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Measuring health can be subjective and reliant on many contributing factors,

Many previous studies have already identified a link between air quality and respiratory health. Studies have even gone so far as to determine how levels of physical activity decline in children with asthma and other respiratory disorders. However, not much research has been done on the effects of air pollutant levels on the physical activity of schoolchildren, regardless of whether or not students have been diagnosed with asthma or any other respiratory problem.

Because both components of study-air quality and physical activity-are rarely linked in the literature, studies that compare levels of pollution between parts of Hong Kong, and studies that measure physical activity will have to be combined to develop a useful data collection method.

The first part of the research involves figuring out a way to measure levels of particulate matter throughout various microenvironments in Hong Kong. Several studies have conducted relevant research experiments regarding the link between air quality and health, mostly focusing on asthma and respiratory problems, because of the obvious link between air pollutants and airways. For example, a study done in Hong Kong compared the adverse respiratory effects on children living in high exposure to pollutants and children living in low exposure levels.[6] The comparative study between different parts of Hong Kong serves as a good model for a study comparing differences in physical activity between different regions in Hong Kong. A similar study also took a look at the effect of particulate matter on schoolchildren throughout different parts of

carry out. Additionally, children tend to have limited authority over their own actions, so authoritative figures, like schools and parents, will be assessed, along with corresponding action or inaction.

The school assessment entails selecting primary schools in different regions of Hong Kong in order to then assess number of school days when the schools should have taken precautionary steps. The chosen schools are whole-day, government primary schools, with the aim of creating a set of schools with standard holidays and similar rules regarding student health. School selection is also based on proximity to AQI monitoring stations, which take

The following are the chosen monitoring sites and nearby schools:

The Table below indicates the chosen AQHI monitoring sites, the site addresses, and the primary schools chosen based on proximity to the monitoring sites. Green highlight indicates roadside stations, unlike the majority of the stations which are elevated.

1	Tai Po	Tai Po Government Offices Building, 1 Ting Kok Road	Tai Po Government Primary School
2	Causeway Bay	1 Yee Wo Street	Sir Ellis Kadoorie (Sookunpo) Primary School
3	Sha Tin	Sha Tin Government Secondary School, 11-17 Man Lai Road	Shatin Government Primary School
4	Kwun Tong	Yue Wah Mansion, 407-431 Kwun Tong Road, 2 208.22	

The chart below categorizes regions in Hong Kong under different land use types and characteristics of each land type. The three regions highlighted in green indicate regions that will be studied further.

New Town	mainly residential	Sha Tin, Tai Po, and Yuen Long Tung Chung
Roadside	urban roadside in mixed residential. commercial area with heavy traffic and many tall buildings	Causeway Bay, Central and Mong Kok
Urban	densely populated residential areas and some commercial and industrial areas.	Central/Western, Eastern, Kwai Chung, Kwun Tong, Sham Shui Po and Tsuen Wan
Rural		Tap Mun

In order to assess the distribution of schoolchildren in the monitored areas, three

The following questionnaire aims to get a sense of parental influence on schoolchildren's physical activity when it comes to high AQHI levels:

1. How old is your child? Boy or Girl?

School Surveys

Out of the 9 schools that were selected for the survey, the following participated in the survey:

The AQHI data reveals that children experience higher risk levels in a Roadside area like Causeway Bay, when compared to an Urban or New Town area. However, further analysis of child demographics, taken from Hong Kong Census 2014, lends some insight into how many children are really affected on high or very high risk days.[20]

The graph on the right shows the number of children by region. Sha Tin's under 15 population is the highest, reaching 68, 709. Sham Shui Po's population reaches 45, 042, while Causeway Bay's falls at only 8, 914. Calculations were made using percentages of children and total net population, provided by the Hong Kong Census of 2014.	

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need parental guidance to the nearest park, and in a high-efficiency culture where working days of 11 hours or more are not uncommon, parents have limited time to set aside for physical activity.[27] An interview with a Hong Kong family revealed that once the parents get home from work, they eat dinner and go to sleep. Additionally, studies that assess Hong Kong's culture of efficiency reveal that younger generations are less likely to commit time to physical activity. There is a generational difference in the way physical activity viewed as a health enhancer by older generations, and as almost unnecessary by younger generations. Although the elderly in Hong Kong tend to view physical activity as a good way to enhance health, the younger populations in Hong Kong see no need to carry out "healthy" practices if they are not sick, so they devote time to other activities that are valued more.

There is no shortage of recreational space in Hong Kong-the city is even known for its

Although AQHI does not seem to affect physical activity levels, many factors that influence people's responses towards AQHI levels also influence physical activity levels. For example, both are affected by a passive outlook. Additionally, although there is general widespread knowledge on AQHI levels, there are less public awareness campaigns that relay the benefits of physical activity. Thus, the amount of information that gets taken up and put to use by the general public is limited.

Even with an increase in widespread health campaigns focusing on physical activity, the public may approach physical activity with a fatalistic attitude they display when it comes to AQHI levels. No matter how many AQHI public awareness campaigns people encounter on a daily basis, inaction persists. If people do not feel a cause benefits them enough to take action, the benefits of public awareness campaigns are cut short. However, physical activity can yield more short-term changes in one's personal health, so that may increase motivation to act on a piece of public health knowledge. For both of these issues, it's important to stimulate desire for action at a personal level. Instead of solely delivering health information, focusing on individual effects of physical activity and AQHI levels may help increase a sense of motivation and willingness to act. Additionally, incorporating visual methods that track improvement may help transform an issue that seems like a large mountain to tackle into shorter hills.

Even though AQHI levels do not seem to affect physical activity levels due to lack of interest over AQHI levels, many other factors seem to play a role in levels of physical activity among Hong Kong schoolchildren. Whether it's out of apathy or lack of knowledge, there is disconnect between the governmental organizations that compile public health information and local or personal action.

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