915_1024_4748_icerik dated 27 December 2018
3 UNHCR Turkey Statistics November 2018: https://www.unhcr.org/tr/en/unhcr-turkey-stats
4 Ibid
5 For more information on the ESSN, please refer to: https://www.essncard.com/
6 The term urban refugees refers to the refugees living outside of the camps (3.7 million in December 2018).
7 For more information on registration, particularly for Syrians, refer to: https://help.unhcr.org/turkey/information-for-syrians/reception-and-registration-with-the-turkish-authorities/

- **Unregistered**: Individuals who are not currently registered with DGMM, as explained above. These may be people who have never registered with DGMM, or are pending registration (i.e. have submitted their paperwork and are awaiting feedback). These may also be those who were registered in one location, but moved to a new location and have not re-registered.

- **International Protection, Temporary Protection, Humanitarian Residence**: Within the scope of Turkish Law on Foreigners and International Protection dated 4 April 2013, there are different status for foreigners seeking refuge within Turkey.[8] Registered individuals within the CVME3 dataset fall under one of these legal status.

- **Refugee**: None of the registered individuals included in the CVME3 are afforded refugee status by the Government of Turkey. However, for simplicity within this paper, any individual who is under any of the legal status noted above, or planning to seek this status, is referred to as a refugee.

- **Applicant**: Individuals who have applied to the Emergency Social Safety Net programme, regardless of beneficiary status.

- **Beneficiary**: Individuals who have applied to the Emergency Social Safety Net programme, and were determined to be eligible.

1.3 Demographic Make-Up of Refugees in Turkey: As noted above, of all Syrians registered with the Government, 47% are children under 18 years old. This includes 16% under 4 years old. As most refugees arrived between 2013 and 2014, most of these under-fours were born in Turkey. 49% of the Syrians are between 18-59 years, and only 3% are 60 years or older[9]. Unfortunately, data is not available for non-Syrians disaggregated by sex and age.

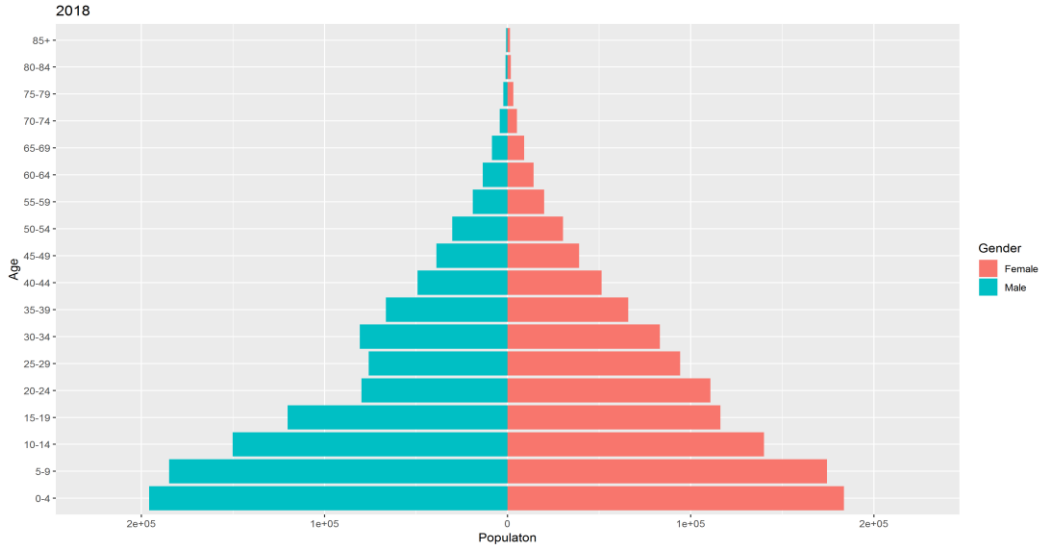
The ESSN application data, however, can be disaggregated by age, sex, nationality and family composition. Those who apply for the ESSN are mostly Syrians, followed by Afghans, Iraqis and a mix of other nationalities such as Iranians and Somalis. These ESSN applications provide a wealth of demographic information on the refugee population. It demonstrates that the refugee population in Turkey is very young and dynamic. The population pyramid featured in Chart 1 shows that almost half of the ESSN applicants are children under 18, indicating that the other nationalities may also have high fertility rates, like the Syrian data explained above. It also demonstrates a gap between males and females in the 20-24 and 25-29 age ranges, suggesting a loss of lives during conflict or different migration patterns for males.

