POLICY NOTE

MIND & BEHAVIOUR
RESEARCH GROUP

CENTRE FOR THE STUDY OF AFRICAN ECONOMIES

A girl next to a chlorine dispenser installed at a water source in a village in Kenya.
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Increasing Preventive Health Investments in Kenya

Can visualisation and planning interventions impact preventive health investments?

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Introduction

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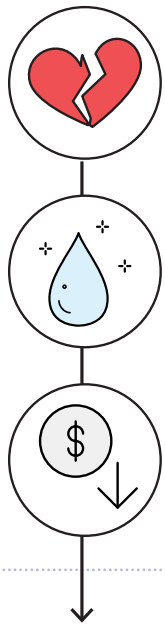
> *An estimated* **two thirds of deaths of children under five could be averted** *with cheap preventive technologies (such as malaria bed nets, vaccinations, and oral rehydration salts).*

> **Individuals often fail to invest in preventive healthcare**, *even when such investments cost little and individuals are aware of their benefits.*

A prominent example is chlorination of drinking water, which is highly effective in reducing prevalence of diarrhea, particularly among young children. Though it is often readily and cheaply available, it is infrequently used by individuals who do not have access to clean water.

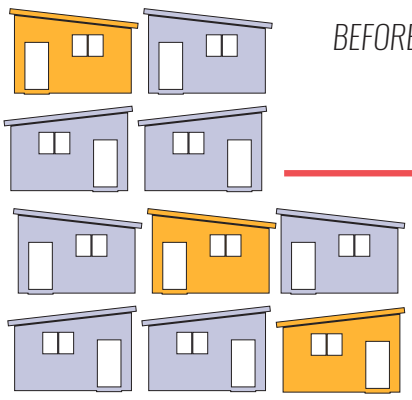


Diarrhea is the second leading cause of death worldwide **among children aged 1 – 5** leading to nearly half a million deaths in 2015

Chlorination of water is highly effective in reducing diarrhea, in young children.

Chlorine for water is often **readily and cheaply available**

IN KENYA



ONLY 3 out of 10 households used chlorine
BEFORE ANY INTERVENTIONS

The Mind and Behaviour Research Group brings together economists, psychiatrists, and psychologists based at the University of Oxford and part of the Centre for the Study of African Economies. Our research is focused on low-and-middle income countries. Our aim is to investigate the psychological impact of living in poverty and use findings to improve policy programmes through three channels of activity.

- **Building a body of evidence**
- **Sharing research methods**
- **Engaging with policy makers**

AIM OF THIS BRIEF

The aim of this policy brief is **to communicate the practical implications of our research and provide data and its analysis to inform policy debate and formulation**.

It is intended to provide an introduction to more complex information and lays out evidence-based solutions to specific problems.

We provide a concise summary of relevant information to support decision makers.

ACKNOWLEDGEMENTS

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Our study

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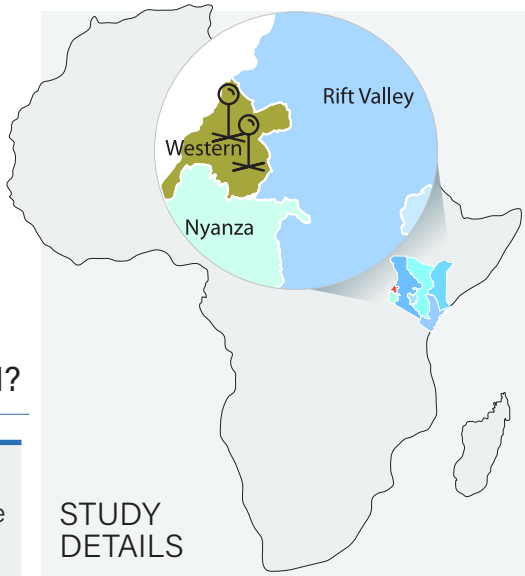
> *MBRG studied* **how behavioural barriers stop people from using chlorination** *to create safe drinking water.*

We sought to understand the role of four behavioural constraints by targeting them directly with simple psychological and informational interventions:

WHAT COULD STOP PEOPLE FROM USING CHLORINATION?

