Does survival chance of Syrian refugee infants differ from the native infants in Turkey and Jordan? Evidence from TDHS-2018 and JDHS-2017-18

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Abstract

Turkey and Jordan are the first and the third countries that hosted the highest number of Syrian refugee population in the world. According to UNHCR, currently Turkey (3.7 million) and Jordan (0.7 million) are hosting around 4.4 million Syrian refugees. Approximately 15 percent of the Syrian refugee population living in these two countries are children under 5, who were all born in Turkey and Jordan. Although both countries spend all possible efforts to provide health services to all refugee population, especially refugee children are under the risk of death since refugee population has specific barriers to access the health services in both countries. The impact of migration from Syria on the survival chance of refugee children is relatively unexplored topic despite the intense interest in refugee issues globally. The motivation of the paper is to use newly collected microdata sets from TDHS-2018 and JDHS-2017/18 on timing of births and deaths to determine whether the survival chance of Syrian refugee infants differ from the native infants in Turkey and Jordan. The paper uses a comparative approach under the control of all possible covariates in different dimensions (health care, nutritional status, birth and birth interval, and household welfare) that have effect on the child survival. The findings reveal that the refugee children are in disadvantaged positions in all dimensions. Because of these deprivations, the survival chances of refugee infants are 8 percent and 19 percent lower compared with the survival chance of native children in Turkey and Jordan, respectively.

Key words: Survival chance, Syrian refugees, Turkey, Jordan

Introduction

The Syrian conflict caused one of the most severe refugee crises in history. Since the outbreak of the Syrian conflict in 2011, nearly 5.7 million refugees settled in neighbouring countries, namely Turkey, Lebanon, Jordan, Iraq and Egypt (UNHCR, 2109). Among these countries adopted open-border policy for Syrian refugees, Turkey currently hosts approximately 3.7 million Syrian refugees. Lebanon and Jordan are other countries most affected by Syrian crisis, hosting the second and third highest share of Syrian refugees in the world, with approximately 924,000 and 657,000, respectively. Iraq and Egypt follow these three countries hosting with around 360,000 Syrian refugees as total. Figure 1 reveals that Turkey as a country adopted an open-border policy continuously for Syrian refugees is currently hosting two-thirds of the refugees from Syria. The increased attraction of Turkey appears to be related with its geographic proximity along borders with European Union for Syrian refugees who are willing to use Turkey as a gateway to European Union countries.

There are numerous studies on the size of Syrian refugees and their living conditions in hosting countries. However, the studies regarding with living conditions of refugees from Syria mainly focus on access to labour force, education and health services. The issues on child health and survival chances of refugee infants are remained as untouched issues by the studies on the Syrian refugees. Two newly collected microdata sets from 2018 Turkey Demographic and Health Survey (TDHS-2018) and 2017-18 Jordan Demographic and Health Survey (JDHS-2017/18) presents a unique opportunity to assess whether the survival chance of Syrian refugee infants differ from the native infants in Turkey and Jordan. The similarities on sampling and questionnaire designs and data structure of these two surveys allows using them in a comparative way. In this sense, the main objective of the study is to determine whether the survival chance of Syrian refugee infants differ from the native infants in Turkey and Jordan.