The population pyramid in Chart 2 shows the projected population of ESSN total applications in 2025. This was calculated using the Component Cohort Method.[10] It reveals that by 2025,

[8] For the complete legal definitions, refer to the Republic of Turkey Ministry of Interior Directorate General of Migration Managgement; Law on Foreigners and International Protection: http://www.goc.gov.tr/files/files/eng_minikanun_5_son.pdf
9 Ibid.
[10] Component Cohort Method: This is the most general method used for population projection exercises. When the cohort component method is used as a projection tool, it assumes the components of demographic change, mortality, fertility, and migration, will remain constant throughout the projection period - https://www.measureevaluation.org/resources/training/online-courses-and-resources/non-certificate-courses-and-mini-tutorials/population-analysis-for-planners/lesson-8/lesson-8-the-cohort-component-population-projection-method

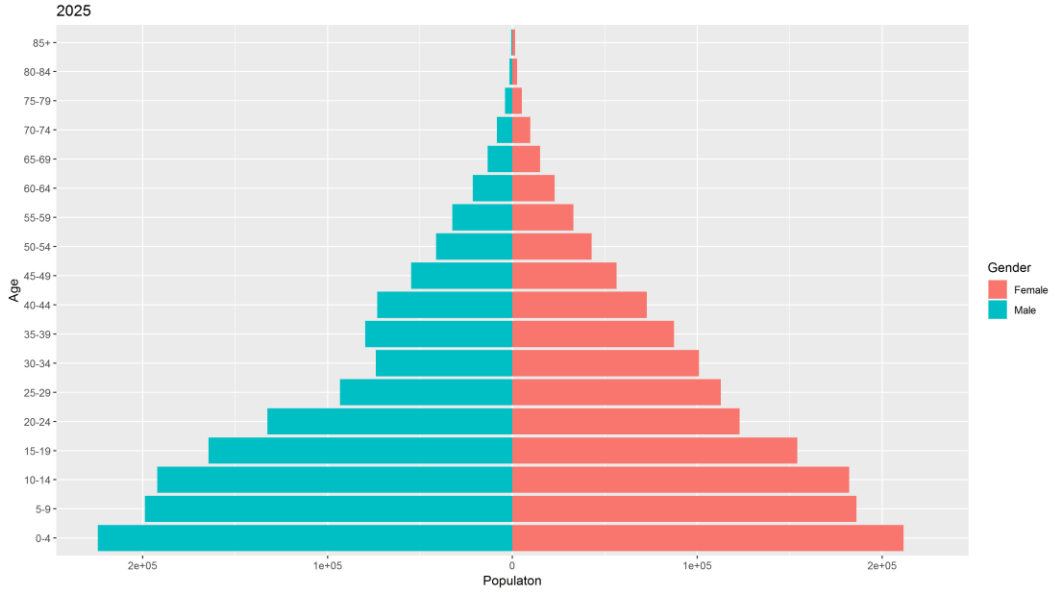
due to high fertility rates, over half of the ESSN applicants will be children. This indicates that refugee children need to be at the forefront of policy decisions to ensure they are protected, and their needs are met.

Chart 1. Population Pyramid of ESSN Applicants



*This population pyramid is produced based on ESSN Applicants Caseload dated July 2018

Chart 2. Population Pyramid of ESSN Applicants for 2025 Population Projection



*This population pyramid is produced based on ESSN Applicants Caseload dated July 2018 projected for 2025

1.4 Data Gaps: Data and statistics are vital to be able to make evidence-based policy and programme decisions. Reliable data ensures all concerned actors can reach the most vulnerable with appropriate assistance. Data collection in emergencies is particularly challenging, as there is no established statistical system to collect data on displaced populations prior to those emergencies. As a result, such data collection requires innovative methods in order to provide statistically valid results that can actively contribute to policy-making and programmatic

decisions. UNICEF, UNHCR, IOM, EuroStat and the OECD have issued a call to action in response to the gap in available data on the children on the move. They explained that this gap endangers the lives and wellbeing of millions of children on the move.[11]

In line with this global gap, the existing data on refugees in Turkey was insufficient to understand the needs of refugees in general, or specific groups within the refugee population. There have been no large-scale surveys which are representative of the refugee population; this may be partially because there is no available sampling frame on all refugees in Turkey. The Government holds a list of all the registered refugees, but many unregistered populations and/or irregular migrants are absent from central databases.

Even for those populations included within the central data, these datasets are mostly restricted to demographic information. As a result, it is challenging for policy-makers to make decisions about specific vulnerabilities based on the available central data. Due to stringent data protection laws in Turkey, this data is seldom shared with third parties and so not available to external actors. Therefore, creative monitoring exercises are required to understand different dynamics within the refugee populations.

1.5 Comprehensive Vulnerability Monitoring Exercise: WFP has globally invested in an in-house analytical service called Vulnerability Analysis and Mapping (VAM). VAM is responsible for providing the evidence base used to inform WFP programme and policy decisions. Within WFP Turkey, the VAM/M&E unit plays this role. Within the scope of the ESSN partnerships, WFP is responsible for monitoring and accountability. Thus, the VAM/M&E unit developed the Comprehensive Vulnerability Monitoring Exercise (CVME) to ensure that the ESSN could provide the right assistance to the right people at the right time.

While WFP's core mandate does not specifically relate to children, the objective of the ESSN is meeting basic needs of vulnerable refugees. As noted above, children comprise almost half of the refugee population in Turkey. Thus, identifying and quantifying the needs of children falls squarely within the scope of the ESSN.

