

Creating Awareness about Climate Change Impacts on Human Health

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Creating Awareness about Climate Change Impacts on Human Health: An Online Mass Media Analysis in Indonesia

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ABSTRACT

Objectives: We conducted an online mass media analysis in Indonesia in order to explore one dimension of climate change impact issue for public health. Our focus was whether and how online mass media construct public awareness in response to the impact of climate change on human health.

Methods: We developed a search strategy consisting of three progressively more delimited phases. First, we searched major publication for articles in online mass media in Indonesia published from 2009 to 2014. The list of online media was provided by the National Library of Indonesia. Second, we selected articles employing general and specific set of criteria. Lastly, we coded the selected articles to track article characteristics and identify common themes. Climate change articles with a human health focus were included. A media content analysis was applied to guide the interpretation of the data.

Results: We identified that online media have limited information around the impact of climate change on human health. News reporting of climate change impact on human health has constructed uncertainty around the issue that led to disengagement in relation to possible changes in public behaviors in particular the adaptation and mitigation efforts. Moreover, the communication of climate change from scientists and policy-makers to the public via the online mass media has been a subject of major interest because of its implications for creating public awareness of a climate change impact issue on public health.

Conclusions: Online mass media might help in the development of better informed public debate about climate change issue. It therefore needs efforts to create effective proactive-online media engagement strategies in making the public understand.

Keywords: Climate change policy, human health, online mass media, content analysis, Indonesia

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INTRODUCTION

As a developing country, Indonesia is struggling with the problem of transitional epidemiology of diseases and other health outcomes attainment. Environment becomes an imminent determinant that contributes to the unfinished eradication of communicable diseases agenda, and inevitably influences public health status performance in Indonesia [1]. Geographically, Indonesia which lies in the equator is vulnerable to the impact of global environmental change on diseases pattern and distribution, for instant, increasing the number of dengue cases which is in line with increasing temperature in Indonesia from 1968 to 2007 [2]. Human activities and human man made environment have greater attention to the climate change in Indonesia. Industrial zone, mining, agriculture and settlement might have destructed the natural condition of the environment. These also lead to the changes of communicable disease distribution pattern. There were several activities that influenced the disease distribution pattern such as deforestation that reduced oxygen production, overgrazing and the use of synthetic fertilizers, and traffic to build more roads, transport by importing more cars and packaging by using plastic bags and other packaging [3, 4]. For nowadays the online mass media has prominent role in informing the public related to the certain issues such as public health concern to the audiences who have no direct knowledge or experience [5, 6]. Online mass media has influenced daily the dissemination of public information and opinion through internet. Therefore, we conducted an online mass media analysis in Indonesia in order to explore one dimension of climate change impact issue for public health. Our focus was whether and how online mass media construct public awareness in response to the impact of climate change on human health.

METHODS

We developed a search strategy consisting of three progressively more delimited phases. First, we searched major publication for articles in online mass media in Indonesia published from 2009 to 2014. The list of online media was provided by the National Library of Indonesia. We used purposive sampling to identify a climate change and human health reporting online media source while sampling frame covered 5 years from January 2009 to June 2014. This study comprised a total of 20 news stories, opinion, and articles, which were gleaned from 10 online media in Indonesia as follows: Detik, Kompas, Tempo, OkeZone, Republika, The Jakarta Post, Tribunnews, Berita Satu, Suara Merdeka, and Koran Sindo. Most articles were in Bahasa and only 1 online media that used English. Second, we selected articles employing general and specific set of criteria. To capture all stories where climate change and human health were in the headline or the body of the article, we used electronic search engines with the following terms and free text phrases used in various combinations: climate change, human health, public health, global warming, global environmental change, diseases, mitigation,