Figure 1. Changes the size of Syrian refugees in neighbour countries, 2011-2019
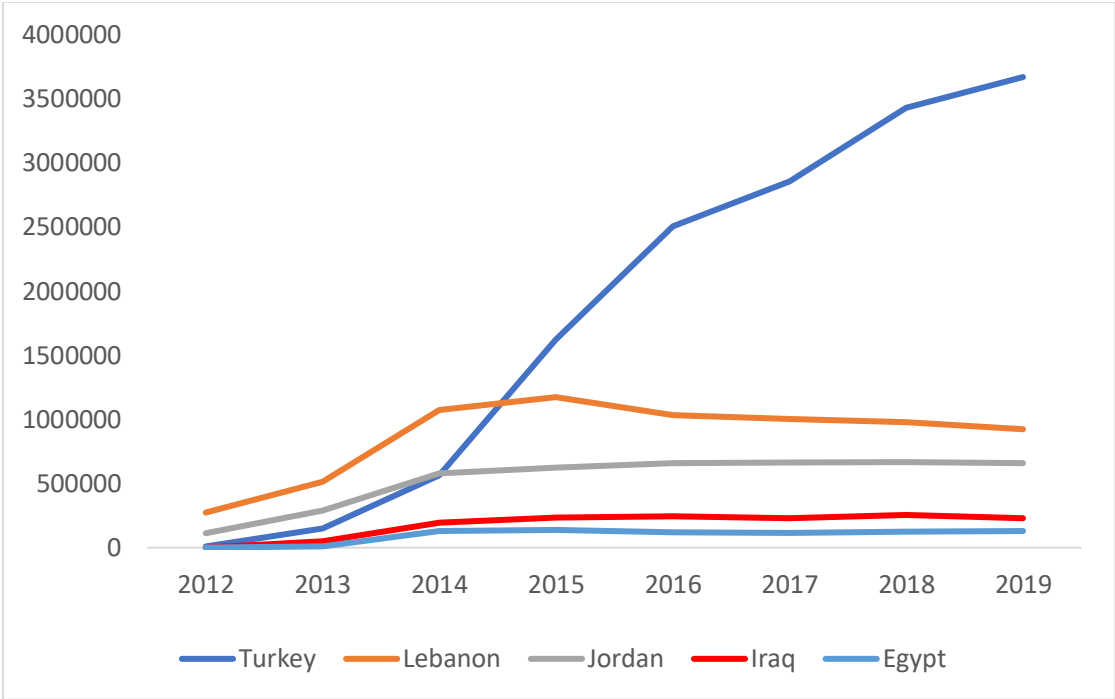
More than 4.4. million Syrian refugees have arrived at Turkey and Jordan since 2011. Since then, both governments have taken major steps to expand public services available to Syrian refugees through a series of reforms. In Turkey and Jordan, all registered refugees coming from Syria residing inside or outside the camps, have the right to access to primary and secondary health services, without payment of the cost in Turkey; with partial payment of the cost in Jordan. However, even with steps forward in terms of legislation and capacity, gaps remain between policy and practice. Syrian refugees are generally more vulnerable to diseases due to the environmental and psychological challenges posed by experiences of displacement. In some cases, their conditions are further aggravated by obstacles to access health services especially in Turkey, ranging from language issues to registration with government authorities (Samari, 2017).

Data and Methodology

The data are from TDHS-2018 and JDHS-2017/18 data sets collected through household and women questionnaires. Both surveys are nationally representative sample survey designed to provide information on levels and trends on fertility, infant and child mortality, family planning and maternal and child health. A weighted, multistage, stratified cluster sampling approach was used in the selection of the TDHS-2018 and JDHS-2017/18 samples. The similarity in both sampling and questionnaire designs make possible to use these two data sets in a comparative study. The Survey results are presented at the national level, and Syrian refugees in these countries. In TDHS-2018, interviews were completed with 11,056 households and with 7,346 women at reproductive ages (15-49) for the national sample. In this survey, additionally, interviews were completed with 1,826 households and with 2,216 women at reproductive ages (15-49) for the Syrian refugee sample. In Turkey, national sample and Syrian sample data sets were pooled, and then conducted the part of multivariate analyses on survival changes of infants. In JDHS-2017/18, in 18,802 households 14,689 women's interviews at reproductive age were completed. Of this sample size, approximately 9 percent that are the women interviewed from Syrian refugees.

The methodology used in the study to calculate the inequality scores and disadvantage score for Syrian refugees in Jordan and Turkey is as follows:

(1) All the indicators categorized under 4 dimensions are estimated based on native population and Syrian refugees from the data sets. In the selection process of the indicators, we considered the variables that found to be negative relationships with the child survival in different studies based on Mosley-Chen Framework (1984).