Having acknowledged the gaps in available data, and the constraints in accessing a complete sampling frame, WFP combined two innovative sampling methodologies to result in one representative dataset. The result is the third round of the CVME (CVME3)[12], the first vulnerability assessment representative of refugees across Turkey, regardless of registration or ESSN application status. The key contribution of this paper is to present this sampling methodology and the weights, as an example to be used in other contexts.

The main objective of the CVME3 is to assess the socioeconomic vulnerability of the refugee population in Turkey and to estimate the refugees' needs. The CVME3 data fills an important gap in information, quantifying needs across many sectors including health, education and livelihoods. As an important by-product, it also estimates the number and needs of unregistered refugees. While WFP conducted the survey at household level, details on the individual members of each household are also collected, allowing for analysis of specific groups, including children.

11 UNICEF, Massive Data Gap Leave Refugee, Migrant and Displaced Children in Danger,February 2018 https://www.unicef.org/eca/press-releases/massive-data-gaps-leave-refugee-migrant-and-displaced-children-danger-and-without

[12] The CVME3 report is not yet released at the time of writing; expected release in Q1/Q2 2019

The CVME3 includes a variety of child-related data, including school attendance, child labour, child marriage, sickness and treatment, and other indicators. As the survey is representative for all refugees living in Turkey, the sampling methodology allows calculation of population figures. Due to details explained in Section 4 of the paper, we provide population figures only for the registered refugees. However, we estimate proportions for the unregistered refugees.

As noted above, the main contribution of this paper is the sampling methodology developed, which could be replicated in other contexts. We explain the details of the two-stage sampling methods and the weights in Section 2. We present the results of the child-related data in Section 3, and the conclusion and implications in Section 4.

Section 2: Methodology

Sampling Methodology: The sampling for the CVME3 has combined two innovative methods, a density sampling method called the Simple Spatial Survey Method (S3M), and a chain referral sampling method, called Respondent-Driven Sampling (RDS).

2.1 First Stage: Simple Spatial Survey Method (S3M): The first stage of the sampling is geospatial. This first stage is required to decrease potential bias derived from the second stage, Respondent Driven Sampling. The geospatial sampling decreases potential spatial autocorrelation, i.e. it reduces correlation between clusters so that the overall sample will be diverse and representative of all of Turkey. Mark Myatt (Brixton Health) and Ernest Guevarra (Valid International) used a variable density sampling approach to develop the Simple Spatial Survey Method (S3M).

S3M is used to achieve a sample that draws a minimum number of sampling points from administrative areas, so that the survey can provide estimates for each administrative area with useful precision. Administrative areas tend to have roughly similar population sizes. This means that a sample with a minimum number of sampling points per administrative area will also tend to match population density.[13].This method is designed to provide a general survey method which can be used to survey and map the coverage of universal or selective entry programs in survey areas up to ten times larger than Centric Systematic Area Sampling method, which is commonly used to measure indicators related to nutrition and WASH.[14]

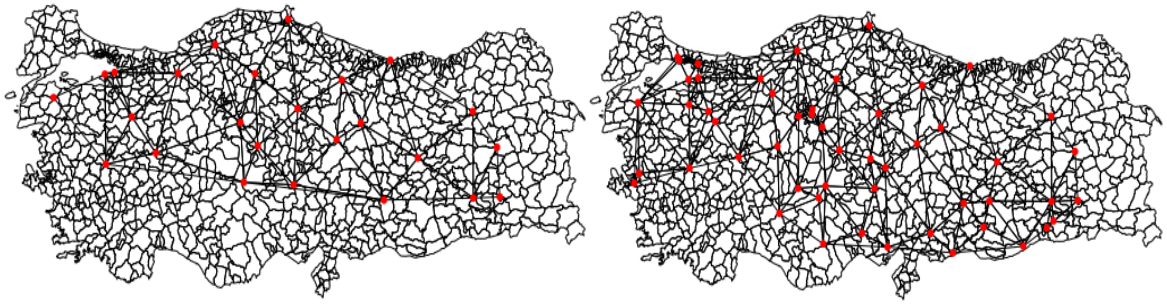
S3M produces a sample that is spatially representative, as the sample is distributed evenly across the sample area. In the Turkey case, WFP excluded districts with less than 200 applicants as it would be operationally very challenging for field staff to find refugees in such a sparsely populated area. WFP also excluded an additional 39 districts on the southeastern border, as UN security restrictions prohibited access. As a result, the total sample frame consisted of 87 urban and 122 rural districts. WFP then split the sample into two strata: urban and rural.

In order to reach the spatially representative sample, a hexagonal grid was laid over the survey area, and settlements were chosen that are closest to the centroids. For each stratum, one settlement in each district was chosen based on the S3M, implemented through the spatial-sampler function in R.

