Supplementary Materials:

Table S1: Attributed dry bulb temperature, relative humidity and Wet Bulb GlobeTemperature (WBGT) in 352 saltpan workers in Tamil Nadu, India

	Season		Dry Bu	ulb*	Rela	tive H	lumidity*		WBG	T
	(partic		(°C)		(%)		(°C)		
Area	i-	Min	Max	Mean	Min	in Ma x	Mean	Min	Ма	Mean
	pants)	14111		±SD			±SD		х	±SD
	Summe									
Marakkana	r	30.7	35.9	33.6±1.2	38	77	52.2±8.7	28.5	32.	31.1±1.
			0017 00102112					_0.0	8	1
m	(N=53)									
	Winter	21.9	29.2	25.3±2.3	52	90	66.8±10.	22.6	28.	25.8±1.
	(N=42)						1		3	9
	Summe									
	r		36	32.2±1.3	38	80	58.1±8.8	26.5	33.	30.3±1.
Vedharanya		29.8								2
m	(N=201								3	3
)									
	Winter								33.	29.3±1.
	(N=56)	29.8	36	32.8±1.4	39	66	50.6±6.2	26.5	3	3

* Average ambient parameters during the workplace heat measurements.

Table S2: The associations between workload and self-reported heat strain dehydration symptoms, productivity losses, and physiological indicators of heat strain and kidney function in 352 saltpan workers from Tamil Nadu, India

	Work	k load ¹		
	Moderate	Heavy	Crude OR	AOR
	workload ¹	workload ¹	(95% CI)	(95% CI) ²
	% (n=55)	% (n=297)		
Heat strain symptoms	5		1	
Dizzinoss	10.0	50.8	8.4	8.1
DIZZINESS	10.9	50.0	(3.5-20.3)	(3.3-19.8)
Nausea/Vomiting/	2.6	21.0	7.4	7.5
Fainting/ Prickly heat	5.0	21.9	(1.7-31.2)	(1.7-32.1)
Tiredness/weakness	29.1	73 7	6.8	6.8
Theunessy weakness	29.1	/ 5./	(3.6-12.9)	(3.5-13.1)
Excessive sweating	473	83.8	6.4	6.3
Excessive sweating	17.5	03.0	(3.3-12.2)	(3.3-12.1)
Any dehydration			6.2	6.3
symptom (Dry mouth,	23.6	65.7	(3 1-12)	(3 1-12 4)
excessive thirst)			(311 12)	(511 12.1)
Any heat strain			4.4	3.5
symptom (any of	80.0	94.6	(1.9-10)	(1.5-8.9)
above)				
Thirst	50.9	77.8	3.3	3.2
i mi St	50.7	77.0	(1.8-6.1)	(1.7-6.1)
Muscle cramps	32.7	56.9	2.7	2.4
musele eramps	52.7	50.2	(1.4-4.9)	(1.3-4.6)