(2) Then we calculated the gross inequality scores (GIS). In calculation process of each of the GISs, we drove forward the disadvantaged positions of the Syrian refugees.

(3) In the process of the calculation of the net inequality scores (NIS), to obtain the net impact of the NIIs, we used following equation: NIS=1-GIS. The negative value of NIS was a signal for the disadvantaged position of Syrian refugees while the positive values that rarely observed may be accepted as the advantaged position of the Syrian refugees in the countries under examination here.

(4) Then we calculated dimension disadvantage scores (DDS) and total disadvantage score (TDS), respectively by summing the NII values of the dimensions and by summing the DDS, as seen in the following equations: DDS=∑ NIS and TDS=∑ DDS.

The dimensions and indicators are listed in Table 1 and Table 2, together with the calculated values of GISs, NIIs and TDSs for both countries.

In the multivariate analyses phase of the study, a series of logistic regression analyses were employed to determine the factors behind the survival chance of the infants. Multivariate regression models were conducted in four estimation stages in an additive way. Model 1 included just the variables listed under health care dimension. Then Model 2 covered variables in the Model 1 and variables listed under the nutritional status dimension. In Model 3, in addition to all the variables in Model 1 and 2, the variables of birth and birth interval dimension were entered the model. Finally, the last model included

the variables under the welfare status dimension were in the model together with the variables in Model 1, 2 and 3. This way of multivariate analyses makes possible to assess the contribution of each of the dimensions into the explained variance for the survival chance of the infants.

For multivariate analyses by logistic regression, the dependent variable was constructed based on the information whether the infants born in the last 5 years preceding the surveys survive until the first years of life. The binary variable for logistic regression analyses is as follows:

$$f_i = \begin{cases} 1, & \text{infant alive} \\ 0, & \text{infant not alive} \end{cases}$$

Gross inequality scores for all the indicators listed in Table 1 and Table 2 were used as the covariates in the study.

Table 1. Dimensions and variables used to produce inequality scores and disadvantage score for Syrian refugees in Jordan

	Dimensions and variables	Jordanian	Syrian	Gross inequality score (GIS)	Net inequality score (NIS)
A	**Health care**				
1	Percentage receiving ANC from a doctor	95,4	93,1	1,02	-0,02
2	Percentage receiving ANC 4 and more times	92,4	86,0	1,07	-0,07
3	Median months pregnant at first visit for ANC	1,9	2,2	1,16	-0,16
4	Percentage delivered in a health facility	99,1	92,1	1,08	-0,08
5	Percentage delivered by a doctor	90,1	82,0	1,10	-0,10
6	Percentage of live births delivered by caesarean section	26,6	22,7	1,17	0,17
7	Percentage of women with a PNC during the first 2 days after birth	84,7	75,8	1,12	-0,12
8	Percentage of women receiving first PNC from a doctor	75,0	65,7	1,14	-0,14
9	Percentage of births with a PNC during the first 2 days after birth	87,2	78,7	1,11	-0,11
10	Percentage of new-born receiving first PNC from a doctor	81,0	71,2	1,14	-0,14
11	All basic vaccinations	87,7	75,8	1,16	-0,16
B	**Nutritional status**				
12	Median duration (months) of exclusively breastfeeding	0,9	1,5	0,60	0,40
13	Minimum acceptable diet among all children age 6-23 months	23,8	14,6	1,63	-0,63
14	Percentage of new-born birth weight less than 2.5 kg	16,1	22,0	1,37	-0,37
C	**Birth and birth interval**				
15	Months since preceding birth < 18 months	14,8	19,5	1,32	-0,32
16	Median age at first birth	24,7	21,1	1,17	-0,17
17	Number of children ever born	3,8	5,0	1,32	-0,32
18	Birth registration	98,7	92,7	1,06	-0,06
D	**Household welfare**				
19	Percentage with one or both parent dead	93,1	81,2	1,15	-0,15
20	Percentage of household defined as poor/poorest	36,0	85,4	2,37	-1,37
21	Percentage of uneducated mothers	5,9	11,0	0,54	-0,46
	TOTAL DISADVANTAGED SCORE			**24,84**	**-4,37**

