



PAIN

– The price our daughters pay for water

The burden of carrying water is putting South Africa's rural women and children at risk of a lifetime of pain and discomfort. This is according to a study by South African and UK researchers. Lani van Vuuren reports.

The regular carrying of heavy containers filled with water over long distances has long thought to be potentially damaging to the bodies of especially women and children, yet few global investigations have been undertaken in this regard. In turn, musculoskeletal injury or disorders are a known risk factor in occupational settings.

These disorders can cause severe impairment and functional disability, hampering quality of life.

In South Africa, basic water services require a maximum acceptable distance for a communal tap no more than 200 m from a person's house. This means that, even if people have access to an improved water supply someone – usually a woman or child – still has to carry that water from the tap to the door. In a rather unusual study, undertaken by Jo-Anne Geere and colleagues of the Faculty of Health at the University of East Anglia, in the UK, and a team from the Department of Environmental Health at the Tshwane

University of Technology led by Prof Paul Jagals, looked at the way water carrying is performed in rural South Africa, with a view to identifying the potential health risk factors. The study was funded by the Water Research Commission.

Data was collected from six villages in Limpopo's Vhembe district, purposely selected to include a range of water service situations and environments which have different physical effects or expose people to different risk factors for injury or disease. Among others, the study sought to identify the main carriers of water, how this water was carried, what factors posed risk of injury

or disease and looked at the pain symptoms experienced by those carrying water.

A WOMAN'S WORK

The study again confirmed that carrying water is the work of women and children, with very few males observed undertaking this task. Children as young as six were observed carrying heavy containers of water, weighing 19,5 kg on average. “The weight of these containers is quite significant, especially considering that the minimum body weight we measured was only 16 kg,” noted Prof Jagals. “The average weight of the people in the study was 49 kg.”

The research team found that the characteristics of the terrain over which this water had to be transported very much dictated the way in which people carried it, whether on the head, by rolling the container along the ground or using a wheelbarrow. This study suggests that women and children are more likely to carry water on their heads, which focuses and transmits forces through the cervical spine. The average distance travelled was 337 m.

The mean container weight as percentage of body weight for head loading was 41,4%. It was not uncommon to find especially children carrying more than half their body weight in water on their heads and a mean container weight as percentage of body weight of up to 77,8% was observed. When using equipment, such as wheelbarrows, people transported up to 200% of their body weight (up to five containers).

This water weighs heavily on the heads and necks of those who carry it. “The weight of the water alone generates an average of 191 Newtons of compressive force through the cervical spine,” noted Prof Jagals. “In a healthy person this compression force may not exceed tissue tolerances if applied briefly. However,

Millions of South African women and children spend hours a day collecting and carrying containers of water to the detriment of their health.



Guy Stubbs

Children as young as six were observed carrying water.



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malnutrition and chronic illness, both prevalent in poor rural areas such as Limpopo, can reduce these tolerances.” The mere lifting of this heavy load on to the head is a health risk, even for adults.

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Up to 70% of people interviewed complained of spinal pain (pain reported in the head, neck or back). Of interest is that the study found that the distance walked by those who reported pain was significantly less than those who did not. “These results may indicate pain-related

disability, as people with spinal pain may experience difficulty carrying water over long distance and be more likely to continue to carry water only if it is accessible close to home,” said Prof Jagals.

Factors such as low taps (leading to awkward body positions), load weight, an unwieldy load, physical obstacles, traffic, age and gender, are some of the other potential health risk factors identified during this study.

These findings highlight the potential impact that carrying water may have on health. “More research is required to understand the physical risks of water carrying and so reduce the burden on our women and children,” concluded Prof Jagals. □