

Improved sanitation may reduce sexual violence in South African townships

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Improving access to public toilets in South African urban settlements may reduce both the incidence of sexual assaults by nearly 30% and the overall cost to society, a study by researchers at the Yale School of Public Health and Yale School of Management found.

The research was published April 29 in *PLOS ONE*.

Development and human rights organizations have pointed to inadequate local sanitation facilities as a key factor in a woman's risk for physical or [sexual assault](#). Many women in South Africa must travel out of their homes to public toilets, where they are more vulnerable to attack from sexual predators.

Lead author Gregg Gonsalves, a lecturer at the Yale Law School and a Ph.D. candidate at the Yale School of Public Health, said the study is the first quantitative analysis of the link between sexual violence and sanitation and its impact on women and society. "We hope these findings spur other research to document the phenomenon in greater detail and to strengthen the evidence base for policy making," Gonsalves said.

Researchers developed a mathematical model that links the risk of a sexual assault to the number of available sanitation facilities and the total time a woman must spend walking to or from a toilet. The model was applied to Khayelitsha, an urban township in Cape Town where health and safety issues associated with inadequate sanitation are the subjects of ongoing public debate. To create the model, the team used publicly

available data on population size and density, the epidemiology of sexual assault, and the geography and logistics of toilet usage.

Between 2003 and 2012, an average of 635 sexual assaults of women traveling to and from toilets were reported in Khayelitsha each year, resulting in combined annual social costs of \$40 million. According to the new Yale analysis, increasing the number of toilets from 5,600 to 11,300 would reduce sexual assaults nearly 30% and decrease costs to \$35 million. The increased costs of toilet installation and maintenance would be more than offset by lower costs associated with sexual assault. Further increasing the number of toilets to 21,400 would decrease sexual assaults by nearly 49%, at no additional cost to society, notes the study.

The research has global implications. The link between inadequate sanitation and sexual violence has been documented in cities from Kenya to India, as well as in other makeshift urban settlements (such as refugee and disaster-relief camps) in the developing world. The Yale paper, for the first time, quantifies that link and estimates both the health and economic impact of improved sanitation.

"Our findings are all the more striking because we did not take into account the many additional health benefits of improving sanitation in resource-constrained urban areas, particularly the potential reductions in morbidity and mortality associated with water-borne infectious diseases," said Gonsalves.

More information: *PLOS ONE*,
[dx.plos.org/10.1371/journal.pone.0122244](https://doi.org/10.1371/journal.pone.0122244)

Provided by Yale University

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