[13] Myatt, Mark; Guevarra, Ernest, Notes on a variable density sampling method for 3SM Surveys – Draft 0.3 17th May 2016
[14] Valid International S3M Niger Case: http://www.validinternational.org/coverage/workshop/articles_files/pictureBookS3M.pdf

The sampling resulted in a sample size of 25 rural and 27 urban districts each. With geospatial sampling the sampling size can vary slightly around the aspired size (in this case 52) to guarantee a proper geographical spread. For each of the selected districts, a list of all settlements (admin 3 level) was available. The Respondent Driven Sampling (stage 2 of the sample design) started from GPS points randomly selected from admin 3 level settlements for each district, which was required to narrow down the area for the starting point of the data collection. Figure 1 illustrates the selected geolocations on the map of Turkey.

Figure 1: S3M Sample Geolocations



Rural sample *Urban Sample*

2.2 Second Stage: Respondent-Driven Sampling: The second stage of sampling is at the household level – the identification of the households within each geolocation who respond to the survey. This stage relies on Respondent-Driven Sampling (RDS), which is a chain referral sampling methodology (probability sampling method). RDS is a sampling method that uses social network theory to identify households. RDS helps to reach a probability-based sample for "hidden" subpopulations, for which no sampling frame exists – as in the case of refugees in Turkey.

RDS combines snowball-sampling based on social networks with a mathematical model to calculate the probability of each respondent to be sampled. To do so, RDS starts with certain "seeds", who, in a chain-referral system, identify further respondents from their social network. With information on the size of the personal network of respondents, it is possible to calculate selection probabilities for each respondent.

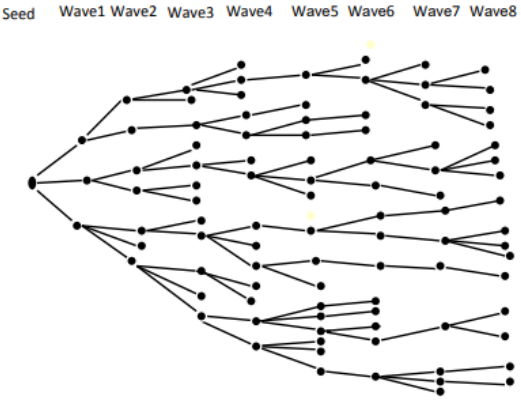
In the second stage of the sampling, seeds were selected, starting from the GPS coordinates of the selected settlement. If the monitoring assistants could not identify any refugees close to the GPS coordinate, they moved to the closest town to identify the seeds. Based on the network of the seed, in each district 25 households were interviewed, resulting in a sample size of 1301 households.[15]

The first step for RDS was to identify 2-3 households who have strong social networks, are enthusiastic to participate in the CVME, and are different in terms of age, gender, ESSN eligibility and socioeconomic status at the given GPS coordinates. After completing the CVME with the seeds, monitoring assistants ask those households to refer them to 2-3 of their

[15] The minimum sample size was 1,300, but 1 additional household was interviewed in 1 location.

friends/family who are also under International Protection/Temporary Protection (IP/TP) or humanitarian residence, in pre-registration phase or planning to seek this status in future. The recruits of the seeds produce wave 1; the recruits of wave 1 produce wave 2; and so on.[16] This process continues until the sample size for the cluster is reached, which is 25.

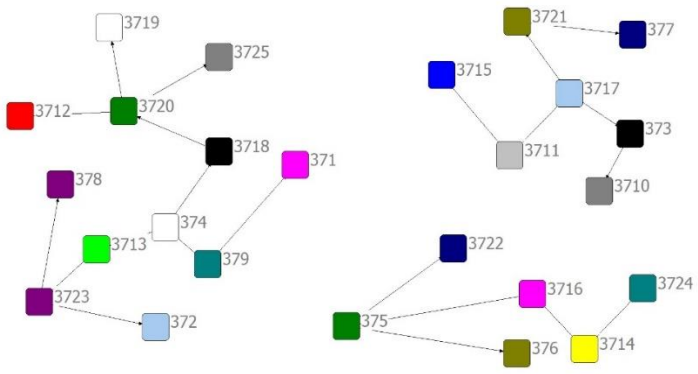
Figure 2: Theoretical RDS Recruitment Chain



Source: Johnston LG, Sabin K. Sampling hard-to-reach populations with respondent driven sampling. Methodological Innovations Online, 2010, 5(2): 38–48.

In essence, respondents recruit their peers, as in network-based samples, and researchers keep track of who recruited whom and their numbers of social contacts. A mathematical model of the recruitment process then weights the sample to compensate for non-random recruitment patterns.[17] At the beginning of the CVME3, the social network size, participant number and recruiter number was systemically asked and recorded in order to track the creation of waves. RDS individual weights were calculated with RDSAT 7.1.46 for each of 52 clusters.

