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Collection 2, Climate change and its impacts

Heat stress and inadequate toilet access at work places in India – a potential hazard to working women in a changing climate

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RESEARCH ARTICLE

In the past few decades, increasingly blistering heat due to climate change has created more illnesses and claimed more lives worldwide, an issue mostly ignored because it’s an invisible hazard and hard-to-document disaster. Victims are usually vulnerable populations, including workers exposed on a daily basis to heat, who not only suffer from heat illnesses but also from an exacerbation of existing health problems aggravated by heat and dehydration. Research has proved that heat is a higher risk for female workers, who are affected far more often than their male counterparts. India’s informal economy is dominated by the female workforce and many informal workplaces have minimal welfare facilities including toilets. One of the modifiable factors that influence workplace psychology is the lack of access to a private toilet. To avoid embarrassment or harassment, many women refrain from drinking water during the day in order to limit their trips to the toilet, a potentially deadly strategy during hot seasons which has adverse health consequences. A global trend especially in developing nations evidences a higher number of women entering the workforce. With this trend and rising temperatures, the issue is expected to

escalate to significant proportions unless workplace interventions and policy level actions are taken at a national level to protect women workers.

Context

Climate change affects the living and working environment and creates health threats for millions of people worldwide. The Intergovernmental Panel on Climate Change (IPCC) predicts a 2-3°C temperature rise around the globe in the impending decades [IPCC, 2014]. As there is progressive global warming, the adverse effect of heat waves on human health tends to increase, especially among the working population. Heat stress affects both outdoor and indoor workers worldwide [K. Parsons, 2014]. Workers exposed to excessive heat at work are affected by heat-related illness [D. Kerslake, 1972], kidney related illness [K. Knowlton et al., 2009] and [A. L. Hansen et al., 2008] and cardiovascular illness [J. De Blois et al., 2015].

India is a country that faces very hot summers and has millions of workers who are exposed to excessive workplace heat [S. S. Harmeet, 2009]. A large number of workers are exposed to arduous physical labor in intense heat, which puts them at added risk for adverse health outcomes.

Nevertheless, the occupational health of such a working population who are exposed to the hot environment is under-studied in India. Although the magnitude of the heat-threat is severe, it remains underestimated by the government, aid agencies, and individuals. Moreover, heat-related deaths are usually unidentified and diagnosed incorrectly as heat is a natural phenomenon in tropical settings. “These deaths are recorded as normal deaths. But they wouldn’t have happened if it wasn’t so hot” said an Indian heat researcher [G. Laurie, 2017].

Since heat is a natural phenomenon and a silent killer, the attitude is “it’s hot, suck it up, and get on with it” with resultant adverse occupational health statistics (Figure 1) [J. Sreenivas, 2015]. In 2013, more than 600 deaths were reported due to the heat wave in the southern Indian states Andhra Pradesh and Odisha where the temperatures soared as high as 47.2 °C, while many other states experienced severe drought [P. Dutta and V. Chorsiya, 2013].

