# Health status of children under five years old in Syrian refugee camps in Erbil City / Kurdistan Region /Iraq

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## Abstract

**Background And Objectives:** Children have rights to live in a best health status. The war in Syria has caused many health problems in the 21st century. Depending on United Nations Refugee agency data, about 2.5 million people have entered other countries as Turkey, Egypt, Lebanon, Jordan and Iraq. The objective of this study was to assess the health status of children under five years old in Syrian camps in Erbil City.

**Methods:** Cross-sectional, descriptive design has been conducted to assess health status of children under five years in Syrian camps in Erbil city. The data were collected from the period of 15/5/2016 to 15/8/2016. So that the 363 children were chosen randomly among children under five years old. The standard questionnaire was designed and used for data collection in Qoshtapa and Darashakran camps in Erbil city. The questionnaire contained six parts. Part one related to demographic characteristics, and the other five parts related to assessment of different health problems of children in the camps. The permission was taken from the scientific committee of the college of nursing, parents of children, general Directorate of Erbil Asaish, and the management of the camps. .

**RESULTS:** The study revealed the following health conditions among children as: Dirty skin (44.9%), redness of the eye (36.6%), dandruff (44.4%), runny nose (56.5%), vaccinations coverage (99.7%), anemia (27%), diabetes (0%), urinary tract infections (UTI) (17.6%), and lesions of eyelids (1.4%). The study revealed that there was no significant association between respiratory signs, symptoms and age, neurological signs and symptoms and vaccination coverage with age.

**CONCLUSION:** The study revealed that there were many health problems among children as (dirty skin, dandruff, eye problems, running nose, anemia, and UTI and there was no association between respiratory symptoms, neurological symptoms, vaccination coverage and their age groups.

**KEY WORDS:** Health status, Refugees, Camps, health problems. Health status

**Introduction:**

The war in Syria has caused many health problems in the 21st century. Depending on United Nations Refugee Agency data, about 2.5 million people have entered neighboring countries, and these are Turkey, Egypt, Lebanon, Jordan and Iraq. The United Nations Refugee Agency has recorded about 9,503 Syrians at the end of July 2012, who have left Syria for political, economic and social causes. In February 2013, the number had increased over 10-folds to 102,447 [1]. By February 2014, the figure stood at 225,548 [2] and continues to increase. As of 5th of March 2014, 226,934 people had been reported as refugees in Iraq. The majority of them (around 97%) were recorded in the Kurdistan Region in Northern Iraq, in and around the cities of Duhok (109,979 refugees), Erbil (84,881 refugees) and Suleimaniyah (25,134) [3]. Around 60% of Syrian refugees are hosted within communities across Kurdistan and the remaining 40% live in refugee camps (UNHCR, 2014a). When Syrian refugees first began arriving in 2012, most were registered in the Directorate of Duhok, near the Peshkhabour near Syria. This cause to the open Domiz camp on 01 April 2012. It is considered as the largest camp with a population of 58,500, as of 28 February 2014. In 2013, as the number of refugees has increased, other permanent camps were opened in the Directorate of Erbil: Kawergosk (15 August 2013), Qushtapa (19 August 2013), Basirma (26 August 2013) and Darashakran (29 Sept 2013), with a combined population of 28,208, as of 28th February 2014 [4] More than 5.5 million Syrian children see their future is limited by war [5]. Children have rights to live healthy. [6] The disabled Children have right to special care and best education. The expanded program of child care may help to decrease child mortality and morbidity especially decreasing health problems like vomiting, diarrhea and acute respiratory tract infections (ARI) which need urgent intervention and medical attention. [7] If there is no best health conditions of living for children so many health problems may occur among them so about 70% of child deaths in Cambodia are related to diarrhea, pneumonia and neonatal conditions. Depending on World Health organization (1948), healthy growth and development of the children is very important [8]. According to WHO malnutrition was the direct cause of deaths among under five years children so that nearly 49% of them in developing countries [9].