Figure 3: CVME3 RDS wave creation, Inegöl-Bursa district



Actual example of RDS wave creation from the CVME selected from Inegöl-Bursa district produced by using NetDraw

2.3 Weights: Sampling weights for the first stage were calculated based on number of applicants in each district and adjusted for both strata. As mentioned above, geolocations per each district were split by urban/rural strata. However, during the actual data collection,

[16] Johnston, L., & Malekinejad, M. (2014). Respondent-Driven Sampling for Migrant Populations. In Schenker M., Castañeda X., & Rodriguez-Lainz A. (Eds.), Migration and Health: A Research Methods Handbook (pp. 141-164). University of California Press. Retrieved from http://www.jstor.org/stable/10.1525/j.ctt7zw2z4.10

[17] http://www.respondentdrivensampling.org/reports/RDSsummary.htm

refugees were not present in most of the rural areas selected by the sampling process. As a result, monitoring assistants went to the closest locations, which were mostly urban areas. As refugees could not be found in most of the rural areas, the urban/rural stratification for the weights was ignored. Figure 4 illustrates the actual locations of the data collection, which are similar, but not identical, to the sampling maps in Figure 1.

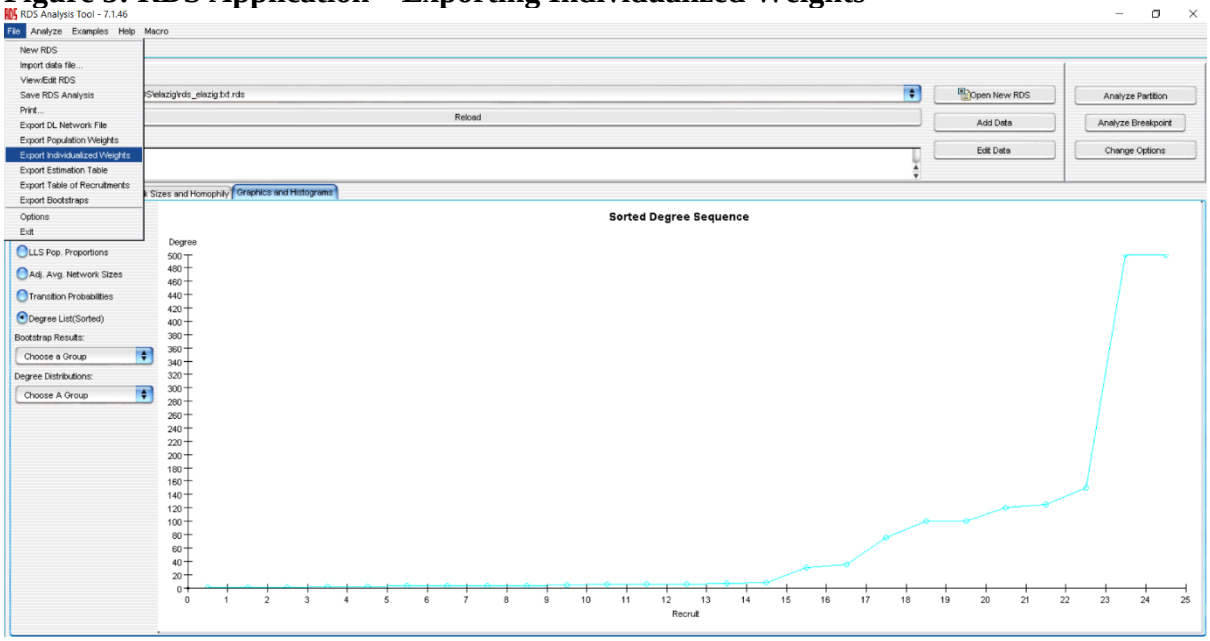
Figure 4: CVME3 Actual Data Collection Locations

WFP calculated weights for the second stage through the RDSAT 7.1.46 application. This incorporates the data of the network size and chain referral system of each household within the district. Social network is a complicated term as there are many definitions of what it is to "know" someone. For the RDS, to know someone means that you recognize the person, know a name by which to address them and would greet them if you saw them on the street, and that this relationship is reciprocal.

The data related to social network size and the referrals between respondents is entered to the RDSAT application. The application uses this data to analyse the degrees of separation from the initial seeds to all other survey respondents, and compares total social network size included with the total population within the selected geographic area. The application combines all this data to construct individual weights.

In Figure 5, a screenshot is displayed showing the RDS application at the point of exporting individualized weights. The image shows the respondents (numbered 1 to 25) on the x-axis and the degree of separation from the seed on the y-axis. These are important factors used to construct the weights.

Figure 5: RDS Application – Exporting Individualized Weights



RDS weights can also be calculated by different population groups, such as gender, sex, and nationality, where the selected groups get only one weight per group within their district. However, for the purpose of the CVME, individual weights were determined to be the most suitable as the survey is intended to represent all refugees living in Turkey. However, RDS does offer the possibility to construct weights allowing for data representative of specific groups should this be of interest.

In the final stage of the construction of weights, the geographic weight is multiplied by the household RDS weight. This combined figure is the final weight for each household in the sample, allowing for extrapolation of the data to the rest of the population.

2.4 Data Collection: CVME3 data collection was carried out from March to August 2018 with a one-month break during Ramadan in June/July. A total of 1,301 households were surveyed, comprised of 7,681 individuals. The questionnaire was addressed at the household level and included information on refugees' demographics, their arrival in Turkey, living conditions, health, education, income, expenditure, debt, food security, coping strategies, gender, safety and security. All data was collected by trained WFP monitoring assistants paired with Turkish Red Crescent monitoring assistants. The staff collected the data on tablets and uploaded via Open Data Kit.