Table 2. Dimensions and variables used to produce inequality scores and disadvantage score for Syrian refugees in Turkey

	Dimensions and variables	Turkish	Syrian	Gross inequality score (GIS)	Net inequality score (NIS)
A	**Health care**				
1	Percentage receiving ANC from a doctor	93,6	89,4	1,05	-0,05
2	Percentage receiving ANC 4 and more times	89,7	63,7	1,41	-0,41
3	Median months pregnant at first visit for ANC	1,7	2,2	1,29	-0,29
4	Percentage delivered in a health facility	98,9	93,4	1,06	-0,06
5	Percentage delivered by a doctor	83,2	82,1	1,01	-0,01
6	Percentage of live births delivered by caesarean section	51,5	32,0	1,61	0,61
7	Percentage of women with a PNC during the first 2 days after birth	78,7	86,3	0,91	0,09
8	Percentage of women receiving first PNC from a doctor	58,8	65,8	0,89	0,11
9	Percentage of births with a PNC during the first 2 days after birth	68,0	69,2	0,98	0,02
10	Percentage of new-born receiving first PNC from a doctor	61,6	63,8	0,97	0,03
11	All basic vaccinations	71,8	63,6	1,13	-0,13
B	**Nutritional status**				
12	Median duration (months) of exclusively breastfeeding	3,5	4,5	0,78	0,22
13	Minimum acceptable diet among all children age 6-23 months	25,0	16,5	1,52	-0,52
14	Percentage of new-born birth weight less than 2.5 kg	11,9	22,0	1,85	-0,85
C	**Birth and birth interval**				
15	Months since preceding birth < 18 months	9,8	20,2	2,06	-1,06
16	Median age at first birth	23,3	21,4	1,09	-0,09
17	Number of children ever born	2,7	5,5	2,04	-1,04
18	Birth registration	98,4	99,7	0,99	0,01
D	**Household welfare**				
19	Children living with both parents	92,0	85,3	1,08	-0,08
20	Percentage of household defined as poor/poorest	13,4	44,2	3,30	-2,30
21	Percentage of uneducated mothers	18,0	25,2	0,71	-0,29
	TOTAL DISADVANTAGED SCORE			**27,72**	**-6,07**

