

Supplementary Material

Manuscript Title: In pursuit of “safe” water: the burden of personal injury from water-fetching in 21 low- and middle-income countries.

Authors: Vidya Venkataramanan, Jo-Anne L. Geere, Benjamin Thomaes, Justin Stoler, Paul R. Hunter, Sera L. Young, & Household Water Insecurity Experiences-Research Coordination Network (HWISE RCN).

Supplementary Table 1. List of IRB approvals for HWISE study

Site	IRB of Record
Accra, Ghana	Miami and Delaware Universities, reliant on Northwestern; Ghana Water Company
Kathmandu, Nepal	Arizona State University
Lagos, Nigeria	Northwestern University, University of Lagos
Honda, Colombia	Northwestern University, Pontificia Universidad Javeriana
Bahir Dar, Ethiopia	Oregon State University, reliant on Northwestern University
Singida, Tanzania	Cornell University
Lilongwe, Malawi	Georgia State University
Dushanbe, Tajikistan	Arizona State University
Seme, Kenya	Northwestern University, African Medical Research Foundation (AMREF)
Kampala, Uganda	Northwestern and T-Group Kampala
Acatenango, Guatemala	Arizona State University
Kahemba, DRC	Oregon Health Sciences University
San Borja, Bolivia	Northwestern University
Beirut, Lebanon	Northwestern University, American University of Beirut
Chiquimula, Guatemala	McGill University, Northwestern University
Pune, India	Cornell University, BJMC, JHU
Gressier, Haiti	University of Florida
Punjab, Pakistan	Exempt
Rajasthan, India	Exempt
Torreon, Mexico	Exempt
Labuan Bajo, Indonesia	Exempt
Cartagena, Colombia	Exempt
Baluchastan & Sistan, Iran	Exempt

Supplementary Table 2. Coding framework with ICD codes and definitions for water-fetching injuries

Code category in Atlas.ti	ICD code(s) and definition
Type of Injury	
Fracture, dislocation	ND56.2 - Fracture of unspecified body region
Contusions, superficial injuries	ND56.0 - Superficial injury of unspecified body region PH00 - Struck by blunt object with undetermined intent
Lacerations, open wound	ND56.1 - Open wound of unspecified body region
Burns, corrosions	NE11 - Burn of unspecified body region
General body pain	- Spinal, chest, back, neck pain
Fatigue or other illness	MG22 - Fatigue MG48 - Unknown and unspecified causes of morbidity
Unspecified injury	ND56.Z - Unspecified injury to unspecified part of trunk, limb or body region
Mechanism of Injury	
Falling, slipping	PA6Z - Unintentional fall from unspecified height
Traffic accident (biking/riding animal/car)	PD50 - Assault by land transport road traffic injury event
Physical confrontation	PE10 - Assault by being struck, kicked or bumped by person
Using water source/carrying container	XE0GP - Heavy container, box, package
Animal attack, insect bite	XE23K - Animal, plant or person
Mechanism unspecified	N/A
Bodily location of injury	
Axial, chest	ND51 – Other injuries of spine or trunk, level unspecified NB3Y/ NB3Z – Other specified/unspecified injuries to the thorax NB9Y / NB9Z - Other specified/unspecified injuries to the abdomen, lower back, lumbar spine or pelvis
Head/Face/Neck	NA0Z - Injuries to the head, unspecified NA6Y/ NA6Z - Other specified/unspecified injuries to the neck NC9Y / NC9Z - Other specified/unspecified injuries to the knee or lower leg
Lower limbs	ND1Y / ND1Z - Other specified/unspecified injuries to the ankle or foot ND55 - Other injuries of leg, unspecified ND53.Y / ND53.Z - Other specified/unspecified injuries of arm, level unspecified
Upper limbs	NC5Y / NC5Z - Other specified/unspecified injuries to the wrist or hand
Body, general (unspecified)	ND56 – Injury of unspecified body region
Context of injury	
Poor roads	XE5NE - Public highway, street or road
Terrain (e.g. rocks, bushes)	NF08.7 - Effects of other specified external causes, unspecified
Weather (heat, rain)	NF01 - Effects of heat
Context unspecified	NF0Z - Unspecified effects of external causes

Supplementary Table 3. Characteristics of respondents from HWISE study included and excluded from mixed effects logistics regression model.

Variable	Included	Excluded	p-value
	(n= 4169)	(n=2075)	
Location, %			<0.001
Rural	41.1	47.8	
Peri-urban	19.3	30.5	
Urban	39.7	21.7	
	(n= 4169)	(n=2017)	
Female, %	70.5	75.9	<0.001
	(n= 4169)	(n=2156)	
Reporting water-fetching injuries, %	11.1	19.3	<0.001
	(n= 4169)	(n=2121)	
Responsibility for water			<0.001
Self	52.9	46.1	
Shared	25.6	28.0	
Spouse, child, other family	21.5	25.9	
	(n= 4169)	(n=1944)	
Age, mean(sd)	37.5 (13.3)	37.7 (13.8)	0.700
	(n= 4169)	(n=898)	
HWISE 11 Score	6.7 (7.5)	9.4 (8.4)	<0.001
	(n= 4169)	(n=1572)	
Hours/week collecting water	5.2 (9.3)	7.0 (8.5)	<0.001
	(n= 4169)	(n=1750)	
Self-reporting socio-economic standing	5.8 (2.4)	6.7 (2.4)	<0.001
	(n= 4169)	(n=2127)	
Water source by risk			<0.001
On-premise	20.1	14.8	
Purchased bottled/bagged	27.7	18.6	
Off-premise queueing	44.6	39.6	
Off-premise surface waters	7.7	27.0	

Supplementary Table 4. Suggested survey module for assessing water-fetching injuries and related symptoms.