adaptation, human impacts, and risk to vulnerable group. Moreover, in order to select articles that were relevant to our study, we used a set of inclusion/exclusion criteria. We employed the general criteria, which specified that an article was included if it focused on the issue being evaluated, and excluded if it was a duplicate. Afterwards, we employed the appropriate concept-specific criteria. We included articles if they mentioned a specific issue in the impact of climate on human health. If articles only generally discussed climate change issues without revealing its impact on human health, we excluded them. Lastly, we coded the selected articles to track article characteristics and identify common themes. Climate change articles with a human health focus were included, and for all included articles, we identified general characteristics, such as the source, the title of the story, and the publication date. For articles describing climate change impact on human health, we identified the topic being studied (e.g., communicable disease, non-communicable diseases, vulnerable groups health status, public health mitigation and adaptation, health system and policy strengthening, food security, environmental impact, public awareness), the location of the news, the purpose of the news, and policy implication of the news. A media content analysis was applied to guide the interpretation of the data and to identify possible association between online media source type and framing the impact of climate change on human health, and how they could create public awareness. This process was facilitated using a qualitative data analysis software package, MAXQDA 11, which assisted the researcher in sorting and coding the data into frame categories.

RESULTS

Table 1 indicates the number of stories on the impact of climate change on human health from the online newspapers during study period. There was only slight discernible pattern to the newspaper-by-newspaper distribution of stories on the impact of climate change on human health.

Table 1. Number of stories on the climate change in online media

Name of online newspaper	Number of Stories	% of Total
Kompas	2	10
Detik	1	5
Tempo	5	25
OkeZone	2	10
Republika	2	10
The Jakarta Post	3	15
Tribunnews	1	5
Berita Satu	1	5
Suara Merdeka	2	10
Koran Sindo	1	5
Total	20	100

News articles and opinion pieces were included in this study but there was no letter to editor article. Table 2 shows that most articles (80%) as a result of this selection process were news articles while only 20% were opinion pieces. Most media coverage addressed the impact of climate change on human health as a national issue (55%) and 40% of the coverage focused primarily on international issue. There was one article that addressed as a local issue.

Table.2 Article type

Type	Number of Stories	% of Total
Opinion	4	20
News	16	80
Total	20	100

There was only slight discernible pattern to the year-by-year distribution of stories on the impact of climate change on human health (Table 3). Only in 2014, the increase of the stories related to the climate change impact on human health occurred.

Table.3 Breakdown of stories by year

Year	Number of Articles	% of Total
2009	3	15
2010	2	10
2011	2	10
2012	2	10
2013	3	15
2014	8	40
Total	20	100

The most common frames presented in all of media coverage analyzed for this study were the impact on health status, the impact on communicable and non-communicable diseases, the effort to develop public awareness, the impact on environment, adaptation and mitigation strategies, and food security.

The impact on health status

The impact of climate change on health status was the most common frame in all online newspapers. The Jakarta Post described the situation as follows:

“Moreover, an estimated 150,000 deaths and 5.5 million “disability-adjusted life years” were recorded in 2000 due to climate change. “There is growing evidence that changes in global climate will have profound effects on the health and well-being of citizens in countries throughout the world”.

Moreover OkeZone specifically mentioned the relation between climate change impacts on health status among vulnerable group such as children as follows:

“....., The first cause of death among children 1-4 years old was necroticans entero collities (NEC) and pneumonia recorded 10.7%. The second was meningitis (8.8%), the third was Dengue (6.6%), smallpox (5.8%).....”

The impact on communicable and non-communicable diseases

The media coverage also reported the impact of climate change on communicable and non-communicable diseases. Climate change influenced the communicable disease transmission and the pattern of disease distribution as follows:

"Climate change automatically has an impact on the spread of disease in Indonesia — as seen in a malaria epidemic in Papua and pestilence epidemic in Pasuruan, East Java, in 1997 and dengue fever outbreaks in almost every Indonesian province in 1998 due to the El Niño/La Niña-Southern Oscillation."

(The Jakarta Post)

"Scientist Amin Subandrio estimated that 35 new infectious diseases have appeared due to climate change. He also said that climate change has made humans more vulnerable to disease and also increased the incidence of airborne and waterborne disease." (The Jakarta Post)

Climate change also affected to the non-communicable diseases as follows:

".....Global warming increase the temperature that leads to air pollution. Increase of air pollution has an effect to the heart. A study has proven that the increase of temperature and ozone depletion will cause heart disease." (Kompas)

The effort to develop public awareness

Online newspapers reported the impact of climate change on human health and this situation improved the public concern related to this issue. The Jakarta Post described this situation as follows:

"In the short term, the government must strengthen collaboration between agencies related to climate change impact mitigation and also strive to increase public awareness about climate change effect to human's health."