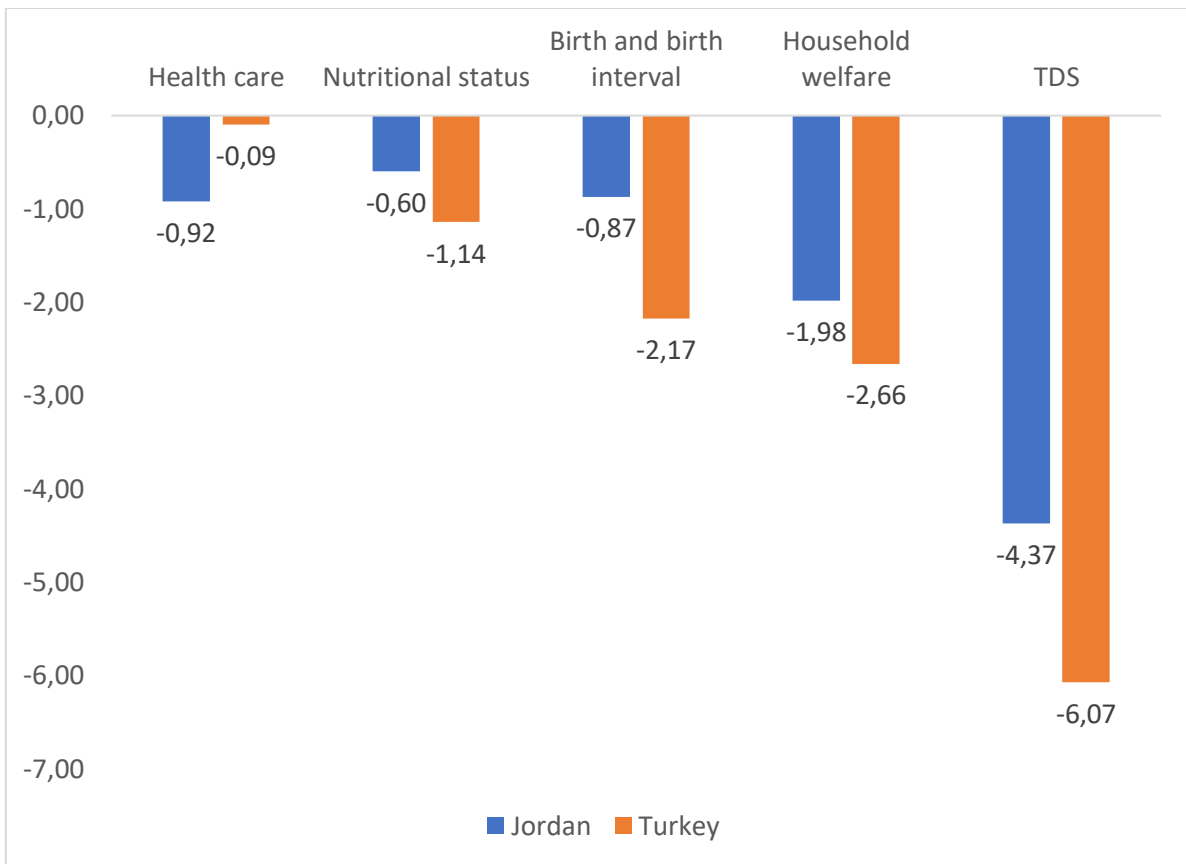Figure 1. DDSs and TDSs in Jordan and Turkey

