Reviewer's report

**Title:** Cancer among children of Turkish origin in Germany: a study at the German Childhood Cancer Registry.

**Version:** 2 **Date:** 8 February 2008

**Reviewer:** Jacqueline Clavel

**Reviewer's report:**

This paper exploits the very large database of more than 37,000 children with cancer produced by the German Childhood Cancer Registry. It focuses on the category of children, prevalent in Germany, whose family came from Turkey, with the aim of evaluating potential differences in incidence between these children and the other German children. One of the rationales for this is that figures on cancer incidence produced in Turkey are lower than that of Germany for leukemia and brain tumors but higher for lymphoma. Another more general rationale is that migrants may have genetic characteristics, cultural habits, education, socioeconomic status, behaviors that differ from native children, wherever their ancestors came from.

Some of the authors published papers on cancer risk in Turks in Germany. In the present paper, the authors use a proxy to define migration, which is having a Turkish family name, given that in Turkey, Turkish names have been regulated to have a meaning in Turkish since the 1930s. This proxy is based on an algorithm described in 2000 in Eur J Cancer.

Possibilities of bias are too superficially discussed, and serious drawbacks are not ruled out. Particularly, the depart between name and migrant status is not sufficiently discussed. Finally, it makes it difficult to figure out whether Turkish migrants are at higher risk of Hodgkin's lymphoma and nasopharynx cancers, which could indicate that migrants carried an increased EBV-related risk, all the more so if the conclusion of the abstract contradicts theses results.

**Major Compulsory Revisions**

1. One may see an ethic drawback in allowing that categorization of people according to their first name could be a marker of something ill-defined (race, genetic, religion, habits?) for many generations, while integration in a country is supposed to equalize habits in 2 or 3 generations. The use of the word Turkish to designate those children who have a Turkish name is misleading at least for those who are German. It would be clearer to use something like Children with Turkish name to name this group, at least in all tables.

2. Information on ethnic origin was not routinely registered. Is that for ethical or for practical reasons? Note that if German ethic rules do not allow the registration of ethnic origin in the GCCR, using a name-based surrogate must be regarded
as unethical, too. What is required according to the German law?

3. Children whose name is not Turkish are said mostly German (last paragraph before table 1, in the Material and Methods section), which reinforces the idea that being in Germany for a time long enough (how long?) would make non-Turkish migrants becoming like German natives for the authors. Is there a rationale to assume that it should be different for persons who came from Turkey? Are they supposed to be genetically different, or more different that other categories of migrants? If not, this leaves socioeconomic and educational categories that may last longer than cultural habits and behaviors and name is hardly a good surrogate for this. This point must be addressed in the rationale and in the discussion.

4. The children who are categorized into Turkish migrants inherit this status by their father who gave them their name. What is the proportion of children who are classified as migrant whereas their mother is actually German? What is, also, the expected proportion of children, diluted in the baseline, who may have Turkish habits from their mother and have a German father? Are mixed marriages uncommon in Germany?

5. Migrant characteristics are expected to vary a lot depending on the number of generations that separate the index child from his/her migrant relatives. As said in the Discussion section, there are apparently no means to distinguish 1st, 2nd and former generations, which result in possibly strong misclassifications. Place of birth is not available for all children, but is it at least available for most of them so that there could be a better categorization such as (i) Turkish name and born in Turkey; (ii) Turkish name and born in Germany; (iii) Turkish name and born elsewhere or in unknown places? Similarly with nationality: (i) Turkish name and Turk; (ii) Turkish name and German; (iii) Turkish name and unknown nationality?

6. It would be useful to see also how are PCIRs using Turkish nationality rather than name, as a surrogate of recent migration. In addition, it would be interesting to see incidence rates, since population figures are available for the Turks living in Germany (it is not clear in the discussion, however, when those population figures are available at a national scale, or for which areas they can be obtained for the whole period).

7. Time period is adjusted for as a continuous variable. I think that it assumes, in the present case, that its relationships with migration and with cancer registration are linear. The proportion of children classified as Turkish by age and time period in 3-y (or 5-y) periods could help the reader to appreciate how time could confound the relationship. In the same way, evolution of cancer registration with time should be shown (at least ASR for all cancers, leukemia, lymphoma and brain tumors). Also, was the difference observed for lymphoma stable across time periods (eg 3*9-y periods)?

8. The number of children allows some more details to be given, if available in the registries. Are the characteristics of cancers in children with Turkish name similar to that of the others? Particularly, how is the distribution of Hodgkin’s
lymphoma subtypes?

9. Access to care system may influence the possibility for a case to be diagnosed and registered. If being of Turkish origin is related with lower (/higher) socioeconomic status, then being of Turkish origin may be related to lower (/higher) incidence rates for some categories of cancer if access to care is difficult and/or expensive. On the contrary, it could be related to higher (/lower) incidence rates if migrants are subject to closer health surveillance than other children. Could that point be discussed according to German care system?

10. If there were no bias in the estimates, the results would suggest that the risk of EBV-related cancers is increased in children with Turkish name. This is also in accordance with the figures of Globocan 2002 (wrong reference 4 which related to Globocan 2000 instead of 2002) quoted in Introduction. This should be discussed (with Globocan figures)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests: I declare that I have no competing interests