

# Science for Environment Policy

## Persuading the public to reduce bottled water consumption

**Despite tap water being freely available and safe in many countries, bottled water is widely consumed around the world. This has negative effects on the environment, including water wastage and pollution. This study assessed beliefs about purchasing bottled water and tested three strategies to change behaviour, showing that combining persuasive information and social pressure can create the most positive intentions to reduce consumption.**

**From 1990 to 2005 the rate of bottled water consumption more than quadrupled, and some estimates state that around 200 billion bottles are now consumed every year. This high level of consumption is contributing to several environmental problems.**

It takes on average 3 litres of regular water to produce just 1 litre of bottled water. Based on 2011 consumption rates, that equates to over 100 billion litres of water wasted every year – an important concern given that fresh water is becoming increasingly scarce across the globe. Bottled water production, including packaging, transportation, and refrigeration, also generates CO<sub>2</sub>, contributing to [climate change](#). Furthermore, the majority of water bottles are not recycled, instead ending up in landfill or littering the natural environment with plastic waste.

This study is one of the first to investigate the psychology of bottled water consumption. Researchers assessed the beliefs people hold about drinking bottled water through an online survey, completed by students of a Dutch university. They also investigated strategies for behavioural change.

Respondents were first asked to report their past level of bottled water consumption. They were also asked to rate the likelihood of statements describing possible outcomes related to reducing bottled water consumption, such as 'Reducing my bottled water consumption will not affect my intake of high quality water'.

Analysis of 401 responses showed that almost all beliefs correlated with rates of bottled water consumption, but to different extents. Beliefs about health, taste, quality, lifestyle, the environment and a lack of alternatives were all significantly linked with consumption. For example, those who believed bottled water tastes better than water from the tap were likely to consume more bottled water, while those who believed bottled water was bad for the environment were likely to consume less.

The belief that reducing bottled water consumption would benefit the environment showed the lowest correlation with consumption. By contrast, beliefs that reducing consumption would require significant changes to lifestyle showed the highest.

Respondents were next randomly assigned to a control group, or one of three treatments: persuasive information, activating social-norms, or a combination of both. In the 'information-only' condition, respondents were asked to read a one-page persuasive article about bottled water consumption, called 'The Truth About Bottled Water'. In the 'social-norm' condition, which is based on the idea that social pressure can leverage behaviour change, students were falsely informed about a university-wide survey showing that 65% of their university's student body is making efforts to reduce their bottled water consumption. Those in the combined condition read both the social-norm message, followed by the information article, while those in the control group did not read either, only completing the survey.

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**Source:** van der Linden, S. (2013). Exploring Beliefs About Bottled Water and Intentions to Reduce Consumption: The Dual-Effect of Social Norm Activation and Persuasive Information. *Environment and Behavior* 47(5), pp.526–550. DOI: 10.1177/0013916513515239.

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After reading the messages, respondents were asked about their future intentions to buy bottled water, specifically the number of bottles they intend to purchase in the next four weeks. This was used to determine how effective the intervention was.

The researchers found that the combination of information and social-norm was most persuasive and led to the greatest reduction in intentions to buy bottled water. The researchers say that this approach combines factors that address both belief and social validation. Self-reported bottled water consumption in the combined group reduced by almost 28%, while in the information-only group the reduction was closer to 20%. In the social-norm-only group consumption was reduced by just 16.7%.

These findings could help governments to develop persuasive messages to reduce bottled water consumption. The authors recommend campaigns based on the core beliefs that drive bottled water consumption, such as concerns about health, taste and quality. They also say that campaigns that combine information about the environmental impact of bottled water with proof that others of the same social group are changing their behaviour are more likely to be successful than either technique in isolation.

