Commentary

Intrinsic and instrumental perspectives to sanitation

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\textbf{ABSTRACT}

Public health interventions are often implemented because they are a means to an end. For example, improving population-level health outcomes is a key step towards improving social and economic outcomes, too. But what is often overlooked is the fact that a given public health intervention might be the end in itself. In other words, a given intervention might be worth investing in even if there are zero returns from investing in it. This intrinsic value, however, is often overlooked. In this commentary, we look specifically at sanitation, and why the development community should motivate sanitation interventions using an intrinsic value perspective. We also extend the conversation to why there needs to be a fundamental shift away from demand-side interventions to supply-side interventions. In doing so, we hope to offer a more equitable perspective to health and development.

1. Introduction

Nobel Laureate Amartya Sen has long made the important distinction between “instrumental” and “intrinsic” freedoms (Sen, 2000). Most indicators of health and well-being could be motivated and interpreted from both perspectives. For instance, health appears to be very important in improving a nation’s economic well being and productivity making it important from an instrumental perspective (McGovern et al., 2017; World Bank, 1993). At the same time, health is also an end in itself. Put simply, even if there were zero returns to investing in health, one might still want to invest in health because it is foundational to what Sen refers to as “one’s ability to do and be”, and the need to view development goals from a broader “capability” perspective which places value on indicators for their intrinsic significance (Sen, 1997).

In this commentary, we argue why the development community should motivate interventions to improve sanitation from an intrinsic perspective. Indeed, the arguments we make also hold for other routine development interventions such as education, shelter, clean water, clean air, and food. Furthermore, we also argue, especially in the context of sanitation, that there needs to be a fundamental shift away from demand-side interventions to supply-side interventions. We make both arguments in hopes of offering a more equitable perspective to health and development.

2. The instrumental and intrinsic value of sanitation

A study published in this issue of the Journal further bolsters the instrumental value of sanitation (Caruso et al., 2018). Caruso et al. examined the association between sanitation access and sanitation experiences, and selected mental health outcomes among 1,347 women in 60 rural villages in Odisha, India. Sanitation access was a binary exposure (yes/no), while sanitation experiences were assessed using a 50-item sanitation insecurity measure. The selected mental health outcomes were mental well-being, and symptoms of anxiety, depression, and distress. Overall, the authors found that sanitation insecurity was associated with higher well-being scores, while sanitation insecurity was associated with lower well-being, and higher anxiety, depression, and distress. While the aforementioned study by Caruso et al. does not lend itself to a causal interpretation, it is extremely useful and important to the field of sanitation as it helps provide a wider picture of why sanitation could be important. This is something other studies in the field have failed to do. Indeed, demonstrating that sanitation is instrumentally relevant for a broad range of indicators of interest, also inevitably augments the intrinsic value of sanitation.

A significant number of large-scale studies continue examining the instrumental value of sanitation in the context of childhood undernutrition, specific disease outcomes such as diarrhea and helminth infections, or anthropometric failures. For example, Clasen et al. conducted an RCT in 100 rural villages in Odisha, India, to study the impact of the government’s Total Sanitation Campaign (TSC), which improved access to household toilets, on the 7-day prevalence of diarrheal disease (Clasen et al., 2014). More recently, Luby et al. conducted the WASH Benefits trial in Bangladesh, India’s eastern neighbor, to examine the association between linear growth in children associated with either individual water, sanitation, and hand washing groups of the study, or when these interventions were combined (Luby et al., 2018).

The results from both of these studies were disappointing. For example, while Clasen et al. did find a substantial increase in toilet...
coverage stemming from India’s TSC, the study did not find any improvements in the 7-day prevalence of diarrheal disease (Clasen et al., 2014). Similarly, the RCT conducted by Luby et al. found no significant improvements in linear growth for children associated with either of the individual water, sanitation, and hand washing groups of the study, or when these interventions were combined (Luby et al., 2018). Yet, no one would use the evidence from these recent studies to suggest that societies should abandon their efforts to ensure sanitation access. This is because, as Angus Deaton puts it, there is a futility with RCTs when we already know the intrinsic value of the intervention being tested (Hahn, 2010).