**Methods:**

A cross-sectional descriptive design was conducted to assess the health status of children under 5 years in Syrian camps in Erbil city. The study was conducted in Qoshtapa and Darashakran camps in Erbil. The population of Qoshtapa camp was 6,710 refugees, and it is located in Qushtapa, Erbil. The original areas of the refugees were from Qamishly, Diralok and Hasaka of Syria. It was opened on 19.8.2013. Camp population of Darashakran was 10,082 refugees. It is located in Khabat, Erbil. Areas of origin of the refugees were mainly Qamishly and Aleppo in Syria. It was opened on 29.9.2013. Permissions had been taken from the ethics committee of the nursing college, parents of children who participated in the study, General Directorate of Erbil Asaish, and General Directorate of health during April, 2016. The sample size of children was 363 chosen randomly out of 6732 children under five years old. Children under 5 years old, of both genders were included in the study but, parents who refused to participate and some children who has chronic illness like congenital malformation had been excluded from the study. A standard questionnaire was developed and prepared after reviewing by 25 experts in nursing and medical fields containing seven parts as follows: part one Socio demographic data: This part is concerned with socio demographic characteristics of children which include items such as age and sex. Part two: personal hygiene: This part is concerned with skin hygiene, scalp dandruff, hair cleanliness. [12]. Part three: anthropometric measurements this part concerned with measurement of body height, weight to find out the cases of underweight, stunting, wasting, by using WHO schedule growth standard [13] Part four: Physical assessment this part is concerned with physical assessment for eye redness, eye discharge, [14] common cold, allergic rhinitis, and pulse rate regularity [15]. Part Five: laboratory investigations for anemia. [16] Part Six: Disability types and causes of disability. This part was concerned with mobility problems, psychological difficulties, difficulty with self-care and hearing difficulty 17. Part seven: Vaccinations coverage, included checking the vaccination card of the children which consist of full vaccination, partial vaccination and non-vaccinated. Data were prepared, organized and entered into the computer. The statistical package for social sciences (SPSS, version 19) for windows was used to analyze the data categorical variable was described through frequency and percentages. [18].

**Results:**

Table 1 shows that the majority of the study sample were males which represent 59.8%. While the female group represent 40.2%, and majority of the study sample was Kurdish which represent 99.4%. While the Arabic Ethnic group represent 0.6%.

**Table 1: Distributions of the sample by their age in month, gender, and nationality**

| | Frequency | Percentage (%) |
|---|---|---|
| **Age in months** | | |
| < 6 | 81 | (22.3) |
| 6-12 | 77 | (21.2) |
| 13-36 | 112 | (30.9) |
| 37-60 | 93 | (25.6) |
| **Gender** | | |
| Male | 217 | (59.8) |
| Female | 146 | (40.2) |
| **Nationality** | | |
| Kurdish | 361 | (99.4) |
| Arabic | 2 | ( 0.6 ) |
| **Total** | **363** | **100** |

Concerning educational level of the father, table 2 shows that the highest proportion (40.2%) of fathers were illiterate.

**Table 2: Educational level of fathers.**

| Level of education of father | Frequency | Percentage (%) |
|---|---|---|
| Illiterate | 146 | ( 40.2 ) |
| Read and write | 17 | ( 4.7 ) |
| Primary | 101 | (27.8) |
| Secondary | 76 | (20.9) |
| Institute | 10 | (2.8) |
| College | 13 | (3.6) |
| **Total** | **363** | **100** |

Table 3 shows that 33.6% of the mothers were illiterate, and 25.9% were graduates of secondary schools.

**Table 3: Distributions of children by the mothers' educational level.**

| Level of education of Mother | Frequency | Percentage (%) |
|---|---|---|
| Illiterate | 122 | (33.6) |
| Read and write | 33 | (9.1) |
| Primary | 83 | (22.9) |
| Secondary | 94 | (25.9) |
| Institute | 11 | (3 ) |
| College | 20 | (5.5) |
| **Total** | **363** | **100** |

Table 4 shows that the majority (55.1%) of the study sample had clean skin, and 44.9% of children had dirty skin.

**Table 4: Distributions of children by skin hygiene.**

| Skin hygiene | Frequency | Percentage (%) |
|---|---|---|
| Clean | 200 | 55.1 |
| Dirty | 163 | 44.9 |
| **Total** | **363** | **100** |

Table 5 shows that 55.6% of the study sample had no dandruff, and 44.4% had dandruff.

**Table 5: Distributions of children by scalp dandruff**

| Dandruff | Frequency | Percentage (%) |
|---|---|---|
| Yes | 161 | (44.4) |
| No | 202 | (55.6) |
| **Total** | **363** | **100** |

Table 6 shows that the majority of study sample were with clean and cut nails, which represent 55.1%.

**Table 6: Distributions of children by Nails cleaning and cutting.**

| Nails clean and cut | Frequency | Percentage (%) |
|---|---|---|
| Yes | 200 | (55.1) |
| No | 163 | (44.9) |
| **Total** | **363** | **100** |

Table 7 shows that the majority of the study sample were with running nose which represent 56.5%.

**Table 7: Prevalence of runny nose among the studied sample.**

| Running nose | Frequency | Percentage (%) |
|---|---|---|
| Yes | 205 | (56.5) |
| No | 158 | (43.5) |
| **Total** | **363** | **100** |

Table 8 shows the majority of the study sample were wearing hygienic clothes which represents 68%.

