

# **The Relationship Between Heat Stress Hospitalizations and Air Conditioning**

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Heat stress hospitalizations have been, to a significant degree, traced back to the poor state of air conditioning, which prompts researchers to give this relationship an extensive focus. This study is guided by a research question that seeks to establish the link between heat stress hospitalization and the proportion of households accessing air-conditioning. The reason for picking this question is because of the growing value placed on heat stress's role in public health, especially among marginalized groups. This study uses most data from three reputable studies centered on New York State and New York City that address their experiences. Heat stress hospitalizations would be fewer among households with more air-conditioners.

### **Data Analysis**

The complexity of the data shown below unpacks an elaborate relationship between heat stress hospitalizations and air-conditioned dwellings. The table's statistical analysis reveals varied death rates due to excessive heat and hot days. This indicates a more complex interaction between these factors and air conditioner usage frequency (NYC, 2021). Classification of hot days and mortality, using the New York City Environment and Health Data Portal to obtain accurate information on this issue, highlights the intricate nature of climate and its connection with human death.

Considering localities that have few air-conditioned homes has revealed several things about heat-related deaths. Stunningly, only 36 percent of these areas are exceptions regarding heat-related deaths, and more than half the areas (54 percent) form part of the middle group, making this analysis even more intricate. On the other hand, paradoxically, only 9% of these regions experience high heat mortality. However, there is a move towards shifting focus to areas

characterized by a moderate prevalence of air-conditioned households where only eleven percent have very low heat-related deaths, and close to 67 percent find themselves halfway between high and low temperatures. Incidentally, 22 percent of these areas experience excess hot-related deaths, further complicating the assessment (NYC, 2021). However, about 9 percent escape those risks in states with densely populated neighborhoods with no AC, which is quite striking. This statistical narrative points out that there are certain complexities involved in the heat strain hospitalizations and prevalence of air conditioners, which need to be factored in, and it is more than that there are air conditioners.

<b>Extreme Heat Days (X-Value) (%)</b>	<b>Deaths (Y- Value) (%)</b>	<b>Rate of Deaths</b>	<b>Rate of Extreme Heat Days</b>
12.5	11	Medium	Medium
5.2	32	Very High	Low
9.4	8	Low	Low
13.5	24	High	Medium
2.1	0	Low	Low
2.1	2	Low	Low
16.7	4	Low	Medium
6.2	7	Low	Low
22.9	4	Low	High
9.4	8	Low	Low

Table 1: Tabulation of the Death Rates Associated with Heat Extremes (NYC, 2021).

**Discussion of Research Sources**

Ahd et al. (2023) reveal the importance of AC in preventing health-related problems such as heat exhaustion and heat stroke. The researchers, having made an investigation in Florida,

USA, faced those difficulties as they could not accurately map heat risks because of limited geographical coverage and stale AC availability data, which didn't allow them to prevent heat effects effectively. The research identifies the disparities in AC ownership by pinpointing places with high AC requirements. High-high clusters have dominated coastal and metropolitan cities, while inland communities experience AC-deficient clustering (Ahn et al., 2023). However, in the case of urban areas inhabiting vulnerable communities and, in the process, disadvantaged individuals, there needs to be more AC. The results of the Spatial Durbin Model show more of an association between household ownership of AC and socioeconomic and urban variables, with a higher proportion of AC-deficient households in the majority of African-American communities emphasizing the AC ownership gap due to race. These results are instructive for specific measures of attenuating heat–stress risks and adjustment to emergent warmer meteorological circumstances in vulnerable localities.

The work of Nayak et al. (2018) provides valuable insights into constructing the Heat Vulnerability Index (HVI). They conclude that people living in urban areas are more exposed to heat stress, especially during very high temperatures, and those living in linguistic or socially impoverished communities feel it worse (Nayak et al., 2018). The HVI, in this case, becomes an important element in comprehending and dealing with the effects of excessive heat in cities where their vulnerability is high. The study highlights complex considerations behind thermal exposure while highlighting the necessity of all-inclusive approaches for tackling urban heat issues.

In this respect, Lane et al. (2023) examine how a program providing free air conditioners could help people deal with heat-related issues during extremes and the COVID-19 times. Their

research data shows that this program allowed most poor people, who are mainly from minority races, to stay safe at home during summer's hottest days (Lane et al., 2023). Thus, this intervention is an important component of public health initiatives, highlighting how air conditioners can protect a targeted population when facing an intense heat event or other health issue.

As a whole, the studies by Ahn et al. (2023), Nayak et al. (2018), and Lane et al. (2023) explain the interaction between air conditioning and the risk of getting affected by heat illness. Marginalized communities have the highest AC distribution disparity, making them more prone to heat-related risks such as cities. According to a study by Lane et al. (2023), the success of the air conditioner distribution program proves that proactive public health policies can protect people at risk from the adverse effects of heat waves and other disasters.

### **Conclusion**

The research findings reveal that the relationship between the number of hospitalizations due to heat stress and the presence of air conditioners is complex. The complex nature of this relationship is revealed through such vital factors as community weaknesses, ethnic differences, and focused public health activities. Taken together, these studies promote a holistic approach that deals with such systemic problems as racism and limited resource availability to protect vulnerable people from severe heat events. Public health efforts such as giving away air conditioners prove crucial in combating extreme heat and preventing any deaths caused by the heat. We should approach all aspects of the interaction between environment and social inequalities. This will help us protect some localities, particularly underprivileged ones, at risk of experiencing this interplay.

## References

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