### Article details: 2016-0170

<table>
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<th>Title</th>
<th>Health needs and service use of newly arrived Syrian refugees in Toronto: A cross-sectional study</th>
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<tr>
<td>Authors</td>
<td>Anna Oda RN MN, Andrew Tuck MA, Branka Agic PhD, Michaela Hynie PhD, Brenda Roche PhD, Kwame McKenzie MD MRCPsych (UK)</td>
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<tr>
<td>Reviewer 1</td>
<td>Dr. Susan Kuhn</td>
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<tr>
<td>Institution</td>
<td>Associate Professor, Department of Pediatrics, University of Calgary</td>
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</table>

#### General comments (author response in bold)

This is a timely evaluation of the health perceptions and needs of our recent refugee population.

I have only a few Minor questions and comments as follows:

1. In the Methods section (P8 line 36), it is noted that the interviews were done in Arabic. However in Table 1, it appears that only 60% of the study population indicated this as their preferred language. Did this result in any barriers as far as the interviews were concerned that may have impacted the results?

**Response:** One of participants’ inclusion criteria was the ability to speak Arabic or English. All participants in this study were fluent in Arabic which we do not believe creates any concerns. We have noted in our limitations though that restricting participation to only individuals fluent in Arabic or English may reduce participation from some Syrian refugees.

2. In Table 1, (p2 line 21-25), language preferences were not broken down by refugee category. Armenian was the second most common after Arabic. The majority of PSRs were sponsored by Armenian churches. Was there a clustering of Armenian-speakers in the latter group, and would this explain any of the differences seen from the GARs?

**Response:** The reviewer is correct it is possible that some of the differences between GARS and PSRs could have been because of the number of Armenians. However, we are now not presenting differences between GARs and PSRs in the paper.

3. Also in Table 1, consider adding the measure of time eg months to the Residency in Canada line, for clarity. (P2 line 13)

**Response:** In table 1, we added the measure of time to the Residency in Canada. Table 1 text now reads: Residency in Canada in average number of months.

4. Education < high school is equated with ‘low literacy’ in the results (p10 line 40). Since that could be a broad range of years of education, is that an appropriate conclusion?

**Response:** We incorrectly equated education < secondary school with low literacy levels when we meant to discuss low education. We have corrected this so that the text now reads: Low education levels were noted in the sample with more than a half of the total sample (54.3%) reporting less than a secondary school education.

5. For those who are not familiar with the differences in process/supports between the 2 groups of refugees, it may be useful to highlight these in the discussion of possible reasons for differences between the groups (p11) eg % with FPs. How might these supports be changed to improve experiences for future refugee groups?

**Response:** We are no longer presenting differences between PSRs and GARS, as such; we do not address this in the manuscript.

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#### Reviewer 2

| Dr. Edward Ng |
| Statistics Canada |

#### General comments (author response in bold)

This is a timely article that addresses an important topic in the area of immigrant and refugee health in Canada. With the arrival of Syrian refugees, we need information to understand their settlement outcome to help in providing services. This article attempts to address this need, and the authors are to be commended for a job well-done, given the urgency of the situation.

That said, I do have some substantial comments as follows:

1. As this study is based on a convenient sample recruited through distribution of flyers in hotels, and through direct referrals and community communication etc (page 8, lines 23-28), we do not expect this sample to be representative of all Syrian refugees arriving in Toronto. While the bias introduced by this data collection method was highlighted in the limitation section (see page 11 lines 46-47), it is still good to compare some of the descriptive statistics with the official statistics from Immigration, Refugees and Citizenship Canada for Ontario, or for Toronto, if available. A search on the internet did provide this reviewer with some relevant statistics for comparison, for example. Such comparison will provide an idea to the reader the extent of representativeness or non-representativeness this sample. Relevant data showed that there are more Syrian refugees under the Government Assisted Program (GARs) compared to Privately Sponsored (PSRs). This has implications on how to use the results of this timely study.

**Response:** Provided some comparison to the official statistics from Immigration, Refugees and Citizenship Canada (IRCC) for Ontario on Syrian refugees in our Interpretation. The text we added reads: Finally, our sample description reflects the realities of the newly arrived Syrian refugees in Ontario province and the Census Metropolitan Areas (CMA) of Toronto. According to the official Syrian refugees’ statistical data from Immigration, Refugees and Citizenship Canada (IRCC), more GARs than PSRs (51.5% of GARs compared to 35.9% of PSRs) have been resettled in Ontario; however, these numbers are different when we look at the CMA of Toronto (34.2% of GARs compared to 56.3% of PSRs). In addition, our data on education is in line with the IRCC data where almost 81% of Syrian refugee arrivals reported 12 years of formal education or less, compared to our findings of 75.3%.