PATIENCE	People may not value future benefits enough	SELF-EFFICACY	People may not believe in their own ability to achieve desirable outcome
PLANNING SKILLS	People may be unable to plan and remember to chlorinate	INFORMATION	People might be unaware of the benefits of using chlorination

We tested the effect of two psychological interventions on both health and economic outcomes; one intervention encourages participants to **visualise alternative realisations of the future**; the other **builds their ability to make concrete plans**.



STUDY DETAILS

This study was run in 205 rural villages in Western Kenya (Bungoma and Kakamega counties).

Researchers recruited women of childbearing age (18–35), because small children are the most vulnerable to water-borne illnesses.

The workshops were run over two sessions lasting two hours each and featured a mix of interactive lectures, case stories, and exercises.

TREATMENT INTERVENTIONS

3,750 WOMEN *DIVIDED INTO FOUR GROUPS*

THE FIRST THREE GROUPS ALL **RECEIVED INFORMATION** *ABOUT THE BENEFITS OF CHLORINATION*

RECEIVED NO INTERVENTIONS

VISUALISATION + *i*

Participants of the first group visualised tangible alternative versions of their future, dependant on their behaviour in the present.

Does **making future outcomes more tangible** *to people encourage them to change their behaviour in the present, paying more now, to ensure the future they envisage happens?*

PLANNING + *i*

Participants' ability to make concrete plans was the focus, they were given activities to help improve planning skills, and establishing routines.

Does **teaching planning skills** *help people remember to purchase chlorine and treat drinking water?*

ACTIVE CONTROL + *i*

Group three only discussed topics likely to be psychologically inactive.

Does **receiving information about the benefits of chlorination alone** *change participants' behaviour?*

PURE CONTROL GROUP

A fourth, pure control group was surveyed at the end of the study only.

After 3 years

PARTICIPANTS IN THE VISUALISATION GROUP WERE MORE LIKELY TO STATE THAT THEY CHLORINATE THEIR WATER

THE PLANNING INTERVENTION HAD INSIGNIFICANT EFFECTS

Results and policy lessons

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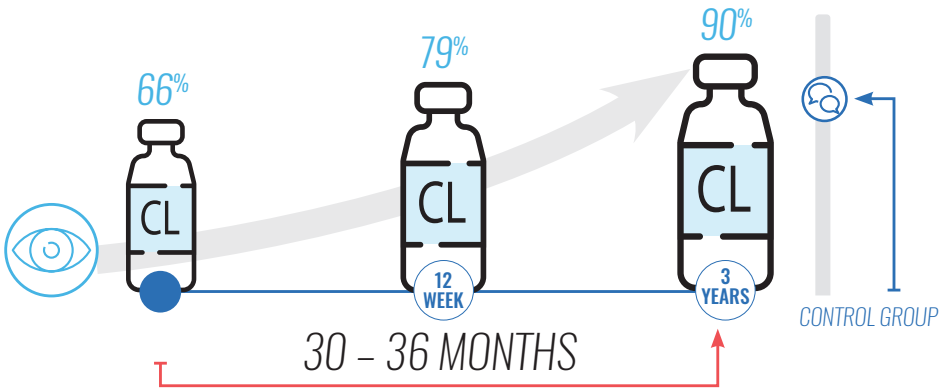
The Visualisation intervention **increased chlorination of water, decreased child diarrhoea episodes, and was cost-effective. Effects extend to non-health outcomes**, *including savings and labour supply.*

SELF-REPORTED CHLORINATION USE SUSTAINED OVER TIME



INTERVENTION IMPACTS

Visualisation increased chlorination household drinking water; 28% of people in the visualisation group had chlorinated their water based on an objective test of their drinking water compared to 23% in the group who received information, 12 weeks after the intervention. This is a 22 percent increase. 80% of people in the visualisation group said they generally chlorinated water, compared to 73% in the information group. After nearly three years, 90% of people in the visualisation group said they generally chlorinated water, compared to 85% in the information group.