2.5 Lessons: In comparison with time-location sampling or non-probability methods for sampling hidden populations, RDS offers one main advantage: the long sampling chains reduce, or ideally eliminate, the biases induced by the initial convenience sampling of seeds.[18] Therefore the selection of seeds and creation of waves is fundamental to the whole methodology. Many households have tendencies to recruit people from their nationality, or the people they know very well. As a result, in some cases, the RDS recruitment in some districts can be slightly biased. For instance, if the seed refugee household was from Iraq, the data

[18] Gile KJ, Handcock MS. Respondent-Driven Sampling: An Assessment of Current Methodology. Sociological Methodology. 2010;40(1):285-327

showed they were much more likely to recruit someone from Iraq. This was the case in a few districts of the CVME, which introduces some bias to the sample. For future practitioners, to avoid this issue, it is vital that the initial seed selection must be diverse, and at least two seeds are required to start RDS within a district.

Recruitment and the development of the waves is a fundamental component of RDS. Therefore, the recruitment patterns of survey participants must be well understood. It is unclear how well respondents are able to report their social network size, and how well this may correspond to the other participants they recruit. In addition, it is not at all clear that the relationships used for recruitment of participants are reciprocal. For these reasons, in future application of RDS, it is recommended that practitioners designing surveys improve the understanding of how RDS participants make decisions about who to recruit.[19] Otherwise, the RDS methodology may pose limitations or biases by concentrating on only certain populations.

As discussed above, the first stage of sampling, S3M, was disaggregated into urban and rural strata for the CVME3, meaning half of the sample consisted of urban areas, and the other half was from rural areas. A fundamental concept within the S3M methodology is that administrative areas tend to have similar population sizes. However, with the refugee population in Turkey, the population distribution is unequal across areas, and not similar to the host population distribution. It should also be noted that 74.6% of Turkish population lives in urban areas; [20] this proportion is likely even higher among the refugee population.

Thus, in many of the rural areas selected, it was not possible to find any refugees, or only a few families lived in these locations. Due to these operational difficulties, WFP provided standard guidance that if fewer than 50 households are found at the sample GPS coordinate, data collection can be started in the closest town or settlement. As such, most of the rural areas were replaced with nearby urban or peri-urban areas. In the final analysis, WFP rejected the urban/rural stratification, as the rural stratum was not reliable. This constraint is simply the result of combining two different methodologies with different objectives. The S3M allows for a spatially representative sample, however the RDS allows for identification of 'hidden populations.' In this case, the refugee population is not equally distributed across all administrative areas, and the randomly selected geolocations did not all allow for identification of this sub-group. In future, any S3M stratification should consider the likely implications on the RDS methodology.

Finally, the objective of the CVME3 was to understand the needs of refugees across the country. All people under International Protection, Temporary Protection, Humanitarian Residence and those seeking these status, were considered the population of interest for this exercise. However, the methodology offers a promising solution for those seeking to understand the needs of more 'hidden' groups. For example, there is a dearth of information on the needs of specific nationality groups in Turkey, such as Somalis or Palestinians. Or, the methodology could be adapted to understand the needs of the elderly or children. In future, humanitarian practitioners may wish to adapt the S3M and RDS combination for more nuanced analysis.

[19] Ibid
20 https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS

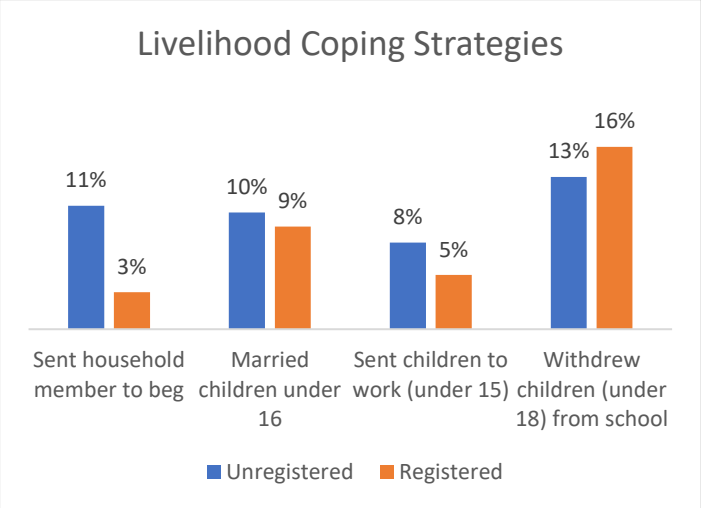
Section 3: Results

The primary contribution of this paper is to describe the sampling methodology above, which can be applied in other contexts to fill data gaps. However, we present a brief summary of relevant results in Section 3 as an illustration of the type of indicators and population calculations which WFP has calculated using the CVME3 data.