Headache 30.9 46.1 $(1.1-3.5)$ $(1.1-3.8)$ Urogenital symptoms Changes in urine volume/Color 47.3 82.5 5.2 5.5 Running sensation during urination 12.7 26.9 $(2.9-10.5)$ $(1.1-5.8)$ $(2.9-10.5)$ Burning sensation during urination 12.7 26.9 $(2.9-10.5)$ $(1.1-6.1)$ Skin itching in urinogenital sites 7.3 7.2 2.6 2.4 urinogenital sites 7.3 17.2 $(0.9-7.6)$ $(0.8-7.1)$ Productivity losses 7.3 17.2 2.8 3.6 productivity 7.3 32.7 2.8 3.6 loss/additional time to complete tasks 14.5 32.7 2.8 3.6 Wages lost due to heat 9.1 25.3 3.3 3.2 heat 10.9 24.2 $(1.1-6.3)$ $(1.1-6.2)$ Absenteeism/ 10.9 24.2 $(1.6-8.2)$ $(1.6-8.2)$ sick leave due to heat 10.9 25.5 52.5 3.2 <td< th=""><th></th><th></th><th></th><th>1.9</th><th>2.0</th></td<>				1.9	2.0			
Image in a rune 47.3 82.5 5.2 5.5 Volume/Color 47.3 82.5 (2.8-9.6) (2.9-10.5) Burning sensation 12.7 26.9 (1.1-5.8) (1.1-6.1) Skin itching in 7.3 17.2 (0.9-7.6) (0.8-7.1) Productivity losses 7.3 17.2 2.8 3.6 Volume/color 7.3 32.7 (0.9-7.6) (0.8-7.1) Productivity losses 11.4.5 32.7 (0.9-7.6) (0.8-7.1) Productivity losses 11.4.5 32.7 (1.2-6.2) (1.6-8.2) Wages lost due to 9.1 25.3 3.3 3.2 heat 9.1 25.3 (1.2-8.7) (1.2-8.5) Absenteeism/ 10.9 24.2 (1.1-6.3) (1.1-6.2) sick leave due to heat 10.9 24.2 3.2 3.8 sick leave due to heat 10.9 25.5 3.2 1.1 (1.9-7.6) sick leave due to heat 12.7 1.1 (1.9-7.6) <td>Headache</td> <td>30.9</td> <td>46.1</td> <td>(1 1-3 5)</td> <td>(1 1.3 8)</td>	Headache	30.9	46.1	(1 1-3 5)	(1 1.3 8)			
Urogenital symptoms Series 5.2 5.5 Changes in urine volume/Color 47.3 82.5 $(2.8-9.6)$ $(2.9-10.5)$ Burning sensation during urination 12.7 26.9 $(1.1-5.8)$ $(1.1-6.1)$ Skin itching in urinogenital sites 7.3 17.2 2.6 $(0.9-7.6)$ $(0.8-7.1)$ Skin itching in urinogenital sites 7.3 17.2 2.6 2.4 Volume/Color 7.3 17.2 $0.9-7.6$ $(0.8-7.1)$ Skin itching in urinogenital sites 7.3 17.2 2.6 2.4 Volume/Color 7.3 17.2 $0.9-7.6$ $0.8-7.1$ Productivity 7.3 32.7 $0.8-7.1$ $0.8-7.1$ loss/additional time to complete tasks 14.5 32.7 $1.6.82.1$ $1.6.82.1$ Wages lost due to heat 9.1 25.3 3.3 3.2 $1.6.2.5$ kate due to heat 10.9 25.5 3.2 3.8 $3.8.2$ $3.8.2$ $3.6.1$ 1.4				(1.1-3.3)	(1.1-5.0)			
$\begin{array}{c c c c c c } \mbox{Color} & 47.3 & 82.5 & 5.2 & 5.5 \\ \mbox{volume/Color} & 47.3 & 82.5 & (2.8-9.6) & (2.9-10.5) \\ \mbox{Burning sensation} & 12.7 & 26.9 & (1.1-5.8) & (1.1-6.1) \\ \mbox{Skin itching in} & 7.3 & 17.2 & 2.6 & 2.4 \\ \mbox{(urinogenital sites} & 7.3 & 17.2 & 2.6 & 2.4 \\ \mbox{(uo9-7.6)} & (0.8-7.1) & 0.8-7.1 \\ \mbox{Productivity losses} & & & & & & & & & & & & & & & & & & &$	Urogenital symptoms							
