

Reviewer comments:

Reviewer #1 (Reviewer's code: 00058401):

COMMENTS TO AUTHORS

Congratulations for the quality of the work.

Answer: Thank you for reviewing our manuscript.

Reviewer #2 (Reviewer's code: 01557562):

COMMENTS TO AUTHORS

TO THE AUTHORS: This paper is a well-written original article assessing the associations between the mortality-to-incidence ratios (MIRs) for gastric cancer and health disparities among different countries, so it is sufficiently valuable for an original article. However, there are several points that remain unclear.

Major Comments; 1. Mortality for gastric cancer is strongly associated with pathological stage at the diagnosis, so early detection is regarded as an important strategy. In Western Pacific region, such as Japan and Korea, gastric cancer is one of the most common disease, so importance of early detection and frequent checkups for gastric cancer are generally known. On the other hand, in the regions where gastric cancer is not so common, attention may be not given to the early detection for gastric cancer. How does the author think about these regional differences?

Answer: Thank you for provide this comment. Indeed, early detection would contribute to good prognosis in cancer. As the reviewer hypothesize that the countries with more common disease of gastric cancer might have more frequent checkups and result in good prognosis. I confirmed this results by comparing the association between the number/crude rate of incidence and MIR. The results showed the countries with higher incidence of gastric cancer have lower MIR compared with those with lower incidence (crude rate vs. MIR: $R^2 = 0.104$, $p = 0.015$; case number vs. MIR: $R^2 = 0.078$, $p = 0.035$).

We added this information to the discussion:

| " Otherwise, in countries with high incidence of gastric cancer, more frequent

survey or detection of cancer is performed. This might result in more cases detected in early stage and contribute to good clinical outcome. This is also observed in this database that countries with higher incidence of gastric cancer have lower MIR compared with those with lower incidence (crude rate vs. MIR: $R^2 = 0.104$, $p = 0.015$; case number vs. MIR: $R^2 = 0.078$, $p = 0.035$)."

2. Although the authors used e/GDP as an indicator for health disparity, implication for e/GDP is different between developed countries and developing countries. It may be preferable to use "per capita total expenditure on health" as an indicator for health disparity.

Answer: Thank you for provide this issue. The reason that we used e/GDP rather than per capita total expenditure on health is that the cost of a surgical intervention such as total gastrectomy is much different from country to country which reflects to the variation of per capita total expenditure on health. Moreover, the cost is influenced by the health care policy which make the analysis more complicated. However, this suggestion arise another issue to study and we will provide more information in next manuscript. Thank you very much.

3. The method of calculating WHO rankings of countries is not so common, so authors should mention the factors which is used to calculate WHO rankings.

Answer: I am sorry that there was no detail information of the WHO ranking in the WHO website. Also, I ask for further information but no response. Thank you.

Minor comments 1. On the line 9 in page 11, "As SF1B & C showed" should be corrected to "As SF1D & 2D showed".

Answer: Thank you. I corrected the mistake as following:

" ~~As SF1 B & C showed~~Otherwise, a better WHO ranking and a higher e /GDP were correlated linearly with a longer life expectancy ($R^2 = 0.0689$, $p < 0.001$; $R^2 = 0.248$, $p < 0.001$, respectively)."

Reviewer #3 (Reviewer's code: 00717554):

COMMENTS TO AUTHORS

I would like to mention the following comments:

1- I am just wondering about differentiation of two types of gastric cancer: cardia and non-cardia, with different risk factors: helicobacter pylori for one and hypertension for another. Was there at distinction between these two types?

Answer: There was no information of detail pathologic classification or other risk factors. In this study, all database are from GLOBOCAN which provide the incidence and mortality rate of cancers. In this situation, we cannot answer your question. Thank you.

2- Discussion is short. It might be better to explain more.

Answer: We add some information about the detail analysis in our study as following:

" In this study, we analyzed the correlation of the incidence, mortality and MIRs for gastric cancer with WHO rankings and e/GDP. The MIR, which was calculated as the ratio of the crude rate of mortality and the crude rate of incidence, is regarded as an important marker for cancer care disparities. The crude rates of incidence and mortality, which our results showed were higher in Japan and Korea, are similar to those reported previously [22]. The incidence of gastric cancer can be influenced by environmental hygiene, food storage, diet habits, ethnicity, geographic regions, and, most importantly, age [23].

Otherwise, in countries with high incidence of gastric cancer, more frequent survey or detection of cancer is performed. This might result in more cases detected in early stage and contribute to good clinical outcome. This is also observed in this database that countries with higher incidence of gastric cancer have lower MIR compared with those with lower incidence (crude rate vs. MIR: $R^2 = 0.104$, $p = 0.015$; case number vs. MIR: $R^2 = 0.078$, $p = 0.035$). As SF1 B & C showedOtherwise, a better WHO ranking and a higher e

/GDP were correlated linearly with a longer life expectancy ($R^2 = 0.0689$, $p < 0.001$; $R^2 = 0.248$, $p < 0.001$, respectively). This could explain the lack of a significant association between the WHO rankings, e/GDP, and incidence of gastric cancer in our analysis. The mortality rates for gastric cancer can be reduced by screening programs, early endoscopic detection and management, surgical intervention availability [24, 25], and the capability for chemotherapy or targeted therapy [26]. This may be why the ASR of mortality for gastric cancer was correlated with the WHO ranking, but had no significant correlation with total e/GDP. Previous data have shown that MIRs are lower in areas with better health care, and the present study shows that MIRs are also significantly lower in countries with better WHO rankings, with higher e/GDP, and in more developed regions. For the gender difference in the MIR and the health care disparities, previous study has shown that female patients have higher MIR compared with male in bladder cancer [27]. However, unlike bladder cancer, there is no significant association in gastric cancer."

3- ICD codes are missing.

Answer: There was no information of ICD. In this study, all database are from GLOBOCAN which was collection of cancer related data from countries. There was no information of ICD provided in the original database. Thank you.