Figure 2. Percentage contribution of dimensions to the inequality between natives and Syrians in Turkey and Jordan
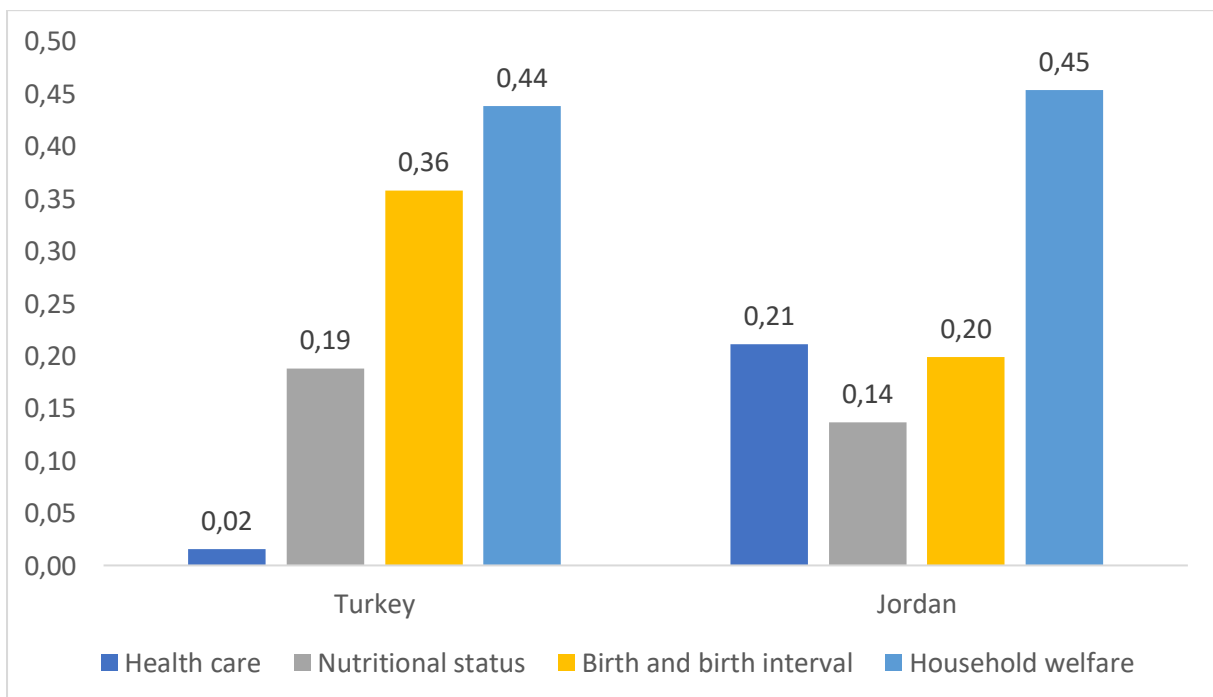