volume/Color 47.3 82.5 (2.8-9.6) (2.9-10.5) Burning sensation during urination 12.7 26.9 (1.1-5.8) (1.1-6.1) Skin itching in urinogenital sites 7.3 17.2 2.6 2.4 Burning sensation 7.3 17.2 2.6 2.4 urinogenital sites 7.3 17.2 (0.9-7.6) (0.8-7.1) Productivity losses 7.3 32.7 (1.2-6.2) (1.6-8.2) Productivity 3.4 3.6 (1.2-6.2) (1.6-8.2) to complete tasks 9.1 25.3 3.3 3.2 Mages lost due to 9.1 25.3 3.3 3.2 heat 9.1 25.3 1.1-6.3) (1.1-6.2) Absenteeism/ 10.9 24.2 2.6 2.5 sick leave due to heat 10.9 24.2 1.1-6.3) (1.1-6.2) 'swR ≥1L/hr 25.5 52.5 3.2 3.8 1.1-7.61) (1.9-7.6) 'sympanic 12.7 15.2	Changes in urine			5.2	5.5			
Burning sensation during urination 12.7 26.9 2.5 2.6 Burning urination 12.7 26.9 $(1.1-5.8)$ $(1.1-6.1)$ Skin itching in urinogenital sites 7.3 17.2 2.6 2.4 Productivity losses 7.3 17.2 $(0.9-7.6)$ $(0.8-7.1)$ Productivity loss/additional time to complete tasks 14.5 32.7 2.8 3.6 Wages lost due to heat 9.1 25.3 3.3 3.2 Absenteeism/ sick leave due to heat 10.9 24.2 2.6 2.5 Pysiological indicators of heat strain and kidney function (1.1-6.2) (1.1-6.2) 1.1 Pympanic temperature pre-post 12.7 15.2 3.2 3.8 difference > 1°C 38.2 49.5 1.6 1.4	volume/Color	47.3	82.5	(2.8-9.6)	(2.9-10.5)			
during urination12.726.9(1.1-5.8)(1.1-6.1)Skin itching in urinogenital sites 7.3 17.2 2.6 2.4 urinogenital sites 7.3 17.2 $(0.9-7.6)$ $(0.8-7.1)$ Productivity lossesProductivity lossesProductivityloss/additional time to complete tasks 14.5 32.7 2.8 $(1.2-6.2)$ 3.6 $(1.2-8.2)$ Wages lost due to heat 9.1 25.3 3.3 3.2 Absenteeism/ sick leave due to heat 10.9 24.2 $(1.2-8.7)$ $(1.2-8.7)$ $(1.2-8.5)$ Physiological indicators of heat strain and kidney function $(1.1-6.3)$ $(1.1-6.3)$ $(1.1-6.3)$ Physiological indicators of heat strain and kidney functionPhysiological indicators of heat strain and kidney function9 25.5 3.2 3.2 $9^{SWR \ge 1L/hr}$ 25.5 52.5 3.2 3.8 $9^{SWR \ge 1L/hr}$ 12.7 1.2 1.1 $12^{FG(90)}$ 38.2 49.5 1.6 1.4	Burning sensation	10.7	26.0	2.5	2.6			
Skin itching in 7.3 17.2 2.6 2.4 urinogenital sites 7.3 17.2 $(0.9-7.6)$ $(0.8-7.1)$ Productivity losses 14.5 32.7 2.8 3.6 loss/additional time 14.5 32.7 $(1.2-6.2)$ $(1.6-8.2)$ to complete tasks 9.1 25.3 3.3 3.2 heat 9.1 25.3 $(1.2-8.7)$ $(1.2-8.5)$ Absenteeism/ 10.9 24.2 $(1.1-6.3)$ $(1.1-6.2)$ Physiological indicators of heat strain and kidney function $(1.1-6.2)$ $(1.1-6.2)$ $(1.1-6.2)$ Physiological indicators of heat strain and kidney function $(1.1-6.2)$ $(1.1-6.2)$ $(1.1-6.2)$ Physiological indicators of heat strain and kidney function $(1.1-6.2)$ $(1.1-6.2)$ $(1.9-7.6)$ ⁷ SwR $\geq 1L/hr$ 25.5 52.5 3.2 3.8 $(1.9-7.6)$ ⁷ ympanic 12.7 15.2 $(0.5-2.8)$ $(0.4-2.6)$ $(0.4-2.6)$ difference > 1°C 38.2 49.	during urination	12.7	26.9	(1.1-5.8)	(1.1-6.1)			