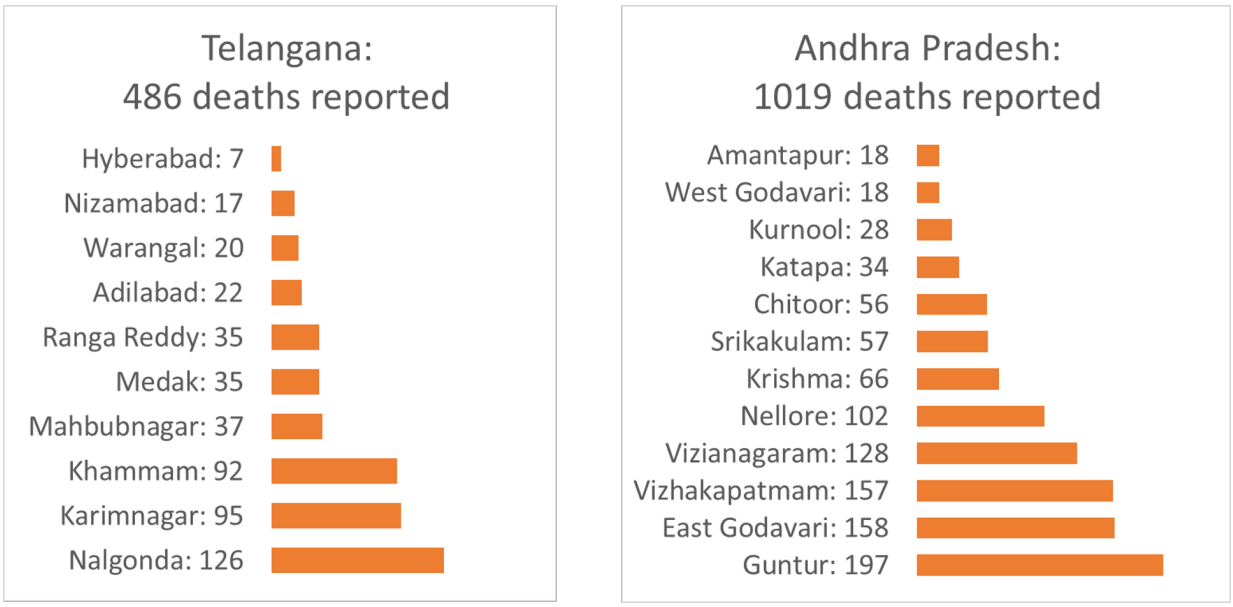

Figure 1: Death statistics due to heat related illnesses at Telangana and Andhra Pradesh in 2015

Implications of poor welfare facilities at workplaces

In India female workers form a large part of the workforce in sectors that generally are neither taxed nor monitored by any form of government, usually called the informal or unorganized sectors where workers are often engaged in strenuous physical work. Unfortunately, such informal sectors lack basic sanitation facilities including toilets. Because of this, women working in jobs involving high heat exposure are subjected to heat-related illness.

Due to their build, physical capacity and other physiological factors, women are more vulnerable to heat-related health risks [Diverde H., 2013]. No issue touches the lives of women, particularly poor working women, as intimately as that of access to sanitation. This poses a profound challenge for working women with work fixed targets such as brick cutters who have to cut 1,000 bricks per day to be paid wages. Taking time off to look for a safe place to relieve themselves means reducing their output and risking lost wages.

Although men also suffer from the burden of poor sanitation, they are less constrained by inadequate sanitation due to their willingness and ease to relieve themselves in public and the absence of social stigma and safety risks around them doing so. But for women the social stigma and susceptibility to being attacked do not permit them to relieve themselves in public. They have no other choice but to wait until dark when there is less risk of being accosted [G.S. Gonsalves et al., 2015]. In India, the rate of school drop outs of adolescent girls was around 23% when they reach puberty due to lack of toilets [A. Mondal, 2016] with this potentially reducing these girls' opportunities to take up jobs in the future.

Health impacts

The combined effect of exposure to excessive heat and limited fluid intake increases the risk for women's health problems and their well-being [S. Sahu et al., 2013]. Extremely low water consumption has been recorded in the urban poor (that includes a large share of women workers) in Mumbai on account of limited access to adequate water and sanitation facilities [D. R. Hollowell, 2010].

The most commonly provided heat-protection advice to avert adverse health impacts of heat exposure is to wear lightweight, loose-fitting clothing, seek out a cool environment and drink fluids regularly [S. Hajat and T. Kosatky, 2010]. Drinking frequently to maintain the body's water balance is possible but the lack of access to toilets modifies women's behavior to drink/eat less, in order to avoid having to urinate/defecate for several hours [B. Foxman and R. P. Frerichs, 1994]. Such inadequate behavioral responses (i.e. not drinking fluids orhalting work when exhausted) significantly impair a worker's ability to mitigate heat strain and associated health risks. Delaying urination and refraining from drinking water in order to avoid using the toilet often leads to dehydration, urinary tract infection and may even cause acute kidney injuries (AKI) [V. Venugopal et al., 2016] and [A. Anand, 2012]. They may even end up malnourished [S. S. Harmeet, 2009].