Public awareness would also create community behavior to adapt to the impact of climate change in health sector. OkeZone described this issue as follows:

".....to minimize the impact of climate change in health sector needs an adaptation strategy and public awareness, mental model and community behavior...."

The impact on environment

The direct influence of climate change was an environment conditions. The Jakarta Post described the impact climate change on environment as follows:

"Heatwaves increase particles and dust in the air, while increases in sea water levels can cause flooding and abrasions, especially in coastal areas, and pollute hygienic water sources," it said. The other effect is an increase of cholera and malaria, especially in poor countries...."

Tempo reported the impact of climate change on environment as follows:

"Climate change will influence regional weather to the extreme weather increasing temperature, changes in rainfall pattern, and sea level rise. In climate change terminology, this component is known as climate change hazard."

Adaptation and mitigation strategies

Adaptation and mitigation strategies were prominent efforts to deal with the impact climate change on human health. Kompas reported this issue as follows:

".....Roadmap will be useful to provide guidance in adaptation and mitigation actions in each sector as well as strengthening scientific basis for future climate change."

Online media also concerned about the adaptation to the changes on ecosystem and biodiversity. The Jakarta Post described this situation as follows:

"Indonesia's adaptation measures have put a high priority on issues related to sea-level rise, increased extreme weather and threats to ecosystems and biodiversity."

Food security

The food security became an important issue in climate change. The impact of climate change on food security was focused on decreasing productivity of crop due to drought. Tempo described this issue as follows:

"In the tropics, the temperature will be warmer and this will suppress the productivity of the rice harvest reaches 20-40 percent. Approximately three billion people - half population of the earth - live in the tropics and sub-tropics will experience incredible food disaster."

Moreover Kompas described this situation as follows:

"Climate change makes hotter dry season and dry so that droughts are more prevalent. Water is one of the essential elements to support health. With reduced water, then there are health problems. Water is also useful for agricultural produce food. Because of drought, food will be difficult to be produced and this leads to the health problems."

DISCUSSION

We identified that online media have limited information around the impact of climate change on human health. Most common frame presented in online media was only climate change that related to environment such as

industrial zone, mining area and plantation and other agriculture industries and settlement. In this study, we found that online media only provide general issue on the impact of climate change on human health. There was no a detailed explanation the impact on specific indicator of health status. Mostly online media discussed the impact on human health discussed about the impact on morbidity and mortality and communicable and non-communicable diseases. News reporting of climate change impact on human health has constructed uncertainty around the issue that led to disengagement in relation to possible changes in public behaviors in particular the adaptation and mitigation efforts. Actually, media has prominent role in educating and informing people. This was very important because the public awareness is the key role in climate change adaptation and mitigation. Media should be able to create awareness through educating people with communicating climate change issue from scientist and policy maker point of views. This situation will create not only in individual level but also increase national public understanding of a global environmental issue. A study in India revealed that the media has become the best tool in making people understand about climate change [7]. In our study, we also found the issue of food security due to climate change. Indonesia is an agriculture country and the role of agriculture becomes an adverse impact to the socioeconomic of the people. Previously study by Oktaviani *et.al.* confirmed that climate change influences economic conditions, but the agriculture sector will have the hardest impact due to the increase of the poor in Indonesia [8]. This is in line with the previously published study by Syaukat reported that climate change treated food security and influenced the poor in Indonesia [9]. Moreover, the communication of climate change from scientists and policy-makers to the public via the online mass media has been a subject of major interest because of its implications for creating public awareness of a climate change impact issue on public health. Online media is now an important channel for communicating between scientist and policy-makers with the public. Public health communication could be created through online media. Heldman *et.al.* argued that online media will create conversation about health by using social tools to the people who have motivation to connect each other [10]. The online media has this opportunity to facilitate public health purpose to educate public particularly in the issue of climate change. Online mass media might help in the development of better informed public debate about climate change issue. In relation to the impact of climate change on human health, this study clearly confirmed that online media has several advantages such as public education concerning climate change issue, diseases pattern, and adaptation and mitigation strategies; and scientist and policy-maker communication channel. However, online media in Indonesia still have less attention to climate change and human health issues and their representation of this issue is still very limited to certain issues that attracted large audiences and impact.

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