urinogenital sites 7.3 17.2 $(0.9-7.6)$ $(0.8-7.1)$ Productivity losses 7.3 17.2 $(0.9-7.6)$ $(0.8-7.1)$ Productivity losses 7.3 3.2 3.6 $1.2-6.2$ $1.6-8.2$ loss/additional time 14.5 32.7 2.8 3.6 $(1.2-6.2)$ $(1.6-8.2)$ to complete tasks 9.1 25.3 $(1.2-8.7)$ $(1.2-8.7)$ $(1.2-8.5)$ Mages lost due to 9.1 25.3 $(1.2-8.7)$ $(1.2-8.5)$ $(1.2-8.5)$ Absenteeism/ 10.9 24.2 2.6 2.5 $(1.1-6.3)$ $(1.1-6.2)$ sick leave due to heat 10.9 24.2 3.2 3.8 $(1.1-6.2)$ Physiological indicators of heat strain and kidney function $(1.1-6.2)$ $(1.1-6.2)$ $(1.9-7.6)$ $^{9}SwR \ge 1L/hr$ 25.5 52.5 3.2 3.8 1.1 $(0.5-2.8)$ $(0.4-2.6)$ $^{7}ympanic$ 12.7 15.2 1.6 1.4 1.4 eGFR < 90	Skin itching in		45.0	2.6	2.4			
Productivity losses 14.5 32.7 2.8 3.6 3.2 3.6 3.2 3.2 3.3 3.2 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6 3.6	urinogenital sites	7.3	17.2	(0.9-7.6)	(0.8-7.1)			
Productivity loss/additional time 14.5 32.7 2.8 (1.2-6.2) $3.6(1.6-8.2)$ Wages lost due to heat 9.1 25.3 3.3 3.2 Absenteeism/ sick leave due to heat 10.9 24.2 $(1.2-8.7)$ $(1.2-8.5)$ Physiological indicators of heat strain and kidney function $(1.1-6.3)$ $(1.1-6.2)$ $(1.1-6.2)$ $^{\circ}SwR \ge 1L/hr$ 25.5 52.5 3.2 3.8 $^{\circ}SwR \ge 1L/hr$ 25.5 52.5 1.2 1.1 γ 12.7 15.2 $(0.4-2.6)$ $(0.4-2.6)$ difference > 1°C 38.2 49.5 1.6 1.4	Productivity losses							
$ \begin{array}{c c c c c } & & & & & & & & & & & & & & & & & & &$	Productivity							
Item	loss/additional time	14.5	32.7	2.8	3.6			
to complete tasks Image: base of tasks I				(1.2-6.2)	(1.6-8.2)			
Wages lost due to heat 9.1 25.3 3.3 3.2 Absenteeism/ sick leave due to heat 10.9 24.2 (1.2-8.7) (1.2-8.5) Absenteeism/ sick leave due to heat 10.9 24.2 (1.1-6.3) (1.1-6.2) Physiological indicators of heat strain and kidney function (1.1-6.2) (1.1-6.2) 3.8 $^{9}SwR \ge 1L/hr$ 25.5 52.5 3.2 3.8 $^{7}SwR \ge 1L/hr$ 25.5 52.5 1.2 1.1 $^{9}SwR \ge 1L/hr$ 12.7 15.2 $(0.5-2.8)$ $(0.4-2.6)$ $^{1}GFrence > 1^{\circ}C$ 38.2 49.5 1.6 1.4	to complete tasks							