Although for the purpose of our research we only asked about the preferred language when speaking to healthcare providers and not the mother tongue language, our results on the significant percentage of Syrian refugees preferring to speak in a language other than Arabic is consistent with the IRCC provincial data, which estimated that over 10% of all Ontario arrivals’ mother tongue language was not Arabic.24 This is an important finding with health service use implications suggesting that Syrian refugee minorities such as Armenians and Kurds resettled in Toronto often prefer to speak their mother tongue language.

2. In the results section, it is stated that, using the RAND-36 tool, this sample of Syrian refugees had better perceived physical and mental health than a standardized US population (see Page 9 lines 52-53). It is not clear the logic behind this statement, especially for readers who are not well-versed with the use of RAND-36. Clarification is needed. Also, as this article is about newly arriving refugees in Canada, can you say anything about how this sample measured against the Canadian population (not the US population), in terms of RAND-36?
The RAND is standardized against the US population. Unfortunately the data on the Canadian population is not available. We have added some clarification on this in the text. We now state in the analysis section that “The RAND is standardized against the USA population and comparisons between our sample and US RAND scores are presented; we did not have available data on the Canadian population.”

3. The interpretation section states that the participants of this study reported better physical and mental health than a general population (see page 10, lines 36-37). Which general population do the authors mean? Is this the US population, or the Canadian population? As well, as the authors deliberately used the healthcare usage and unmet needs modules from the Canadian Community Survey (see page 8, lines 55-57) in the interview, it would be great to compare the results in this paper with those from recent CCHS results to make the discussion more concrete. How do this Syrian refugee sample measure against the Canadian population, as seen from the CCHS? Comparisons can be on general self-perceived health and mental health, as well as on unmet needs etc.

Response: We provided some comparison to the general Canadian population in our interpretation. The text now reads: Our sample of Syrian refugees were more likely not to have access to a family doctor, relative to the Canadian population (25% versus 14.9%). The relatively high proportion of our sample not having a family doctor is likely related to the circumstances around time of arrival, and that a proportion of our sample was still in the hotel at time of interview. Our sample of refugees reported much higher unmet need for care than the general Canadian population, of which only 11.2 percent report not receiving health when they felt they needed it. Our findings on the reasons for unmet care are also similar to the reasons reported in the national data including long wait times, unavailability of services at time required, and costs.

Minor comments:
1. As an important focus of the article is on health needs and services by types of Syrian refugees, it would be great if the authors can explain in more details the various types and their criteria to enable readers to appreciate their differences in relationship to health needs and healthcare use.

Response: We are no longer comparing GAR and PSRs.

2. The abstract made the point that local response could explain the refugees’ high level of good health (page 7 lines 23-24). The interpretation section cited an article on social capital and health, and pointed to the initial settlement support, private sponsorship and the eligibility for health care under the Interim Federal Health Program (page 10 lines 42-48). However, there are other factors that may help explain their self-reported good health. I would tune down this enthusiastic statement.

Response: We modified this sentence in the abstract and it now reads: Many factors could explain their high self-perceived physical and mental health during the first year of resettlement including the initial settlement support and the eligibility for health care under the Interim Federal Health Program.

3. Page 7, lines 39-40, a previous study based on Longitudinal Survey of Immigrants (Ng et al, 2011) to Canada showed also that refugees were more likely than other recent immigrants to move away from good health.

Ng E, Pottie K, Spitzer D. Limited Official Language proficiency and decline in health status, a dynamic view from the Longitudinal Survey of Immigrants in Canada. Health Reports. (Statistics Canada, Catalogue 82-003) 2011; 22(4):1-10.

Response: Thank you for your suggestion. The RAND is standardized against the US population. Unfortunately the data on the Canadian population is not available. We have added some clarification on this in the text. We now state in the analysis section that “The RAND is standardized against the USA population and comparisons between our sample and US RAND scores are presented; we did not have available data on the Canadian population.”

4. Page 10 line 57 cited a NPHS article as support for refugees’ health deterioration (see reference 20). However, that article did not say anything about refugees. The authors should instead cite the Ng et al, 2011 article noted above, as that study did find refugees’ health deterioration within the first few years of settlement.