Figure 3. Infant and under-5 mortality rates calculated for the last 5 years preceding the surveys in Turkey and Jordan
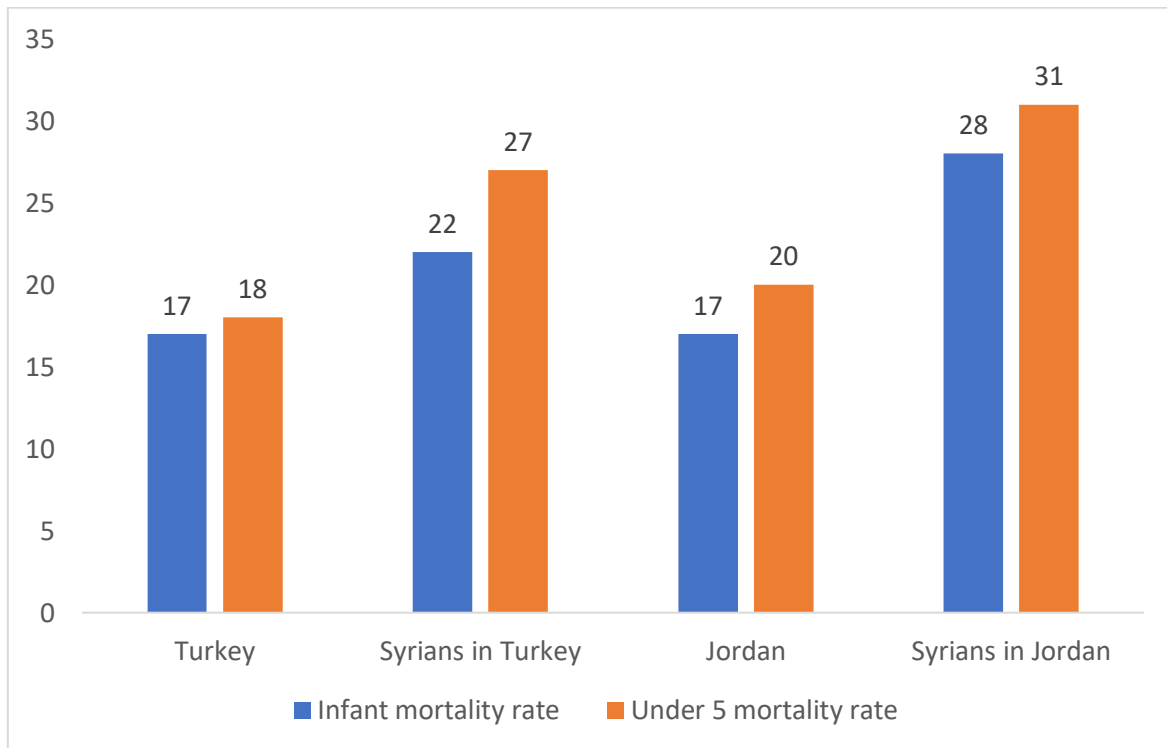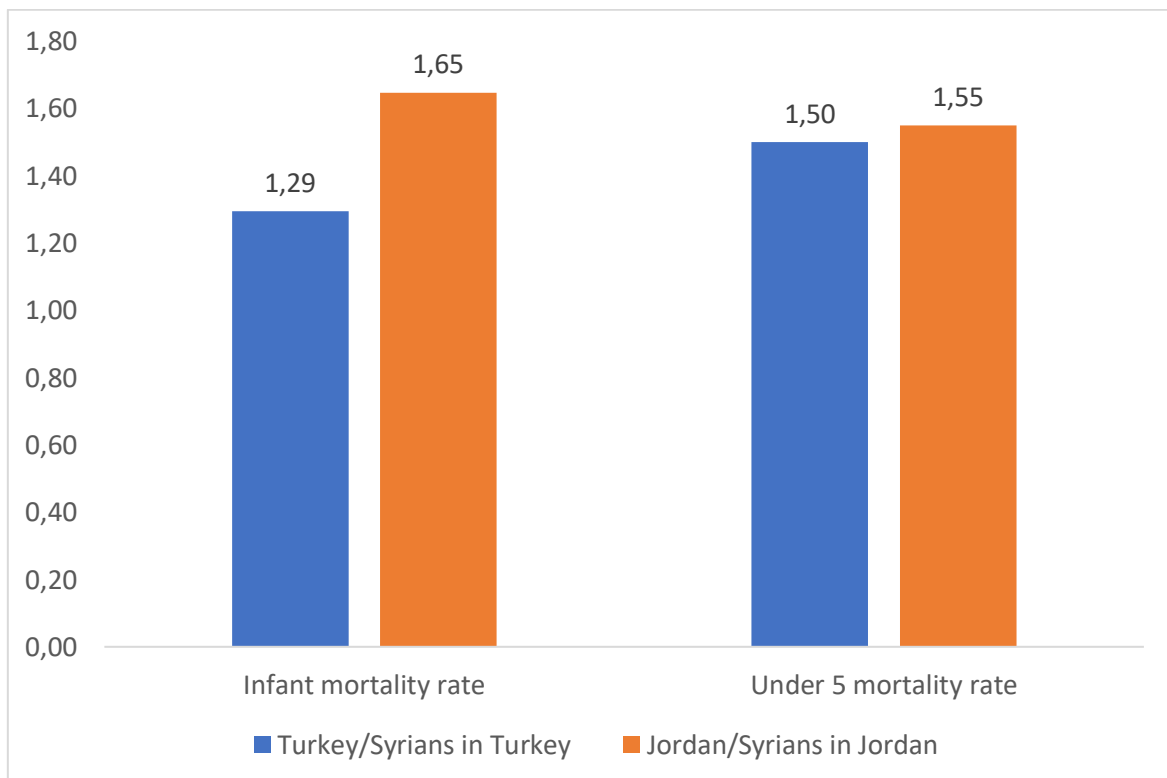