heat9.125.3(1.2-8.7)(1.2-8.5)Absenteeism/ sick leave due to heat10.924.22.62.5sick leave due to heat10.924.2(1.1-6.3)(1.1-6.2)Physiological indicators of heat strain and kidney function9SwR >11/hr25.552.53.23.8 $^{9}SwR >1L/hr25.552.5(1.7-6.1)(1.9-7.6)Tympanictemperature pre-post12.715.21.21.10.5-2.8)(0.4-2.6)(0.4-2.6)(0.4-2.6)eGFR<90$	Wages lost due to	0.1	25.2	3.3	3.2			
Absenteeism/ sick leave due to heat 10.9 24.2 2.6 2.5 $f(1.1-6.3)$ $f(1.1-6.2)$ $f(1.1-6.2)$ $f(1.1-6.2)$ Physiological indicators of heat strain and kidney function $f(1.1-6.2)$ $f(1.1-6.2)$ $^9SwR \ge 1L/hr$ 25.5 52.5 3.2 3.8 $^9SwR \ge 1L/hr$ 25.5 52.5 $f(1.7-6.1)$ $f(1.9-7.6)$ Tympanic 1.2 1.1 1.1 1.1 temperature pre-post 12.7 15.2 $0.5-2.8$ $0.4-2.6$ difference > 1°C 38.2 49.5 1.6 1.4	heat	9.1	25.3	(1.2-8.7)	(1.2-8.5)			
Absenteeism/ sick leave due to heat 10.9 24.2 2.6 2.5 sick leave due to heat 10.9 24.2 (1.1-6.3) (1.1-6.2) Physiological indicators of heat strain and kidney function 9SwR >1L/hr 25.5 3.8 9SwR >1L/hr 25.5 52.5 3.2 3.8 Tympanic temperature pre-post 12.7 1.2 1.1 difference > 1°C 112.7 15.2 (0.5-2.8) (0.4-2.6) eGFR<90								
sick leave due to heat(1.1-6.3)(1.1-6.2)Physiological indicators of heat strain and kidney function 9 SwR ≥ 1 L/hr25.53.23.8 9 SwR ≥ 1 L/hr25.552.5(1.7-6.1)(1.9-7.6)Tympanic temperature pre-post12.715.21.21.1(0.5-2.8)(0.4-2.6)(0.4-2.6)(0.4-2.6)(0.4-2.6)eGFR<90	Absenteeism/	10.9	24.2	2.6	2.5			
Physiological indicators of heat strain and kidney function 3.2 3.8 3.8 3.2 3.8 3.8 3.2 3.8 3.2 3.8 3.2 3.8 3.2 3.8 3.2 3.8 3.2 3.8 3.2 3.8 3.2 3.8 3.8 3.2 3.8 3.2 3.8	sick leave due to heat			(1.1-6.3)	(1.1-6.2)			
9 SwR ≥1L/hr25.552.53.23.8Tympanic temperature pre-post12.715.2(1.7-6.1)(1.9-7.6)difference > 1°C12.715.2(0.5-2.8)(0.4-2.6)eGFR<90	Physiological indicate	ors of heat strain	and kidney funct	ion				
${}^9SwR \ge 1L/hr$ 25.5 52.5 (1.7-6.1) (1.9-7.6) Tympanic 12.7 15.2 1.2 1.1 temperature pre-post 12.7 15.2 (0.5-2.8) (0.4-2.6) difference > 1°C 38.2 49.5 1.6 1.4				3.2	3.8			
Tympanic 12.7 15.2 1.2 1.1 temperature pre-post 12.7 15.2 (0.5-2.8) (0.4-2.6) difference > 1°C 38.2 49.5 1.6 1.4	⁹ SwR≥1L/hr	25.5	52.5	(1761)	(1076)			
Tympanic 12.7 15.2 1.2 1.1 temperature pre-post 12.7 15.2 (0.5-2.8) (0.4-2.6) difference > 1°C 38.2 49.5 1.6 1.4				(1.7-0.1)	(1.9-7.0)			
temperature pre-post 12.7 15.2 1.2 1.1 difference > 1°C (0.5-2.8) (0.4-2.6) eGFR<90	Tympanic			1 2	11			
difference > 1°C (0.5-2.8) (0.4-2.6) eGFR<90	temperature pre-post	12.7	15.2	1.4	1.1			
eGFR<90 38.2 49.5 1.6 1.4	difference > 1° C			(0.5-2.8)	(0.4-2.6)			
eGFR<90 38.2 49.5 1.6 1.4								
	eGFR<90	38.2	49.5	1.6	1.4			

