

Medicine and Society

Western toilets, Indian society and public health

ANUP AGARWAL, YOGESH JAIN

HEALTH AND SQUATTING

Like many areas of rural India, the villages of the Achanakmar Tiger Reserve in central Chhattisgarh are neglected by a health system structured to fail them. While providing secondary prevention and physical and mental rehabilitation care for people with sequelae of stroke, our team at Jan Swasthya Sahyog¹ met with 65-year-old Santri bai (name changed) who had never been to a hospital. Her initial post-stroke care, like most patients, was from traditional healers. The stroke had paralysed the right side of her body and devastatingly weakened her spirit. She confided in us 'every day is a struggle, I would better be dead'. We noticed her head was shaven, about which she explained 'I couldn't comb my hair daily, it required a lot of effort to keep them clean and keep the lice away, so I had my head shaved.' We asked her about other challenges in her activities of daily living and she reluctantly shared that 'the act of defecation and urination is a daily problem. It is difficult for me to squat and I soil my clothes. I have become a burden on my family.' Unlike her hair, which she could simply cut off, she was unable to get rid of the toileting problems. Walking to the bathroom and squatting so that her faeces landed in the right spot, or to pass urine without wetting her clothes or limbs, was probably an impossible task for her.

This experience with people with stroke who had to perform the herculean act of squatting several times, at least women, daily in order to live a normal life forced us to analyse the squatting posture. The physical prerequisites for squatting and standing up safely include at the least, two well-functioning ankles, knees and hip joints, intact and healthy femur and tibia; the system of muscles, tendons and ligaments to support them and a healthy heart, nervous system and blood volume to maintain blood pressure with the change in position. Clearly, it requires being in a generally good state of physical health.

In addition to patients who have had strokes, there are many other conditions, which may pose difficulties with squatting. These include, but are not limited to, people with physical disabilities, women with advanced pregnancy, severe malnutrition, severe dehydration, muscular dystrophies, neuromuscular disorders, chronic arthritides, obesity, heart failure, cirrhosis, renal failure, movement disorders, bone fractures and bone cancers. Besides, a major proportion of elderly people would increasingly find squatting difficult. There is no epidemiological data of the percentage of population that cumulatively suffers from these conditions, but according to our estimates, it would be much above 10% of the total population. Easily, the proportion of families that will have at least one person with such a need will be over 25%.

The physical impairment caused by stroke makes squatting an

arduous task, but the act of squatting itself can also trigger strokes. Chakrabarti *et al.* reported that 36% of strokes occurred with squatting.² Steven *et al.* reported that most falls among high-risk older adults occurred inside the home.³ The likelihood of injury in the bathroom supports the need for safety modifications such as grab bars and may indicate a need for assistance with bathing. Forty-six per cent of people had at least one experience of falling in the toilet, of which 60% of falls resulted in an injury among people with physical disabilities.⁴ In a study done in 1977 in Britain, it was observed that 78% of patients were using seated toilets after they were recommended by an occupational therapist.⁵

INDIAN SOCIETY AND SQUATTING

The Swachh Bharat Mission (SBM) launched in 2014 aimed to sharpen the focus on sanitation by ensuring the availability of toilets for all to make communities open defecation free (ODF).⁶ Interestingly, the SBM did consider the difficulties faced by people with disabilities and elders by suggesting at least 2 economical designs for seated toilets that would permit defecation without squatting in their inclusive handbook titled *Handbook on accessible household sanitation for persons with disabilities*⁷ (Fig. 1). Unfortunately, this has not been implemented as envisioned in rural Chhattisgarh, and we suspect in the rest of India. In a race to achieve ODF status, people with disabilities and the elderly have been forgotten.

SBM latrines should consider the needs of the elderly and people with disabilities. Coffey *et al.* observed that 21% of a sample population preferred open defecation despite having a toilet in the household.⁸ In addition, in a study conducted in Ethiopia, latrine usage was only 41% among people with physical disabilities, even if there was a latrine present in the household.⁴



FIG 1. Economical designs for seated toilets that would permit defecation⁷

Jan Swasthya Sahyog, Bilaspur 495112, Chhattisgarh, India
ANUP AGARWAL, YOGESH JAIN

Correspondence to YOGESH JAIN; yogeshjain.jsbilaspur@gmail.com

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Similarly, in Mali, it was seen that the percentage of latrine use among people with disabilities was 42%.⁹ These were all unmodified squat toilets. There is no official data about the use of latrines among people with physical disability and the elderly, but to presume that their use of squat toilets in India would not be higher than that in Ethiopia and Mali seems reasonable. In the same study in Ethiopia, it was noticed that people with physical disability were 3 times more likely to use latrines if the latrine had been modified.⁴ These modifications may include installing seated toilets instead of the squat toilets, placing hand bars and using ramps instead of stairs leading to the toilets.¹⁰