Visualisation decreased diarrhoea episodes by 47 percent 10 weeks after intervention. There was no effect in the long term. This may be due to other factors: the long term follow-up was during dry season and water chlorination is more likely to affect diarrhoea in the rainy season than in the dry season.

The Planning intervention did not significantly affect use of chlorination and had no impact on diarrhoea outcomes for children under five years of age.

Significantly, **the Visualisation exercises resulted in changes relevant to other daily behaviour, not only to chlorination, indicating an important economic effect of this intervention** which initially sought to target health improvement. After three years, participants in the Visualisation group maintained higher levels of self-efficacy than those in the Planning and control groups.

NON-HEALTH RELATED RESULTS AFTER 3 YEARS

THE VISUALISATION INTERVENTION *LED TO* **GREATER SELF-EFFICACY**: *BELIEF BY PARTICIPANTS IN THEIR ABILITY TO ACHIEVE CONTROL OVER THEIR LIVES.*

18%

THIS GROUP WORKED **18 PERCENT** *MORE HOURS THAN COMPARISON PARTICIPANTS*

41%

VISUALISATION LED TO A **HIGHER AMOUNT OF MONEY SAVED** *REGULARLY PER WEEK AND PARTICIPANTS JOINED MORE ROTATING SAVINGS AND CREDIT ASSOCIATIONS, AND SAVED MORE FOR PRODUCTIVE INVESTMENTS*

COST EFFICACY

> *The Visualisation intervention is* **extremely cost-effective by the standards of the World Health Organisation** *and effects extend to economic behaviour.*

The cost per Disability- Adjusted Life Year (DALY) saved is:

USD 248.2 if we consider only benefits to children under five and assume that treatment effects drop to zero after three months.

USD 62 if we consider only benefits to children under five and assume that treatment effects drop to zero after a year.

USD 108 if we consider benefits to all children under 15 and assume that treatment effects drop to zero after three months.

The WHO classifies an intervention as "cost- effective" for a cost per DALY saved below USD 4,525, and "highly cost-effective" below USD 1,508.[1]

COMPARATIVE DALY SAVINGS

$110/DALY
PSYCHOLOGICAL INTERVENTIONS

$100/DALY
MOSQUITO BED NETS

$28 – $70/DALY
DEWORMING

THE VISUALISATION INTERVENTION *HAD THE LARGEST EFFECT AND WAS STILL EVIDENT AFTER THREE YEARS*

CL

Higher rates of chlorination are only observed in the group that received the Visualisation treatment in addition to information

Conclusions

The study shows the role behaviour constraints play and how Visualisation interventions which improve self-efficacy can be extended to improve non-health related outcomes such as savings and labour supply.

PATIENCE	There was no evidence of patience or planning skills playing a role in stopping the use of chlorine to create safe drinking water.	SELF-EFFICACY	Self-efficacy was stronger, including in the long run, for participants who took part in the Visualisation intervention, and **we hypothesise that it is these positive effects on self-efficacy that drive the results seen.**
PLANNING SKILLS		INFORMATION	The positive effects on information last over time, but do not drive behaviour, as evidenced by the lack of behaviour change seen in the group who received information only.

[1] a DALY is a disability-adjusted life year. One DALY represents the loss of the equivalent of one year of full health. Using DALYs, the burden of diseases can be compared. See https://www.who.int/data/gho/indicator-metadata-registry/imr-details/158

FURTHER STUDY INFORMATION

Full study: https://academic.oup.com/jeea/article/20/3/1001/6446810

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