

The True Price of Cool

Joan Kate Salvacion

MIEH300: Environmental Health

Dr. Devon Payne-Sturges

University of Maryland, College Park

It is human nature to want to have what everyone else has, and to be with the “in” crowd; But, what is the true price we are paying to stay cool? In this case, we are not talking about the cool established by social society, but the air-cooling systems we use on a daily basis. In our daily lives, it is only human nature to want and have the basic necessity of air-conditioning in our living environments; However, keeping up with this current trend can prove to be a burden both financially and ultimately to one’s health and the environment. Although air conditioning provides a temporary relief from the heat, it does pose various negative health effects and it can affect our respective environments. If we work towards renewable-controlled resources we can hopefully achieve better sustainability. Siegel-Itzkovich (2015) discusses the potential dangers that are applicable to a large portion of the world because of the overuse of air-conditioning and heating in homes. He mentions that we have created an artificial environment that is not only affecting our health but causing disruptions in climate change as well, which creates a cascading environmental effect. The reform of heating and air-conditioning use is something that affects a variety of stakeholders: appliance owners, doctors, air-conditioning and heating unit businesses, environmentalists, and your average college student. This is something everyone is exposed to on a daily basis; therefore, we all need to take responsibility and work towards becoming smarter consumers.

The use of air-conditioning has led us to create artificial environments in our homes, which do have negative health effects. The creation of this artificial environment may make us more susceptible to illness because of the constant adjusting one has to do. One not only has to adjust to their air-conditioned environment but the natural

environment they encounter as they step outside each and every day. According to *Time* magazine, we had various forms of heating for a while before air conditioning came into the picture, and only 12 percent of Americans had some type of air-conditioning in their homes as recently as the 1960s. The numbers of air-conditioning units have only risen from there. Epidemiologist, Dr. Mark Mendell in *Time* magazine suggests, “if you have a badly maintained or badly designed AC system... it can become contaminated and potentially harmful” (*Time Magazine*, 2015). Issues such as worsening asthma problems and allergies stem from contaminated AC units due to the excess moisture and condensation. In addition to this, air conditioners circulate the same air around the room repeatedly, which has the potential to spread bacteria and dust particles. If one does not take the responsibility to make sure that their unit is clean and effective, it can create greater health problems over time. Air conditioning can also affect humidity levels, drying out the air, which can be irritating to the eyes and sinuses. This can affect those living in the house and those living or working in heavily air-conditioned buildings.

Following this, air-conditioning may have a greater impact on the environment than we realize. Lundgren and colleagues (2013), research how global climate change has increased heat loads in urban areas, which are causing health and productivity risks for millions of people. To combat this, air-conditioning production is growing rapidly, especially in South Asia due to income growth and increased heat exposures. However, there are studies that have linked the increased air-conditioning use to increased total hourly electricity use (Lundgren et al., 2013). The growing demand of air conditioning has led to the significant increase in demand specifically for primary energy resources for electricity use (Desideri et al., 2009). According to Desideri and colleagues,

approximately 80% of our energy consumption for electricity comes from fossil fuels (non-renewable resources). In *Environmental Health Perspectives (EHP)*, it is said that we are putting out more climate pollutants as we burn more coal or gas to run the air conditioners. In addition to this, approximately 20% comes from the air conditioning units' refrigerants, the liquid agents that are within the coils of the unit that are used to cool and dehumidify the air (EHP, 2015). These refrigerants originally contained chlorofluorocarbons (CFCs) that were major contributors to the ozone-layer breakdown and were then replaced hydrochlorofluorocarbons (HCFCs), a transitional fluorocarbon that had a reduced impact on ozone depletion (EHP, 2015). Today, these refrigerants are now replaced by hydrofluorocarbons (HFCs) and have no impact on ozone depletion because they lack chlorine; However, they have been found to be super-greenhouse gases with a high potential to contribute heavily to global warming (EHP, 2015). What options do we then have to combat this global dilemma?

There have been various regulatory suggestions in regards to combating the negative environmental affects of air-conditioning. To start off, it would be beneficial to educate consumers and stakeholders on the bigger issue that we all face regarding global warming. Are we really going to trade long-term consequences for short-term luxury? By addressing the environmental sustainability principle of the Triple Bottom Line, we can work towards decreasing the amount of greenhouse gases that we already produce on a daily basis. If we educate consumers and stakeholders and raise awareness, other approaches can work its way into development, which will meet the current and future needs in consideration of environmental, economic, and cultural factors. For example, many architects and engineers are beginning to approach the challenge of keeping people

cool due to the raise awareness of air conditionings' environmental impact. They are now planning to build a variety of technologies into new and existing buildings to cool everyone down without resorting to the use of air conditioners (Lundgren et al., 2013). This not only creates new jobs for these architects and engineers but it ignites a new culture working its way to decrease the use of air conditioning units. Another future possibility would be the creation of a solar-powered cooling system. In the study performed by Desideri and colleagues (2009), hybrid trigeneration and solar cooling plants represent future potential air conditioning systems that are able to decrease non-renewable electricity consumption by using renewable energy resources. These are just some of the future possibilities that can be applied if more research is aimed at targeting renewable and economically friendly resources.

Although there are negative views regarding air-conditioning, there are also opposing arguments in favor of air-conditioning as well. In regards to the negative health effects, *Time Magazine* also argues that AC can be life saving and beneficial, especially during intense heat waves. Although the climate shift has possibly decreased the role of air-conditioning's contribution to global warming, becoming smarter consumers can provide many benefits. For example, setting thermostats at a bit of a higher temperature in the summer and a little lower in the winter would benefit the environment without affecting anyone's else and everyone wins. In addition to this, according to Burke and colleagues (2015), there has been growing evidence that demonstrates that climatic conditions can have an impact on the functioning of modern human societies. They suggest that economic productivity is non-linear in temperature for all countries, with productivity peaking at an annual average temperature of 13 degrees Celsius and

declining strongly at higher temperatures. In this case, air-conditioning would assist economic productivity. If society continues to function in relation to its climate, climate change (due to global warming) is expected to reshape the global economy by reducing global economic output and possibly amplifying the global economic inequalities that already exist (Burke et al., 2015). However, I do think there are other environmentally responsible options for cooling systems besides air-conditioning. There are obviously preventative measures such as renewable energy systems that need to be further developed to combat this.

In conclusion, the argument between the risks and benefits of air-conditioning are very confusing. There is still much research that needs to be done. One can argue for both the beneficial and harmful health risks that air-conditioning offers but as an environmentalist, one cannot deny the harmful impact that air-conditioning has on the planet. The reform of air-conditioning and heating use affects a great amount of stakeholders is something that needs to be addressed. One thing that may be of importance to note is simply: moderation. As consumers, we are used to purchasing, using, trashing, and then repeating the cycle all over again. As with one's diet and lifestyle, the moderation of intake of a certain good can prove to be more beneficial than overconsumption. A potential route to combat the environmental harm is establishing more sustainable renewable generation of energy and taking responsibility to become smarter consumers. If we educate ourselves more on the issue and look into establishing a balance between luxury and responsibility, we no longer have to worry about the price we have to pay for cool.

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