**Table 8: Hygienic clothes among the study sample.**

| Clothes hygiene | Frequency | Percentage % |
|---|---|---|
| Yes | 247 | (68) |
| No | 116 | (32) |
| **Total** | **363** | **100** |

Table 9 shows that around half (47.4%) of the children take a daily bath, and 46.8% take a bath twice weekly.

**Table 9: Bathing frequency among the studied sample.**

| Bathing frequency | Frequency | Percentage (%) |
|---|---|---|
| Daily | 172 | (47.4) |
| Once a week | 21 | (5.8) |
| Twice a week | 170 | (46.8) |
| Twice or more /Monthly | 0 | (0 ) |
| **Total** | **363** | **100** |

Table 10 shows that more than one third (36.6%) of the children had redness of the eye, and 33.3% had eye discharge.

**Table 10: Eye problems among the studied sample.**

| Eye condition | Frequency | Percentage (%) |
|---|---|---|
| Eye redness | 133 | (36.6) |
| Eye discharge | 121 | (33.3) |
| lesion on eye lids | 5 | (1.4) |
| normal | 104 | (28.7) |
| Squint | 0 | ( 0 ) |
| **Total** | **363** | **100** |

Table 11 shows that 27% of children had anemia, and 17.6% had Urinary Tract Infection (UTI).

**Table 11: Laboratory results of the studied sample.**

| Laboratory investigation results | Frequency | Percentage (%) |
|---|---|---|
| Anemia | 98 | (27) |
| Urinary tract infection (UTI) | 64 | (17.6) |
| Normal | 201 | (55.4) |
| Diabetes mellitus | 0 | (0 ) |
| **Total** | **363** | **100** |

Table 12 shows that almost all (99.7%) of the children were fully vaccinated.

**Table 12: Vaccination coverage among the studied sample.**

| Vaccinations coverage | F | (%) |
|---|---|---|
| Full | 362 | (99.7) |
| Partial | 1 | (0.3 ) |
| Not vaccinated | 0 | (0.0) |
| **Total** | **363** | **100** |

Findings of the study showed that there was no significant association between respiratory system signs and symptoms among children and their age group such as cough (P- value =0.485), sputum (P-value=0.379), wheeze (P-value=0.185), hemoptysis (P- value =0.212), shortness of breathing (P- value =0.860), and cyanosis (P- value =0.212).This finding shown in table 13.

**Table 13: Association between respiratory system signs and symptoms among children and their age group.**

| **Age group** | | **0-5** | | **6-12** | | **13-36** | | **37-60** | | **P-value** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Respiratory** | | | | | | | | | | **Fisher's** |
| **System** | | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **Exact Test** |
| Cough | No | 40 | 11 | 46 | 12.7 | 55 | 15.2 | 49 | 13.5 | **0.485** |
| | Yes | 41 | 11.3 | 31 | 8.5 | 57 | 15.7 | 44 | 12.1 | |
| Sputum | No | 51 | 14.0 | 52 | 14.3 | 63 | 17.4 | 61 | 16.8 | **0.379** |
| | Yes | 30 | 8.3 | 25 | 6.9 | 49 | 13.5 | 32 | 8.8 | |
| Wheeze | No | 64 | 17.6 | 64 | 17.6 | 79 | 21.8 | 74 | 20.4 | **0.185** |
| | Yes | 17 | 4.7 | 13 | 3.6 | 33 | 9.1 | 19 | 5.2 | |
| Hemoptysis | No | 81 | 22.3 | 77 | 21.2 | 110 | 30.3 | 93 | 25.6 | **0.212** |
| | Yes | 0 | 0 | 0 | 0 | 2 | 0.6 | 0 | 0 | |
| Shortness of | No | 80 | 22.0 | 75 | 20.7 | 109 | 30 | 90 | 24.8 | **0.860** |
| breathing | Yes | 1 | 0.3 | 2 | 0.6 | 3 | 0.8 | 3 | 0.8 | |
| Cyanosis | No | 81 | 22.3 | 77 | 21.2 | 110 | 30.3 | 93 | 25.6 | **0.212** |
| | Yes | 0 | 0 | 0 | 0 | 2 | 0.6 | 0 | 0 | |

Findings of the study showed that there was no significant association between neurological system signs and symptoms among children and their age group such as seizures (P- value =0.422), and paralysis (P-value=603). This finding shown in
Table 14.