(mL/min/1.73 m ²)			(0.8-2.8)	(0.7-2.6)
Post USG ≥1.025			1.2	1.1
	7.2	8.4	(0.3-3.5)	(0.3-3.3)
Post USG ≥1.020			0.9	0.9
	29.1	27.8	(0.4-1.7)	(0.4-1.7)
eGFR<60			0.9	0.8
(mL/min/1.73 m ²)	7.3	6.4	(0.3-2.9)	(0.2-2.6)

¹Assessed according to ACGIH (2018)

²Adjusted for age (categorised) and gender

Table S3: STROBE Statement—checklist of items for observational studies

	Item No	Recommendation	Remarks
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	Added
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	Added
Introduction			
Background/ratio nale	2	Explain the scientific background and rationale for the investigation being reported	Added
Objectives	3	State specific objectives, including any pre-specified hypotheses	Added
Methods			
Study design	4	Present key elements of study design early in the paper	Added
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow- up, and data collection	Added
Participants	6	(a) Cohort study—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up <i>Case-control study</i> —Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls	Adde d

		<i>Cross-sectional study</i> —Give the eligibility criteria, and the sources and methods of selection of participants	
		(b) Cohort study—For matched studies, give matching criteria and number of exposed and unexposed Case-control study—For matched studies, give matching criteria and the number of controls per case	
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	Added
Data sources/ measure ment	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	Added
Bias	9	Describe any efforts to address potential sources of bias	Added
Study size	1 0	Explain how the study size was arrived at	Added
Quantitative variables	1 1	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	Added
Statistical methods	1 2	(<i>a</i>) Describe all statistical methods, including those used to control for confounding	Added
		(b) Describe any methods used to examine subgroups and interactions	Added
		(c) Explain now missing data were addressed (d) Cohort study—If applicable, explain how loss to follow-up was addressed Case-control study—If applicable, explain how matching of cases and controls wasaddressed Cross-sectional study—If applicable, describe analytical methods taking account of sampling strategy	Added
		(<u>e</u>) Describe any sensitivity analyses	
Continued on next page			
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	Added

		(b) Give reasons for non-participation at each stage	
		(c) Consider use of a flow diagram	
Descriptive	14*	(a) Give characteristics of study participants (eg	Added
data		demographic, clinical, social) and information on	
		exposures and potential confounders	
		(b) Indicate number of participants with missing	Added
		data for each variable of interest	
		(c) <i>Cohort study</i> —Summarise follow-up time (eg,	
		average and total amount)	
Outcome data	15*	<i>Cohort study</i> —Report numbers of outcome events	
		or summary measures over time	
		Case-control study—Report numbers in each	
		exposure category, or summary measures of	
		exposure	
		<i>Cross-sectional study</i> —Report numbers of outcome	Added
		events or summary measures	
Main results	16	(<i>a</i>) Give unadjusted estimates and, if applicable,	
		confounder-adjusted estimates and their precision	
		(eg, 95% confidence interval). Make clear which	
		confounders were adjusted for and	
		why they were included	
		(b) Report category boundaries when continuous	Added
		variables were categorized	
		(c) If relevant, consider translating estimates of	
		relative risk into absolute risk for a meaningful	
		time period	
Other analyses	17	Report other analyses done—eg analyses of	Added
_		subgroups and interactions, and sensitivity analyses	
Discussion			
Key results	18	Summarise key results with reference to study	Added
		objectives	
Limitations	19	Discuss limitations of the study, taking into account	Added
		sources of potential bias or imprecision.	
		Discuss both direction and magnitude of any	
		potential bias	
Interpretation	20	Give a cautious overall interpretation of results	Added
		considering objectives, limitations, multiplicity	
		of analyses, results from similar studies, and other	
		relevant evidence	
Generalisability	21	Discuss the generalisability (external validity) of the	Added
		study results	
Other			
information			
Funding	22	Give the source of funding and the role of the funders	Added
		for the present study and, if applicable,for the	
		original study on which the present article is based	

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.	
Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freelyavailable on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe- statement.org.	



Figure S3: Cross shift changes in the physiological changes among 352 saltpan workers