Defecation in the squatting posture has benefits when compared to that in the sitting posture. The sensation of satisfactory bowel emptying in the sitting defecation posture necessitates excessive expulsive effort and longer duration compared to the squatting posture.^{11–13} However, these benefits do not mean much for a person who cannot squat. Similarly, some may argue that ‘western’ seated toilets are culturally inappropriate as compared to the common squat toilets, and their use may be poorly assimilated due to a lack of familiarity. However, there is little to suggest that these seated toilets should be considered solely western toilets. The first seated toilets were invented in Mohenjo Daro circa 2800 BC. It had seated toilets made from bricks with wooden seats on the top.¹⁴ A survey-based study reported that use of seated toilets is as high as 20%–50% in some parts of urban India, but in rural India, the use of seated toilets is at a poor 5%.¹⁵ Increased uptake of seated toilets in urban India points towards its increased cultural acceptance if availability is ensured.

Overall, most Asian and African countries usually have squat toilets. India and its neighbouring countries Pakistan, Bangladesh, Nepal and Afghanistan have squat toilets and rarely have sitting toilets. Similarly, African countries such as Rwanda, Somalia and Uganda have mostly squat toilets. In Egypt, the prevalence of squat toilets is around 70%. Cambodia has 50% of squat toilets and 50% of sitting toilets. In China, usually, rural areas have squat toilets and urban areas are moving towards sitting toilets. In Thailand, both squat and sitting toilets are equally used.

In comparison, South American countries such as Mexico, Peru, Chile, Bolivia and Brazil rarely have squat toilets and almost always have sitting toilets. In Australia and New Zealand also, it is rare to find a squat toilet and a sitting toilet is the norm. Similarly, France and Germany also do not have any squat toilets. In Asia, Ukraine usually has sitting toilets.¹⁵

Cultural change takes time, but changes that are seen to be beneficial may be more easily accepted. In a study in Haiti, toilets were accepted by 71% of the study households as they were associated with a higher social status, modernity and safety.¹⁶ Motivational factors for latrine adoption and sustaining ODF behaviour included social pressure (prestige and stigma) and perceived benefits (convenience, privacy, safety, dignity and health).¹⁷ Acceptance of seated toilets by those who would benefit may be similarly motivated. This would also reduce overall open defecation, which has been identified as a serious public health concern.

EQUITY AND TOILETS

The cost of Vitreous China Indian-type water closet pan of size 580 mm is ₹450 according to the Delhi Schedule of rates 2016. In comparison, the price of coloured pedestal (sitting)-type water closet pan of size 580 mm (440 mm is ₹900).¹⁸ The sitting type of toilet also requires a toilet seat. There is a major difference in price

between the two types of toilets. However, SBM allocates the same amount of money to every household for building toilets ignoring the elderly and disabled. If human frailties and diseases require different environments, it should be respected by the programme.

The United Nations recognizes the right to basic sanitation as a human right that is essential for the full enjoyment of life and all human rights.¹⁹ Sustainable Development Goal 6 says that access to safe water and sanitation is essential to human health and to environmental sustainability and economic prosperity.²⁰ A comfortable and safe toilet is a vital part of safe sanitation. The Rights of Persons with Disabilities Act, 2016, mandates that appropriate governments shall ensure appropriate and accessible sanitation facilities, especially in urban slums and rural areas on the basis of principles for empowerment of persons with disabilities, respect for inherent dignity and full and effective participation and inclusion in society.²¹ In fact, building squat toilets in homes with people with disabilities undermines the law. Guidelines of the Central Public Works Department and space standards for barrier-free built environment, for disabled and elderly persons ‘recommend that one special seated toilet in a set of toilets shall be provided for the use of the handicapped in all public spaces. The seat of toilet shall be 500 mm from the floor’.²²

Forcing people with an inability to squat and those with disability to squat to ensure toileting is a violation of their human right on a daily basis. Equal toilets for equal frailty. Addressing the needs of our frail should be a priority. If the government is sincere in its effort to build toilets in every household to make India an ODF society, they should be certainly inclusive.

