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Personal heat protective measures during the 2017 heatwave in Hong Kong: A telephone survey study

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To understand the community's response to hot weather in terms of the below for heat planning

1. Risk perception to high temperatures
2. Awareness of the heat warning issued
3. Personal protective behaviour
4. Self-report health outcomes

Method and respondents

- Telephone survey
- A follow-up sample of a cold wave survey in 2016/17
- Gender and Residential district matched. The sample was a bit older than the population in the 2016 census
- ≥ 15 years, Cantonese speaking
- Survey period: 7-13th Aug 2017
- N=436

The heatwave

- 25th July to 30th July 2017
- Average daily mean temperature over 30.2°C for consecutive 7 days (average daily temperature = 28.7°C, in the same period during 1981-2010)
- In particular, relative low wind speed (< 10km/ hour) and very high level of air-pollutants (reached the highest air-quality index 10/10+) were recorded on 29th and 30th July

1) Risk perception to high temperatures

- Do you agree “high temperature has adverse effects on your health”?
- Yes – 54.7% among all
- Age?
- Chronic diseases?

1) Risk perception to high temperatures

		High temperature affects your health		Total
		Not agree	Agree	
Age group	15-24	36	28	64
		56.3%	43.8%	100.0%
	25-39	35	34	69
		50.7%	49.3%	100.0%
	40-59	66	81	147
		44.9%	55.1%	100.0%
60-69	42	45	87	
	48.3%	51.7%	100.0%	
≥70	17	51	68	
	25.0%	75.0%	100.0%	
Total		196	239	435
		45.1%	54.9%	100.0%

1) Risk perception to high temperatures

		High temperature affects your health		Total
		Not agree	Agree	
Diabetes	No	179	221	400
		44.8%	55.3%	100.0%
	Yes	17	18	35
		48.6%	51.4%	100.0%
Total		196	239	435
		45.1%	54.9%	100.0%

2) Awareness of the heat warning

- 87% respondents were aware of the Very Hot Weather warning
- These people were ...(*)
 - More likely to avoid the sun
 - More likely to put on sunscreen
 - More likely to asked about older people and those with chronic diseases.

*After adjusting for age and gender.

3) Personal protective behaviour

Behaviour	Yes (%)	Total (%)
Take enough rest when performing outdoor activities	320 (73.4)	436 (100.0)
Go to cooler place when feeling unwell	360 (82.6)	425 (97.5)
Air Conditioning (AC)	402 (92.2)	435 (99.8)
Ensure indoor ventilation (w/o AC)	404 (92.7)	434 (99.5)
Avoid long term exposure to the sun	397 (91.1)	436 (100.0)
Suitable clothes	324 (74.3)	436 (100.0)
Sunscreen	162 (37.2)	429 (98.4)
Drink more water	425 (97.5)	436 (100.0)

3) Personal protective behavior

- Males were less likely to
 - avoid the sun (OR 0.29 (95%CI 0.13., 0.65)) and
 - put on sunscreen (OR 0.41 (95%CI 0.26, 0.64))
- People with lower education level were less likely to
 - use air-conditionings (OR 0.22 (95%CI 0.05, 0.91))

4) Health outcomes

		Reported at least one symptoms during the study period		Total
		No	Yes	
Age	15-24	25	39	64
		39.1%	60.9%	100.0%
	25-39	44	25	69
		63.8%	36.2%	100.0%
	40-59	93	54	147
		63.3%	36.7%	100.0%
	60-69	57	30	87
65.5%		34.5%	100.0%	
>=70	38	31	69	
		55.1%	44.9%	100.0%
Total		257	179	436
		58.9%	41.1%	100.0%

Common patterns

Where and year of published	4 North American cities Sheridan et al. 2007	Adelaide, Australia Akompab et al. 2013	UK Khare et al. 2015	HK In progress
Sample size	908	267	1497	436
Survey type	Tel survey 2004-2005 summer	Self-administered 2012 summer	Online survey 2013 October	Tel survey 2017 August
Age	65-97	30-69	≥18	≥15
Risk perception				
Yes- heat is dangerous or affecting health	65%	50.50%	-	54.70% (71.2% among ≥65)
Aware of the warning	83-92%	-	-	87%
changed in personal behavior /Adopted heat personal protective measures	52-66% changed in behavior	82% well adopted	52.4-83.6% doing at least one measure	Uptake rate of study measures 37.2-97.5%
Drinking more water/ cold fluid	43-51%	83.8% always	83.60%	97.50%
Who are less likely to do protective measures	-	Lower income and lower education	Males	Males
			Lower income	Lower education
			Lower education	
Older people				
Who reported more symptoms	-	-	Younger	Younger

We know that ...

- Risk perception rate are comparable to other countries and some vulnerable group have underestimated their risk
- The heat warning can reach most of the community.
- Most of the community have adopted some heat protective measures during hot days. And the warning has been shown to associating with uptake rate.

Main limitations

- Landline telephone survey. Cannot reach people without a landline. (90% coverage household in HK)
- No information about the activities and environmental condition. Cannot judge the appropriateness of protective behavior undertaken and effectiveness of the measures
- No information about baseline health status. Adverse health outcomes did not measure the direct attributable risk by high temperature

Heat planning suggestions

- Raise the awareness and perception accuracy for the vulnerable groups, e.g. people with long term health conditions such as diabetes
- To understand the barriers for males and low education and probably low income group to protect themselves from heat
- Promote heat protective measure and raise awareness of heat health among young people for their potential higher exposures



Thank you



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