3.1 Child Related Livelihood Coping Strategies: WFP collects information on the use of a variety of livelihoods coping strategies as part of standard monitoring and assessment exercises. WFP Turkey has adapted this module to the context in Turkey, collecting a number of additional strategies. These include a variety of child-related coping strategies. The CVME3 results show that behaviors adopted to the detriment of children were not unusual during this period, with 15% of households reporting withdrawing their children from school, 5% sending children under 15 years to work, 9% marrying off a child and 5% sending a household member to beg. Qualitative data has indicated that children are often the family member sent to beg.

When disaggregating the data by registration status, it is evident that unregistered households are forced to use almost all these strategies more often. Refer to Chart 3 for the specific figures.[21]

Chart 3. Child related livelihoods coping strategies, by registration status



3.2 Child Education: The Turkish Government allows refugee children to attend public schools free of charge. In order to access this service, the children must be registered with the Directorate General for Migration Management (DGMM), and their home address must be registered with the Department of Population and Citizenship Affairs (known as Nüfus). The address registration must be in the same district as the school the children attends.

If a family is registered in compliance with these rules, the children may attend public schools. Despite this, a UNICEF report[22] estimates that at least 350,000 school-age (6-17 years) refugee children in Turkey are out of school, equating to more than 30% of school-age refugee children.[23]

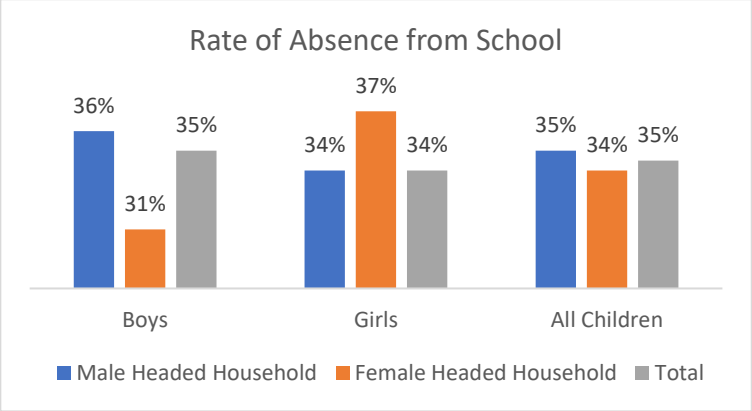
The CVME3 data, however, shows 35% of school aged children are absent from school, defined as not attending school for the past semester. The UNICEF figure considers only registered refugees; the CVME3 estimate is likely higher due to a higher rate of absence among unregistered households (46.3%). When considering only the registered children, an estimated

[21] The difference between registered and unregistered households are statistically significant at the .01 level for begging and sending children to work, while there is no statistically significant difference between the results for child marriage and withdrawing children from school.
[22] UNICEF Turkey CO Humanitarian Situation Report #24, August 2018
[23] Absence from school is defined as not attending school for at least one semester.

406,000 children aged between 6 and 17 are absent from school. However, given the higher rates among the unregistered, the absolute number is higher than both estimates above.

Although education is the foundation of a child's health and well-being, child education is still a privilege, as many refugees cannot afford to send their children to school. Poverty and registration barriers are the main drivers of school absence among refugees in Turkey; these two combine and reinforce each other. In the CVME3, when families were asked the main reason for not sending their children to school, the primary reason was the household's need to send children to work to help their families (35%).

Chart 4. School Absence by Sex of Household Head

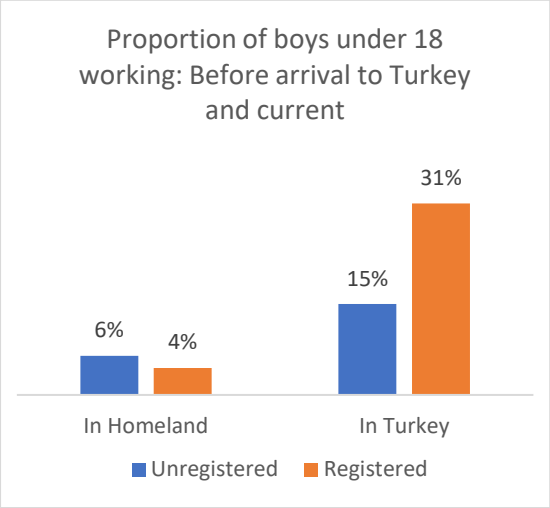


Absence from school is slightly higher among children in male-headed households in comparison to female-headed households. Within male-headed households, 36% of boys are absent, versus 31% of boys in female-headed households (refer to Chart 4). [24] As noted above, the primary reason for school absence is that children need to work (35% in male-headed households, and 28% in female-headed households). However, a major barrier to school attendance within female-headed households is lack of registration with DGMM or Nüfus. These administration issues are the primary barrier in 18% of female-headed households, versus only 6% of male-headed households.[25]

3.3 Child Labour: In Turkey, two features characterise the work of refugee households in comparison to their previous situations: the decrease in employment of adults and the increase in working children. Poverty clearly forces refugee children into work, especially when adults are unable to work; if refugees are not able to meet their basic needs, they send their kids to work. 31% of boys under 18 (191,000 registered boys) are working to contribute to household finances.