Conflicts of interest. None declared

REFERENCES

- Jain Y, Kataria R, Patil S, Kadam S, Kataria A, Jain R, *et al.* Burden and pattern of illnesses among the tribal communities in central India: A report from a community health programme. *Indian J Med Res* 2015;**141**:663–72.
- Chakrabarti SD, Ganguly R, Chatterjee SK, Chakravarty A. Is squatting a triggering factor for stroke in Indians? *Acta Neurol Scand* 2002;**105**:124–7.
- Stevens JA, Mahoney JE, Ehrenreich H. Circumstances and outcomes of falls among high risk community-dwelling older adults. *Inj Epidemiol* 2014;**1**:5.
- Asfaw B, Azage M, Gebregergs GB. Latrine access and utilization among people with limited mobility: A cross sectional study. *Arch Public Health* 2016;**74**:9.
- Chamberlain MA, Thornley G, Wright V. Evaluation of aids and equipment for bath and toilet. *Rheumatol Rehabil* 1978;**17**:187–94.
- Swachh Bharat Mission, Grameen. Ministry of Drinking Water and Sanitation. Available at www.swachhbharatmission.gov.in/SBMCMS/about-us.htm (accessed on 22 Apr 2018).
- Handbook on accessible household sanitation for persons with disabilities (PwDs)*. Ministry of Drinking Water and Sanitation; 2015. Available at www.swachhbharatmission.gov.in/sbmcms/writereaddata/images/pdf/technical-notes-manuals/PWD-Guidelines.pdf (accessed on 22 Apr 2018).
- Coffey D, Gupta A, Hathi P, Khurana N, Spears D, Srivastav N, *et al.* Revealed preference for open defecation. *Econ Polit Wkly* 2014;**49**:43–55.
- Tan K, Norman W, Knepper S, Kamban S. Access to water, sanitation and hygiene: A survey assessment of persons with disabilities in rural Mali. 36th WEDC International Conference. Nakuru, Kenya; 2013:1–6.
- Wagner M, Riech C, Panzerbieter T, House S, Jones H, Hoffmann H, *et al.* Making sustainable sanitation inclusive for persons with disabilities; 2011. Available at www.susana.org/_resources/documents/default/2-1210-giz-2011-sustainable-sanitation-and-disability-barrierefreie-version-final.pdf (accessed on 22 Apr 2018).
- Sikirov D. Comparison of straining during defecation in three positions: Results and implications for human health. *Dig Dis Sci* 2003;**48**:1201–5.
- Sakakibara R, Tsunoyama K, Hosoi H, Takahashi O, Sugiyama M, Kishi M, *et al.* Influence of body position on defecation in humans. *Low Urin Tract Symptoms* 2010;**2**:16–21.
- Ahmed I, Shabbir MN, Iqbal MA, Shahzeb M. Role of defecation postures on the outcome of chronic anal fissure. *Pak J Surg* 2013;**29**:269–71.
- Teresi D. *Lost discoveries. The Ancient roots of modern science—From the Babylonians to the Maya*. London:Simon and Schuster; 2002.

- 15 Von Munch E, Milosevic D. Qualitative survey on squatting toilets and anal cleansing with water with a special emphasis on Muslim and Buddhist countries by using the SuSanA discussion forum; 2015. Available at www.susana.org/en/knowledge-hub/resources-and-publications/library/details/2302 (accessed on 22 Apr 2018).
- 16 Russel K, Tilmans S, Kramer S, Sklar R, Tillias D, Davis J, *et al*. User perceptions of and willingness to pay for household container-based sanitation services: Experience from Cap Haitien, Haiti. *Environ Urban* 2015;**27**:525–40.
- 17 Cavill S, Chambers R, Vernon N. Sustainability and CLTS: Taking Stock. Brighton: Institute of Development Studies at the University of Sussex; 2015.
- 18 Sharma MK, Chaudhary SP, Rastogi S, Singh PP, Meena KR, Garg RB, *et al*. Delhi Schedule of Rates. Vol. 1. New Delhi: CPWD; 2016. Available at [www.cpwd.gov.in/Publication/DSR_BookVol_1_2016_\(English_Version\)_Final.pdf](http://www.cpwd.gov.in/Publication/DSR_BookVol_1_2016_(English_Version)_Final.pdf) (accessed on 22 Apr 2018).
- 19 64/292. The Human Right to Water and Sanitation; 2010. Available at www.un.org/es/comun/docs/?symbol=A/RES/64/292&lang=E (accessed on 22 Apr 2018).
- 20 Sustainable Development Goal 6: Ensure access to water and sanitation for all. United Nations. Available at www.un.org/sustainabledevelopment/water-and-sanitation/ (accessed on 22 Apr 2018).
- 21 Narayanaraju G. The Rights of Persons with Disability Act 2016. Available at [www.ncpedp.org/sites/all/themes/marinelli/documents/Rights_of_Persons_with_Disabilities_\(RPWD\)Act_2016.pdf](http://www.ncpedp.org/sites/all/themes/marinelli/documents/Rights_of_Persons_with_Disabilities_(RPWD)Act_2016.pdf) (accessed on 22 Apr 2018).
- 22 Guidelines and space standards for barrier free built environment for disabled and elderly persons; 1998:1–85. Available at www.cpwd.gov.in/Publication/aged&disabled.pdf (accessed on 22 Apr 2018).

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Contact

Dr Shubha Phadke, Professor & Head, Department of Medical Genetics
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Lucknow, India, 226014

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E mail: sgpgigenetics@gmail.com