**Table 14:** Association between neurological system signs and symptoms among children and their age group

| **Age group** | | **0-5** | | **6-12** | | **13-36** | | **37-60** | | **P-value** |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | **Fisher's** |
| **Neurological** | | | | | | | | | | **Exact Test** |
| **System** | | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | |
| Seizures | No | 80 | 22 | 77 | 21.2 | 110 | 30.3 | 90 | 24.8 | **0.422** |
| | Yes | 1 | 0.3 | 0 | 0 | 2 | 0.6 | 3 | 0.8 | **NS** |
| Paralysis | No | 80 | 22 | 77 | 21.2 | 111 | 30.6 | 91 | 25.1 | **0.603** |
| | Yes | 1 | 0.3 | 0 | 0 | 1 | 0.3 | 2 | 0.6 | **NS** |

Findings of the study showed that there was no significant association between vaccination coverage and age groups (P- value =0.322) this finding shown in table 15.

**Table 15:** Association between vaccination coverage of children and their age group

| **Age group** | **0-5** | | **6-12** | | **13-36** | | **37-60** | | **P-value** |
|---|---|---|---|---|---|---|---|---|---|
| **Vaccinations** | | | | | | | | | **Fisher's** |
| **Coverage** | **F** | **%** | **F** | **%** | **F** | **%** | **F** | **%** | **Exact Test** |
| Full | 80 | 22 | 77 | 21.2 | 112 | 30.9 | 93 | 25.6 | |
| Partial | 1 | 0.3 | 0 | 0 | 0 | 0 | 0 | 0 | **0.322** |
| Not vaccinated | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

**Discussion:**

The highest proportion of children were in the age group 13-36 months which represented 30.9%. Majority of the study sample were males which represent 59.8%. The highest ethnic group of children were Kurdish which represented (99.4%).This findings agree with report of Iraq Inter Agency Update Syrian Refugees Sept. 2015 that says that most of Syrian refugee in Kurdistan was Kurdish people [19] .Concerning educational level of father reflected that the majority of them were illiterate which represented 40.2%. Syrian people is poor people, most of them did not get the chance of education in Syria because of poverty and cultural values. Disagree with research which was done in Oru-Ijebu, Southwest Nigeria in 2012 which showed that majority of refugees were 52.3% secondary education [20] . Majority of mother's education level was illiterate 33.6% while most of mother's occupation were housewives which represent 78.2%. This study disagrees with cross sectional study was done by Nguyen Ngoc Hien, Sin Kam in Nghean, Vietnam which showed that the majority of child's mother (67.7%) was skilled manual work farmer. [21] The most of sample was represented clean skin that represented 55.1% and the 44.9% of cases were dirty skin . This result agreed with cross sectional study done by Amoran in sagamu in secondary school in Nigeria which showed the majority of cases were clean which represented 52% and 48% were dirty skin [22] .The majority of samples didn't have dandruff which represented 44.4%. This finding disagrees with a cross-sectional survey which was done by Shukla at Selected Orphanage in Salem, Chennai - India which state that majority of samples had dandruff which represented 78% [23] . [24] The majority of samples were with runny nose which represented 56.5%. Agree with study that was done by Yousif and Khaleq [25]. In Acute respiratory tract infection (ARI) are one of the most common causes of health problems with high morbidity and mortality among children under five years old. [25] In the current study the majority number of children presented with daily bathing which represented 47.4%. Agree with study done in Doiwala Block, Dehradun in India by Rakesh kakkar *et al*, (2012), who

found the majority of children were taking daily bathing which represented 78.4%. [26], [27]. More than one third of the sample had eye redness. Agree with study done by Lafta and Shamssain in Baghdad and Rumadi, Iraq.. A study done in Ethiopia showed that 3.5% of the sample had eye redness [28] .The children with anemia were represented 27%. Agree with a cross sectional study was done in Gaza Strip- Palestinian camps by El Kishaw *et al* who find the representation of children with anemia was 59.7% [29] . While the number of children with Urinary tract infection (UTI) were represented 17.6 %. Agree with study was done in Erbil City done by Alsamarai *et al* who found the representation in his study of urinary tract infection was 22% [30] . And 0% of children were represented with diabetes mellitus. Our study shows the children with diabetes multiuse were 0%. Agree with Iraq family health survey report in 2007 who found the presentation of children in Iraq with diabetes multiuse was 0.4% [31].

**Conclusion:**

The result of the study revealed that the percentage of health problems was as followings: Dirty skin (44.9%), scalp dandruff (44,4%), eye redness and discharge (36,6%), anemia (27%), urinary tract infection (17,6%), vaccinations coverage (99,7%). and runny nose was 56.5% . The study revealed that there was no significant association between respiratory signs and symptoms with their age, no significant association between neurological symptoms and age while there was no significant association between vaccination coverage and their age. The study recommended to decision makers of the Ministry of Health in Kurdistan Region/Iraq to develop effective disease prevention, health promotion, provide good health services and intervention programs for implementation in all camps in Erbil city.

**Conflict of Interest:**

The author reports no conflict of interest.

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