Impact of Heat Stress on Garment Worker's Productivity, Phnom Penh, Cambodia –A questionnaire survey

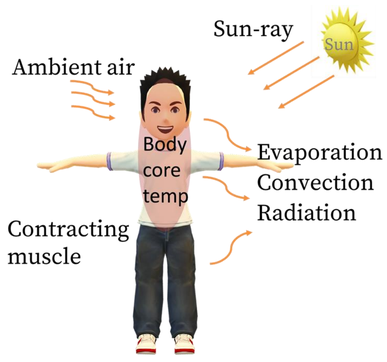
K. Vongchanh, V. Chea, M. Morn, L. Heang, S. Chan

Introduction

The rise in global temperature and more frequent and intense heatwaves can significantly raise the risk of heat stress [1]

Heat stress has a variety of negative consequences on human health, ranging from reduced well-being to an increase in the occurrence of heat-related illnesses and mortality [2].

Heat stress can also affect the mental health since it alters mood and causes physiological distress [3].



Previous research has indicated that heat stress at work affects workers' willingness to work, their general well-being, and their productivity, as well as increasing their risk of accident [3].

The former usually involves the complex model as a function of temperature, humidity, radiation, wind speed, and human physiological factors [4]. The latter generally employed the questionnaire to assess the perceived health and productivity impacts from heat [5].

Materials and Methods


MINISTRY OF HEALTH
National Ethics Committee for Health Research

The ethics clearance must be obtained before conducting the questionnaire survey.

1st QN survey	Face to face survey
Site	Garment sector, Phnom Penh
Sample size	3 factories, 780 participants
Criteria	Sewing dept.
Environment monitoring Duration	Dry bulb temperature Relative humidity 1 year
Questionnaire period	Hot month and Cool month (July 2022) (Feb 2022)

The study focuses only on the sewing department because it is the most important, complex, and labour-intensive process in garment factories.

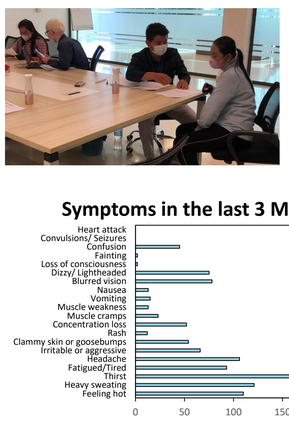
Participants who had pre-existing medical conditions like diabetes and hypertension will be excluded from our surveys. Based on their willingness to participate, the participants will be informed about the study and asked to sign the informed consent letter

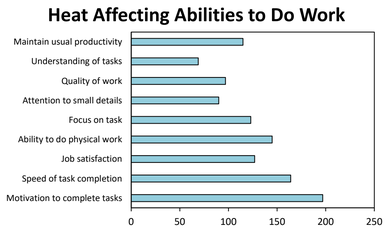
Results

Task lists	implementation
Activities	Questionnaire survey
No. of QN	381 QN
No.factories	3 sites
season	Feb-Mar 2022 (Cool month)

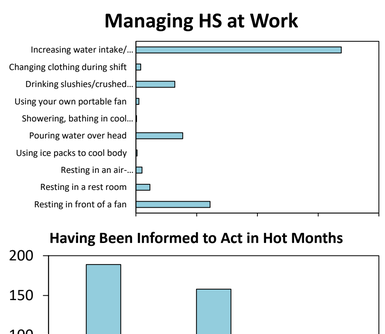
The questionnaire was adapted from the HOTHAPS questionnaire, the Singapore Heat Safe Project, and previous studies [6, 7, 8].

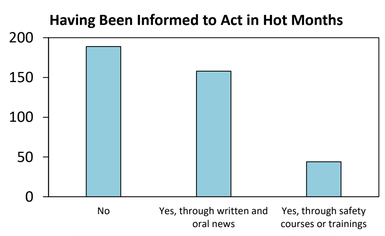
The questionnaire has sections that elicited information about the demographic characteristics, type of work, heat exposure at work, impacts of heat on health, impacts of heat on productivity, impacts of clothing on heat stress and productivity, and coping mechanisms.

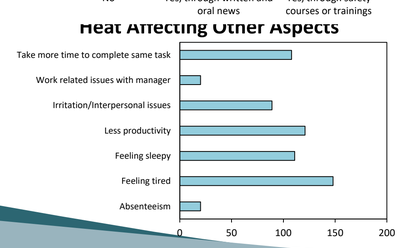


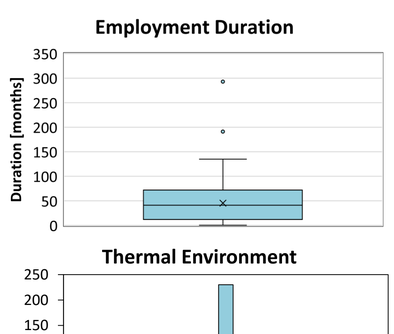


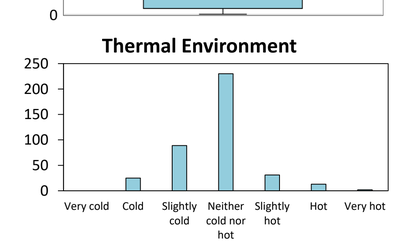
95% of the female participated in the survey. The age of participants is between 19-55 years old; the major age was between 27-37 years old.

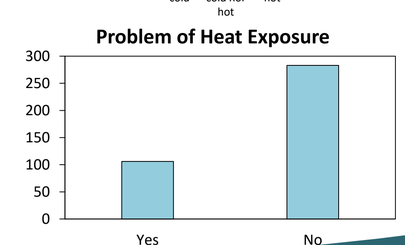












Conclusion and Recommendation

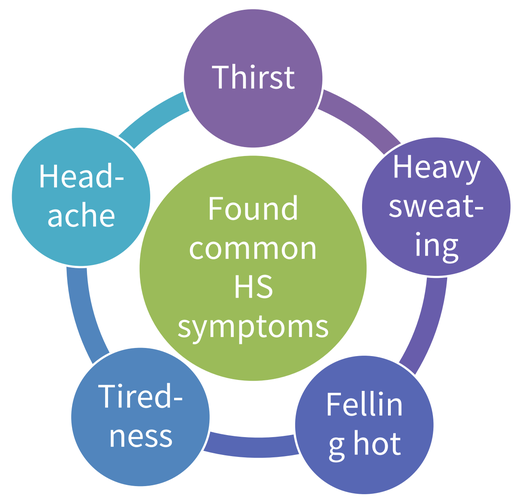
Summary the 1st questionnaire results

The perceived thermal environment, however, is reported to be acceptable (neither cold nor hot) for most of the workers.

Heat is reported to have negative impact on abilities to do work, including maintaining usual productivity, quality of work, concentration, speed of task completion, and motivation to complete tasks.

1/3 of participants claimed to have problem of heat exposure at their workplace

Two types of heat-related training are reported by the factory management: 1) orientation training when workers first joining the factory, and 2) yearly refreshment training. Specific heat trainings should be provided to the workers regularly, as only 11% of participants claimed to have been informed how to act during hot months through safety courses or trainings. The training should cover heat-related risks on daily work and health, and coping mechanisms.



Lessons learned and Next Steps

2nd QN survey	Face to face survey Expected the same person from the 1st QN survey
Site	Garment sector, Phnom Penh
Sample size	3 factories, 375 participants
Criteria	Sewing dept.
QN period	Hot month (July 2022)
Analysis	Compare the productivity and health impact of hot and cool months
Simulation model	Develop economic model

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