Figure 4. Relative risks of infant and under-5 mortality rates among Syrians refugees in Turkey and Jordan

Findings from descriptive analysis

As presented by Table 1, Table 2 and Figure 1, Syrians refugees are in a deprived position in almost all indicators and dimensions. The TDS was found to be lower among Syrian refugees in Jordan as -4.37 compared with the Syrian refugees in Turkey as -6.07. This implies that Syrian refugees living in Turkey appears to be much more deprived in all dimensions as opposed to Syrian refugees living in Jordan.

In regards with DDSs, the variables in the welfare status dimension has the highest contribution to the deprivation of Syrian refugees in both countries. The second highest contribution to the disadvantaged position of refugees is from the variables in the birth and birth interval dimension in Turkey; while it is from the variables in the health care dimension in Jordan. The third highest contribution is from variables listed under the nutritional status dimension in Turkey as opposed to the variables in the birth and birth interval dimension in Jordan. In Jordan, the lowest contribution to the deprived status of the Syrian refugees is from the variables in the nutritional status dimension, however it is the health care dimension in Turkey, 13 percent in Jordan and 2 percent in Turkey, respectively.

Early age mortality rates are in a declining trend in both Turkey and Jordan. Demographic surveys put forward that infant mortality rate in Turkey has declined from 53 per 1,000 live births in 1993 to 17 per 1,000 live births in 1993. In a similar way, the infant mortality rate declined from 34 per 1,000 live births in 1993 to 17 per 1,000 live births in 2018 in Jordan. This indicates that nearly 1 in 60 infants in Turkey and Jordan die before reaching their first birthday. On the other hand, the infant mortality rates among infants to Syrian refugees are 1.29 and 1,65 times higher in Turkey and Jordan, respectively. This implies that Syrian infants born in Turkey and Jordan are significantly lower chance of survival compared with native infants. This indicates that nearly 1 in 45 Syrian infants in Turkey and 1 in 35 Syrian infants in Jordan die before reaching their first birthday.

Findings from multivariate analysis

The final logistic regression models constructed in an additive way to explain whether the survival chance of the Syrian infants differs from the native infants in Turkey and Jordan were explained 39 and 35 percent of the variance, respectively. In line with the results from descriptive analyses, the results of the multivariate analyses also confirmed that the contribution of variables in household welfare dimension in explaining the deprived position of Syrian infants on survival chance was found to be highest in both countries. Then the contributions of variables in health care dimension, variables in birth and birth interval dimension and variables in the nutritional status dimension in explaining the disadvantaged position of Syrian infants' survival chance stood in line in Jordan. However, the contribution of variables in health care dimension found to be quite limited (2 percent) in explaining the survival chance of Syrian infants in Turkey (Table 3).

Furthermore, under the control of all covariates, the odds of the final logistic regression model put forward that the survival chance of Syrian infants were 8 percent and 19 percent lower than native infants in Turkey and Jordan, respectively (Table 3).

Table 3. Contribution of dimensions in explained variances of survival status of infants and their percentage contributions by the models, and odds ratios for survival chances

Dimensions	Turkey	Jordan
Additive R^2		
Model 1 (Health care)	2,0	10,5
Model 2 (Health care + Nutritional status)	7,4	15,1
Model 3 (Health care + Nutritional status + Birth and birth interval)	17,6	22,1
Model 4 (Health care + Nutritional status + birth and birth interval + welfare status)	39,0	35,0
Percentage contribution of the dimensions		
Model 1 (Health care)	5	30
Model 2 (Health care + Nutritional status)	14	12
Model 3 (Health care + Nutritional status + Birth and birth interval)	26	20
Model 4 (Health care + Nutritional status + birth and birth interval + welfare status)	55	38
Total	100.0	100.0
Odds ratios in final model		
Native infants	1.000	1.000
Syrian infants	0.92**	0.81*

*p<0.01 **P<0.05

Concluding remarks

(1) Both descriptive and multivariate analyses revealed that the risk of death among Syrian refugee infants are significantly higher as opposed to the risk of death among native infants in both countries.

(2) The survival chance of the refugee infants is remarkably higher in Turkey than those living in Jordan, although TDS was higher in Turkey. This appears to be related with higher level of access to health services among Syrian refugees in Turkey, mainly because primary and secondary health services can easily be reached without any user fee by the Syrian refugees in Turkey.

(3) The multivariate models showed that highest contribution to the risk of death was from variables in the household welfare in both countries. For this, both countries should designate new policies on alleviating the poverty among Syrian refugees and improving the access to mother and child health services, together with strategies for declining the fertility level and increasing the birth intervals among Syrian refugees.

(4) Before the war, Syria had a well-functioning health system with relatively good health indicators. Infant mortality rate, for example, just before the conflict was at the level of 14 per 1,000 live births in the period of 2008-2011 (World, Bank, 2019). However, as in many conflict and war situations, the experiences of displacement have proven to be detrimental for the health of infants, and as a result the infant mortality rates have increased to 22 and 28 per 1,000 live births among Syrian infants living in Turkey and Jordan, respectively.

(5) These findings implied that the migration policies should be integrated with the health care and household welfare policies to minimize the differences between the survival chances of refugee infants and native infants in Turkey and Jordan.

(6) Moreover, considering the continuity the conflict situation in Syria, both countries should take necessary measures on integration of the refugees into the systems of education, labour market and health.

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