Needs for Scientific Evidence on Health Effects of Air Pollution in Malaysia

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Background
Air pollution and its health effects

- Estimated 4.2 million premature deaths are linked to ambient air pollution.

(HEI 2017)

- Cardio- and respiratory diseases associated with air pollution have been well documented.

(Zanobetti *et al.* 2009)

Background
Situation in the Southeast Asia (SEA) Region

- Haze episodes in the SEA region – growing threat to the regional air quality and public health
- Biomass burning – Agricultural purposes, forest fires

(Ramakreshnan *et al.* 2017)

- Prolonged dry weather conditions due to the *El Nino* phenomenon have intensified the haze situations.

(Koplitz *et al.* 2016)

Background
Situation in Malaysia

- Several Haze Emergency were declared in 1997, 2005 and 2013.

(Kanniah *et al.* 2016)

- Due to monsoon season, the Malaysians have been exposed to not only local but probably transboundary haze air pollutants.

- Evidence on air pollution effects on health in Malaysia is scarce.

Method Systematic review

Searched through database such as Pubmed and ScienceDirect using the terms (“air pollution” OR “air pollutants” OR “particulate matter” OR “air quality” AND “health” AND “Malaysia”)

207 articles screened

Articles excluded
- Exposure measurements
- Indoor air pollution
- Experimental studies
- Methodological
- Risk assessment
- Studies not include Malaysia
- Occupational health
- Irrelevant studies

3 review articles and 6 research articles

Results and Discussion ①

- Increase in mortality associated with PM10 and ozone.

(Mahiyuddin *et al.* 2013)

- 19% higher mortality risks on haze days.

(Mazrura *et al.* 2014)

- 2% higher risks of respiratory hospital admission on haze days.

(Ming *et al.* 2018)

- Average, 19 hazy days in each year whereby the air pollution levels were within the Lower Moderate to Hazardous ($\geq$76 API) categories.

(Othman *et al.* 2014)

Results and Discussion ②

- Comorbid populations showed a tendency of rehospitalization during severe haze year (1997).
- The vulnerable populations should be preidentified from existing records and be given priority access to interventions.

(Mott *et al.* 2005)

- Factual information **(Knowledge)** → More concerned **(Attitude)** → Taking actions for protection, e.g. wearing of masks, or cancelling outdoor activities **(Behavior)**
- It is important to provide accurate and timely air quality information.

(Pretto *et al.* 2015)

Conclusion

- More studies on investigating the association between air pollution and health is needed, particularly in the SEA region.
- We suggest the following directions for future studies in Malaysia:
  1. Investigate the adverse health effects of different sources of air pollution
  2. Investigate the adverse health effects of air pollution among susceptible populations, such as children, elderly and pregnant women
  3. Assess the association between knowledge, behavior and attitude among the citizens regarding air pollution

  These might be useful in contributing to better policy decision in improving the air quality over the SEA region.

THANK YOU

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