Have you ever experienced any of the following injuries or related symptoms while (a) fetching water, or (b) managing your household's water at home in the past [insert recall period]?

Injury/Symptom					
Fetching water	Managing household water at home		Fetching water	Managing household water at home	
<input type="checkbox"/>	<input type="checkbox"/>	Fracture, dislocation (ICD ND56.2)	<input type="checkbox"/>	<input type="checkbox"/>	Illness (MG48)
<input type="checkbox"/>	<input type="checkbox"/>	Superficial injury, contusion (ND56.0, PH00)	<input type="checkbox"/>	<input type="checkbox"/>	Pain, unspecified (ME84)
<input type="checkbox"/>	<input type="checkbox"/>	Laceration, open wound (ND56.1)	<input type="checkbox"/>	<input type="checkbox"/>	Feeling of danger
<input type="checkbox"/>	<input type="checkbox"/>	Burn, corrosion (NE11)	<input type="checkbox"/>	<input type="checkbox"/>	Other (specify)
<input type="checkbox"/>	<input type="checkbox"/>	Fatigue (MG22)			

For each injury or related symptom, please describe the part of your **body** where you sustained the injury or experienced the symptoms:

Bodily location			
<input type="checkbox"/>	Head or face (NA0Z)	<input type="checkbox"/>	Shoulders or arms (ND53.Y/ND53.Z)
<input type="checkbox"/>	Neck (NA6Y/NA6Z)	<input type="checkbox"/>	Wrists, hands, or fingers (NC5Y/NC5Z)
<input type="checkbox"/>	Upper back (NB3Y/ NB3Z)	<input type="checkbox"/>	Hip or thigh (ND55)
<input type="checkbox"/>	Lower back (NB9Y/ NB9Z)	<input type="checkbox"/>	Knees or lower leg (NC9Y/NC9Z)
<input type="checkbox"/>	Abdomen (NB9Y/NB9Z)	<input type="checkbox"/>	Ankle, or foot (ND1Y/ND1Z)
<input type="checkbox"/>	Spine or chest (Axial) (ND51)	<input type="checkbox"/>	Body, general (unspecified) (ND56)

For each injury or related symptom, please describe the **mechanism** or activity by which you sustained the injury or experienced the symptoms:

Mechanism/Activity			
<input type="checkbox"/>	Falling, slipping (PA6Z)	<input type="checkbox"/>	Traffic accident (vehicle/riding animal) (PD50)
<input type="checkbox"/>	Physical confrontation, fight (PE10)	<input type="checkbox"/>	Sexual assault (XE213)
<input type="checkbox"/>	Animal attack (XE23K)	<input type="checkbox"/>	Other (specify)
<input type="checkbox"/>	Handling water container / using water source (XE0GP)		

For each injury or related symptom, please describe the **context** in which you sustained the injury or experienced the symptoms:

Context			
<input type="checkbox"/>	Rain, slippery rocks, vegetation, terrain (NF08.7)	<input type="checkbox"/>	Poor weather (heat, rain) (NF01)
<input type="checkbox"/>	Poor roads (XE5NE)	<input type="checkbox"/>	Other (specify) (NF0Z)

Supplementary Table 5. STROBE Statement—checklist of items that should be included in reports of observational studies

	Item No.	Recommendation	Manuscript Line No.
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	74
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	111-139
Objectives	3	State specific objectives, including any prespecified hypotheses	140-151
Methods			
Study design	4	Present key elements of study design early in the paper	154-165
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	156-162
Participants	6	(a) <i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	155-162
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	166-206
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	166-206
Bias	9	Describe any efforts to address potential sources of bias	155-162
Study size	10	Explain how the study size was arrived at	167-170, 224-226
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	211-219
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	211-219
		(b) Describe any methods used to examine subgroups and interactions	262-266, Figure 2
		(c) Explain how missing data were addressed	277-281, SM Table 3
		(d) <i>Cross-sectional study</i> —If applicable, describe analytical methods taking account of sampling strategy	211-212
		(e) Describe any sensitivity analyses	211-216

Continued

	Item No.	Recommendation	Manuscript Line No.
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	156-159, 224-226, Table 1, Figure 1, Figure 2, Table 2
		(b) Give reasons for non-participation at each stage	167-169, 224-226, 277
		(c) Consider use of a flow diagram	N/A
Descriptive data	14*	(a) Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders	227-232, Table 1
		(b) Indicate number of participants with missing data for each variable of interest	SM Table 3
Outcome data	15*	<i>Cross-sectional study</i> —Report numbers of outcome events or summary measures	233-237, Figure 1
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Table 2
		(b) Report category boundaries when continuous variables were categorized	N/A
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	N/A
Other analyses	17	Report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses	Fig. 2, SM Table 3
Discussion			
Key results	18	Summarise key results with reference to study objectives	305-312
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	400-412
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	313-374
Generalisability	21	Discuss the generalisability (external validity) of the study results	413-419
Other Information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	45-55