Physical, psychosocial and economic impacts

Women exposed to heat at home and in work environments are vulnerable to various adverse health consequences due to an increasing trend in global warming [V. Venugopal et al., 2016]. In addition, lack of access to toilet facilities at work or unsanitary toilet conditions at some worksites adds to their regular burden of problems, both physically and psychologically [A. Anand, 2012] and [E. Tilley et al., 2013]. For women and girls in low-income areas, the consequences of inadequate sanitation include fear of harassment, experiences of violence, and psychosocial stress.

When safe, usable toilets are not available, women and girls face three types of toilet insecurity: (1) the material reality for many women and girls that they do not have access to a toilet; (2) the risk of venturing out for open defecation if there is no toilet; and (3) having access to a public toilet, but one that is unusable (e.g., filthy) or unsafe (e.g., insufficient lighting), so that women and girls accept the risk of going for open defecation [K. O'Reilly, 2015] or modify their fluid intake behavior to avoid the inconvenience of using a toilet.

The insufficiency of basic sanitation facilities leaves women workers no option but to venture out often late at night to relieve themselves in the open. During this interval of time they have to face the risk of horrific and often life-threatening attacks of sexual violence [T. Wainwright, 2017]. A woman we interviewed who works in the agricultural sector said "We go to the toilet in the bush. It is risky as there are snakes, and I have also experienced some attacks from men. It is not safe early in the morning or in the night as you can meet anyone. They drink

alcohol and will touch you and if you don’t like it, they will force you. If I see men when I go to the toilet, I go back and hold it in.”

The World Health Organization estimates that 35% of women worldwide have experienced physical and/or sexual violence. Gender-based violence is a public health crisis that threatens not only the well-being of survivors but the societies in which they live [G.S. Gonsalves et al., 2015]. A 2012 survey done by a Pune based philanthropic organization Dasra found that as many as 30% of women residing in towns or cities are assaulted as the lack of toilet facilities in their homes forces them to go outdoors either late at night or early in the morning. The agonizing experience doesn’t just end there as the lack of proper sanitation facilities also leads to a series of severe adverse health implications [A. Mondal, 2016].

The inadequate/poor sanitary situation at workplaces forces working women to either stay home or suffer the health consequences and psychological trauma, especially when they are menstruating, that reduces their financial independence and pushes them further into poverty. 10% of women reported avoiding work during their period to avoid experiencing anxiety about personal hygiene due to lack of access to toilets. The wages they lost during this time potentially affects their economic status [S.K. Dash and T. Kjellstrom, 2011] and fearing employer discontent or even repercussion increases their psychological stress.

Need for research on heat, sanitation, and health

A direct effect of climate change is an increase in ambient temperature, particularly in tropical countries (Figure 2). The IPCC stresses that societies must prepare for inevitable changes in climate. Many jobs in the informal sector involve high heat exposure and manual work (such as construction, brick kilns, and agriculture) and heat exposure levels are already verging on untenable during parts of the day.