3. The folly of demand-side sanitation interventions

One explanation posited for the discouraging results cited above was that while toilet coverage has increased, toilet use remains low (thus resulting in the continued spread of fecal contamination). For example, Clasen et al. state, “approaches should not only meet international coverage targets, but should be implemented in a way that achieves uptake...”. This idea, that improved toilet coverage does not necessarily mean increased toilet use, has been supported by articles that suggest that Indians prefer defecating in the open. This preference, note some researchers, stems from various behavioral, cultural, and religious reasons (Harris, 2014; Coffey et al., 2015).

This notion has given rise to behavior change curricula such as Community-Led Total Sanitation (CLTS), which aim to promote demand of toilets by raising awareness about how disease can spread through open defecation. One way in which CLTS does this is by leading entire communities on “walks of disgust” through the fields where residents typically defecate (Kar et al., 2008)). This is intended to shame communities in to demanding toilets.

However, programs such as CLTS can be extremely problematic. First, there have been instances when CLTS has undermined individual rights and safety in an effort to promote toilet ownership and use. For example, Bartram et al. note that there have been cases of groups of people throwing stones at people who continue defecating in the open after the community had been exposed to the CLTS intervention (Bartram et al., 2012). CLTS also encourages the use of children to monitor community-wide defecation practices. Children in Bangladesh have been known to blow whistles at those defecating in the open (Bartram et al., 2012).

In addition to undermining individual rights, programs such as CLTS do not account for a broader set of possible determinants of toilet ownership. For example, people might “demand” a toilet, but might not have the financial resources to build one. Similarly, the average rural household in India owns only 492 ft² of dwelling space (69th Round National Sample Survey, 2012). The Indian government recommends that rural households build individual household latrines that occupy 67 ft². Thus a toilet in the average rural household would occupy nearly 14% of the total space available, a possible deterrent to toilet ownership. Finally, pit latrines, the government’s recommended sanitation technology, must be emptied when full. Tankers are often cost prohibitive and manual scavenging (cleaning out pits manually) has rights fully been outlawed, leaving families the only option of doing it themselves. However, social stigma associated with handling human excrement, perpetuated by India’s ancient caste system, deter families from doing so. This causes the pits to fill up, rendering the toilet unusable. These stark realities must be considered as reasons why people in India are unable to own or use a toilet, and why demand-side interventions do not necessarily make sense.

Furthermore, if open defecation truly were a cultural phenomenon rooted in ancient religious beliefs, then we would expect to see Indians who emigrate to richer countries continue engaging in this practice, something we have found no evidence of. Additionally, we know that there are groups of people within India whose actions also dispel this myth. In fact, almost 90% of households in the highest wealth quartile have access to flush toilets and the sewerage system (Subramanian et al., 2016). These households have been able to take advantage of a government-supplied waste management system that allows for the management of their waste, a key piece of the sanitation value chain that encourages consistent toilet use.

Evidence from other countries further exemplifies the effectiveness of supply-side interventions. Singapore’s infant mortality in the early 1900s, for example, was 354 per 1,000 (Otaki et al., 2007). This abysmally high rate was due in large part to poor sanitation conditions, as the majority of the island-nation’s residents relied on buckets in the home as toilets. Once full, buckets would be emptied and then reused. After gaining independence in 1965, Singapore’s government committed itself to ensuring universal access to toilets and sewage, which was achieved in 1997 (Otaki et al., 2007). This achievement led to a dramatic fall in infant mortality, and huge gains in life expectancy for both women and men, demonstrating both the instrumental and intrinsic value of sanitation (Otaki et al., 2007).

4. Concluding remarks

Viewing sanitation as both an “instrumental” and “intrinsic” freedom highlights how sanitation can be a means to better health, social, and economic outcomes, while also being an end in itself. Perhaps too much emphasis has been placed on quantifying the former, however, especially in the context of more “traditional” health outcomes. That is why the study published by Caruso et al. is particularly important. By linking sanitation with mental health, the study augments the instrumental value of sanitation, which helps highlight the intrinsic value of this infrastructure.

Furthermore, countries such as Singapore have provided a supply-side sanitation blueprint, which led to vastly improved sanitation outcomes. In India, sanitation policy is still largely based on demand-side interventions. The intrinsic value of sanitation emphasizes the idea that toilets, sewers, and piped water, are basic human rights that bolster “human capability”. This should force researchers, academics, and policy makers to reckon with the structural inequities that perpetuate India’s sanitation crises. Extreme poverty, a dearth of space, and the lack of waste management are some of the structural factors that continue forcing countless people in India to defecate in the open. At the very least, then, demand-side and supply-side interventions should be implemented concurrently.

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