[24] The differences between the rates of absence in male and female-headed households (for both boys and girls) are statistically significant at the .05 level.
[25] This difference is significant at the .00 level.

Chart 5. Boys Employment Rate



The proportion of male refugee children under age 18 working in Turkey has risen from 5% to 28% since their arrival in Turkey. The registered population experienced the largest increase in child labour since their arrival, reporting an increase from 4% to 31%. This is in comparison to the unregistered households, who report an increase from 6% to 5%.[26] This may be because most of the unregistered are new arrivals; finding employment requires developing social networks, identifying opportunities and generally being more established, all of which takes time.

It should be noted that the results of this question are affected by children aging between the two-time periods – i.e. a child may have been 12 in their home country, and is now 16, so is more likely to work. However, this is balanced by others who were very young and are now teenagers, and others who were teenagers and now adults in Turkey. The overall representative nature of the data accounts for this aging over time, which affects each family differently.

3.4 Child Health: Young children (0-5 years old) tend to get sick[27] more often than adults, with 34% of under-fives reported sick in 30 days preceding the survey, versus only 23% of adults. This 35% equates to 278,000 registered children.

Female-headed households have a higher proportion of sick children compared to male-headed households; this is almost double for under-fives (58% vs 30%).[28] This may be because females have fewer working opportunities and may therefore be more vulnerable by many measures. Without a doubt, this higher rate of sickness creates an additional burden on the shoulders of female-headed households related to child-care, ability to work and cost of treatment. Once children get sick, the majority of families report seeing doctors for treatment. However, only those who are registered are entitled to public health services. As such, only 45% of unregistered sick children received treatment, versus 76% of registered sick children.[29]

3.5 Women's Health and Family Planning: 7% of women reported needing women's health centres and family planning services, but not having access to them. This equates to 59,000 registered women. However, the proportion needing services but lacking access increases to 14.1% among those women who are not currently registered, so the total figure in need is higher.

Of those unable to access these services, about a quarter explained that they could not access the services because they cannot afford them. Another reason cited is that the service is not available, or there was a lack of service providers specific to their family needs. This is particularly important given the extremely high fertility rates among this population, as explained in Section 2.

[26] The difference between the proportion of boys working in registered and unregistered households in is not statistically significant before arrival to Turkey (in homeland). However, the difference is statistically significant at the .01 level after arrival to Turkey.
[27] Sickness was defined as diarrhoea, fever/chills, or cough. CVME3 data does not include uncomplicated sickness which would not affect the daily life of family members.
[28] These results are statistically significant at 0.01 level.
[29] This difference is significant at the .00 level.

Section 4: Conclusions/Implications

In the absence of reliable data, humanitarian agencies are unable to understand or address the vulnerabilities faced by specific sub-groups within populations on the move. This data gap exists on a large scale, with a lack of evidence on the needs of displaced people around the globe. In Turkey, WFP, working in collaboration with TRC, has made a concerted effort to fill this gap. The CVME3 combined two sampling methods in order to collect data which is representative of the refugee population across Turkey, including the unregistered. While neither sampling method was specifically developed for this exercise, they are not commonly used in humanitarian settings and the combination of the two is unique to the CVME3.

This methodology is put forth as an example to be used in other settings, when needs analysis is required but no sampling frame is available. While WFP did not specifically design the CVME3 to understand the needs of children, the methodology allows for this. Thus, in future, if other humanitarian actors wish to collect statistically representative child-related data in a difficult context, the S3M and RDS sampling combination offers a promising solution.

The CVME3 was not a perfect exercise; the lessons shared above are intended to allow other actors to improve the methods, resulting in better evidence to support decision-making. As noted above, the RDS methodology can be adapted to the purpose of the survey; for example, weights can be calculated for specific age groups, allowing more reliable insight into the needs of children. Thus the CVME3 methodology need not be replicated exactly, but rather can be adapted to the purposes of future surveys.

The CVME3 itself is intended to allow humanitarian actors in Turkey to understand the scale of the needs across the country, including those of specific groups. The data demonstrates that 121,000 households sent someone to beg, 191,000 male children are working, and at least 59,000 women are in need of family planning services.

Of course, WFP does not act alone, but works in coordination with the Government and humanitarian actors across the country. Thus, this evidence is provided to facilitate targeted action and estimate the response capacity required, thereby ensuring the needs of specific groups are met.

In conclusion, a final note related to ethical concerns. Having designed a representative sampling methodology, the CVME3 allows an estimation of the numbers who are pending registration, or not yet registered. Many of these would be considered ‘irregular migrants’ and/or illegal residents. Many governments and public institutions, particularly those less sympathetic to the refugee cause, may be reluctant to see public information related to these populations, whether it be simply the population estimates, or specific needs (children absent from school, child labour, child marriage, etc). Publication of such figures could also result in an unexpected response, such as additional efforts to crack down on illegal migration, or to curb specific behaviours. Therefore, once equipped with the tools, humanitarian actors will need to act responsibly with the resulting evidence, choosing carefully if and where to share the data.

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