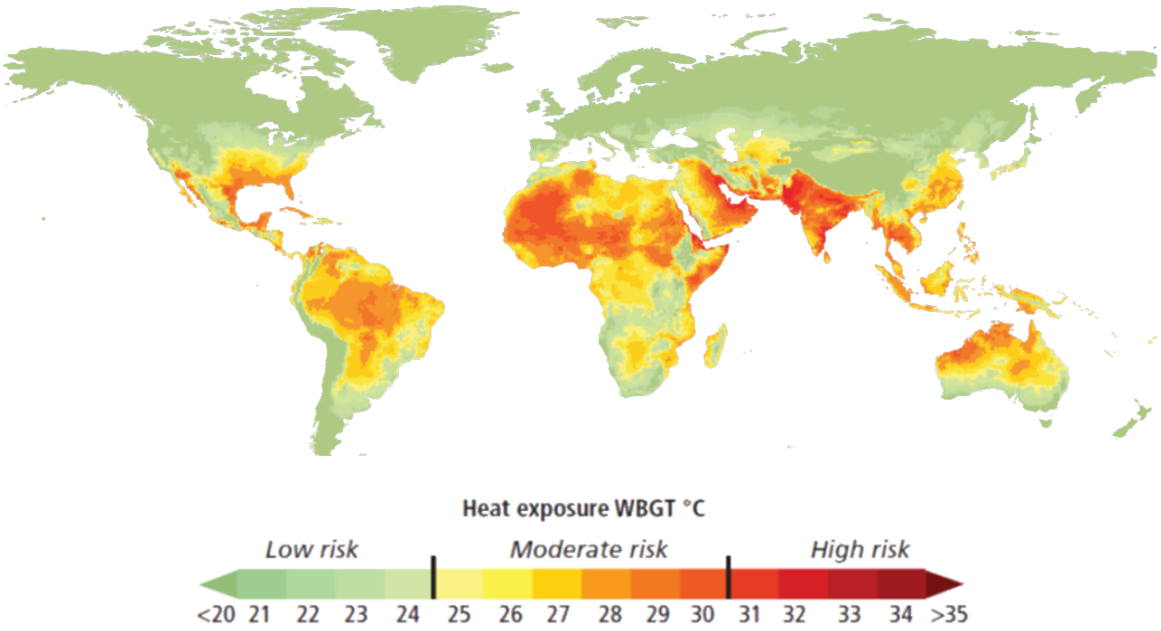

Figure 2: Effect of climate change is an increase in ambient heat exposure (source: [IPCC, 2014])

In the south Indian state of Tamil Nadu, ambient temperatures range from 21°C (between December and February) to 37°C (between March and September), with some months recording temperatures as high as 42°C [V. Venugopal and T. Kjellstrom, 2014]. These temperatures are likely to increase significantly due to global climate change [S.K. Dash and T. Kjellstrom, 2011]. Such environmental conditions mean that heat exposure can be an occupational health hazard, particularly when undertaking physical labor [G. S. Azhar et al., 2014] and [J. L. Thompson et al., 2014].

In our study, we surveyed 312 women working in informal sectors such as agriculture and brick and steel manufacturing in southern India during 2014-2016. We found that nearly 64% of the women did not have access to toilet facilities at their workplaces, and there was a direct association between women reporting heat-related health symptoms and lack of access to toilets at workplaces. 87% of working women reported that they experience specific urinary and genital infections periodically and the women without access to toilets had a six times higher risk of having urinary and genital infections. It was also observed that women ‘not drinking sufficient water’ had four times the risk of developing genito-urinary issues compared with women ‘drinking sufficient water’ [V. Venugopal et al., 2016].

The research to quantify the health burden of workplace heat stress and lack of access to toilets at workplaces has important ramifications for assessing and projecting the direct health impacts of heat and the occupational health damages of women. A better understanding of the perceptions, experiences, and practices around sanitation, fluid intake, and heat exposure could have important public health implications, particularly for women in India and in similar

work settings across the globe. An important step is addressing current work conditions for women by providing evidence as to how workplace sanitation access affects women's health.

Interventions such as improving basic sanitation facilities and reducing heat exposure by simple techniques will improve health equity because low-income people generally end up working in jobs in the unprotected informal sector with the greatest health risks. It also promotes an area where policy may be challenged and changed to improve work conditions in both monitored and unmonitored work sectors, thereby providing evidence where sanitation policy may be extended.

Any practice or environment that restricts or inhibits appropriate, safe and healthy use of toilets must be addressed in order to prevent unnecessary health burdens and impaired work performance. This combined with the predicted trends in temperature could further increase health risks for the women, which merit attention both at an individual and national level. Empowering women increases their power to assist in relieving poverty and gives them freedom from the constraints of the lack of good sanitation facilities [WSSCC/Gender and Water Alliance (GWA)/Water (UNICEF) and and Development Centre (WEDC)/United Nations Childrens Fund Engineering, 2006].

In conclusion, it is essential to urgently address issues, such as lack of access to toilet facilities at workplaces, that add to the risk already posed by hot climates for working people. The expectation for women to have basic sanitation facilities at the workplace to maintain one's dignity and health is not unreasonable and meeting this expectation is a 'win-win' situation for the employee and the employer, with public health benefits for the wider community.

As our climate continues to change, designing comprehensive gender-sensitive labor policies and workplace interventions are the need of the hour in order to avert health risks for millions of women workers, especially in developing nations with hot climates. Dialogue and cooperation between public health authorities, non-governmental organizations, women's groups, employers, and labor ministries will set the stage for the needed change for improved occupational health of the women in India, and beyond.

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