5. Page 7 line 47-48, this may be true for the Syrians, and thus should be stated as such. There are two recently released article comparing hospitalization rates for GARs and PSRs in Canada, as follows:

Ng E et al. Vaccine-preventable disease-related hospitalization among immigrants and refugees to Canada: Study of linked population-based databases. Vaccine (2016), http://dx.doi.org/10.1016/j.vaccine.2016.06.079

Ng E, Sanmartin C, Manuel D. Acute care hospitalization of refugees to Canada: linked data for immigrants from Poland, Vietnam and the Middle East. Health Reports. Vol. 27, no. 12, pp. 19-26, August 2016 • Statistics Canada, Catalogue no. 82-003-X

Response: We are no longer comparing GAR and PSRs.

6. Page 8, lines 30-31, the authors stated that while the goal was to interview 400 refugees, some 463 refugees were interested to be interviewed. How was the selection made at this stage of sample selection?

Response: Of the 463 who indicated interest in taking part, 400 individuals were randomly selected and contacted until the target sample of 400 was reached. We've revised the manuscript to read: 500 Syrian refugees were approached for the study, 463 individuals were interested in taking part. Of those who indicated interest in taking part, 400 individuals were randomly selected in order to reach the target sample.

7. Page 8, line 55-56, why was this not standardized, if many were interviewed?

Response: Participants in this study were interviewed in either English or Arabic based on their preference. The Canadian Community Health Survey was in English and was not readily available in the Arabic language. The English survey was read in Arabic by the research Assistant at the time of the interview if the participant preferred so.

8. Page 9, line 19, what is COSTI?

Response: The text now reads: COSTI immigrant services (a settlement agency in Toronto).

9. Page 9, line 42-43 and table 1, what is the language preference by refugee types, i.e. GARs and PSRs? Were the refugees interviewed in their preferred language?

Response: Our inclusion criteria indicated potential participants must speak Arabic or English to be eligible to participate in the study. Each refugee was interviewed in either Arabic or English based on their stated preference to the research analyst during screening. We only asked about the language participants’ preferred to speak to their healthcare providers at a later stage during the interview.

10. Also for table 1, the unit of measurement for residency in Canada should be stated. This is in months, not in years.

Response: In table 1, we added the measure of time to the Residency in Canada. Table 1 text now reads: Residency in Canada in average number of months.

There are more editorial comments included in the WORD file.
<table>
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<th>General comments (author response in bold)</th>
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<tbody>
<tr>
<td>This manuscript describes the non-communicable health status of newly arrived Syrian refugees to Canada. It divides the population into those government sponsored and those privately sponsored. The paper is well written, clear and concise. It also provides baseline information for future studies of this nature among refugees. The following comments are made to improve the presentation of the manuscript.</td>
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Specific Comments:

1. Please define the abbreviations used in each table. Tables should be self-standing without having to refer to the text.

   **Please see tracked changes throughout the document.**

2. In study design, please provide the rationale for dividing the study population into the two groups PSRs and GARs. It is clear that differences were found. Was there a hypothesis behind this grouping prior to analysis?

   **Response: We are not presenting the GAR PSR comparison in this paper.**

3. In results, Ln 38, how much longer were the PSRs in Canada than the GARs? Could this have introduced any bias?

   **Response: We are no longer presenting the GAR PSR comparison in this paper.**

4. In the introduction, please clearly state that this is an assessment of non-communicable diseases and that infectious diseases, vaccination history, or visits to emergency rooms were not part of the survey. Perhaps something to consider for a second assessment of this population.

   **Response: Thank you to the reviewer for their comment. We've added a statement in the introduction before our aim to state that: This study is descriptive and was not a comprehensive study of health and health care use but a general self-report by Syrian refugees.**

   **Response: We have also clearly stated the revised aims of the study on page 3 of the manuscript:**

1. examine the health needs of Syrian refugees in Toronto within their first few months of arrival
2. document self-reported health service use of newly arrived Syrian refugees
3. Investigate perceived health of newly arrived Syrian refugees

5. The authors should consider adding to the title some clarification about the nature of the assessment (non-communicable or chronic diseases and mental health, or some other qualifier).

   **Response: We thank the reviewer for this comment and considered adding this. However, we have indicated in the abstract and within the main body of the manuscript that this is a study of self-perceived mental health and physical health.**