

The RANAS model of behavior change

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The core of the Risks, Attitudes, Norms, Abilities, and Self-regulation (RANAS) approach forms the RANAS model (see figure). The model has four components: behavioral factors that are grouped into five blocks, behavior change techniques (BCTs) that correspond to the factor blocks, behavioral outcomes, and contextual factors. This Fact Sheet outlines the factor blocks, the corresponding BCTs, the behavioral outcomes, and the contextual factors. More detailed descriptions of the behavioral factors and the BCTs are presented in Methodological Fact Sheets 3 and 4.

Behavioral factor blocks and BCTs

The first block comprises the risk factors, which represent a person's understanding and awareness of the health risk. Information BCTs, such as the

presentation of facts or risk information, can be applied to target them. Attitude factors appear in the second block. They are a person's positive or negative stance towards a behavior and can be addressed through persuasive BCTs. Norm factors form the third block; they represent the perceived social pressure towards a behavior and are targeted through norm BCTs. The ability factors form the fourth block. They represent a person's confidence in her or his ability to practice a behavior and are targeted through infrastructural, skill, and ability BCTs. Self-regulation factors form the last block. They represent a person's attempts to plan and self-monitor a behavior and to manage conflicting goals and distracting cues. Planning and relapse prevention BCTs can be applied to change them.

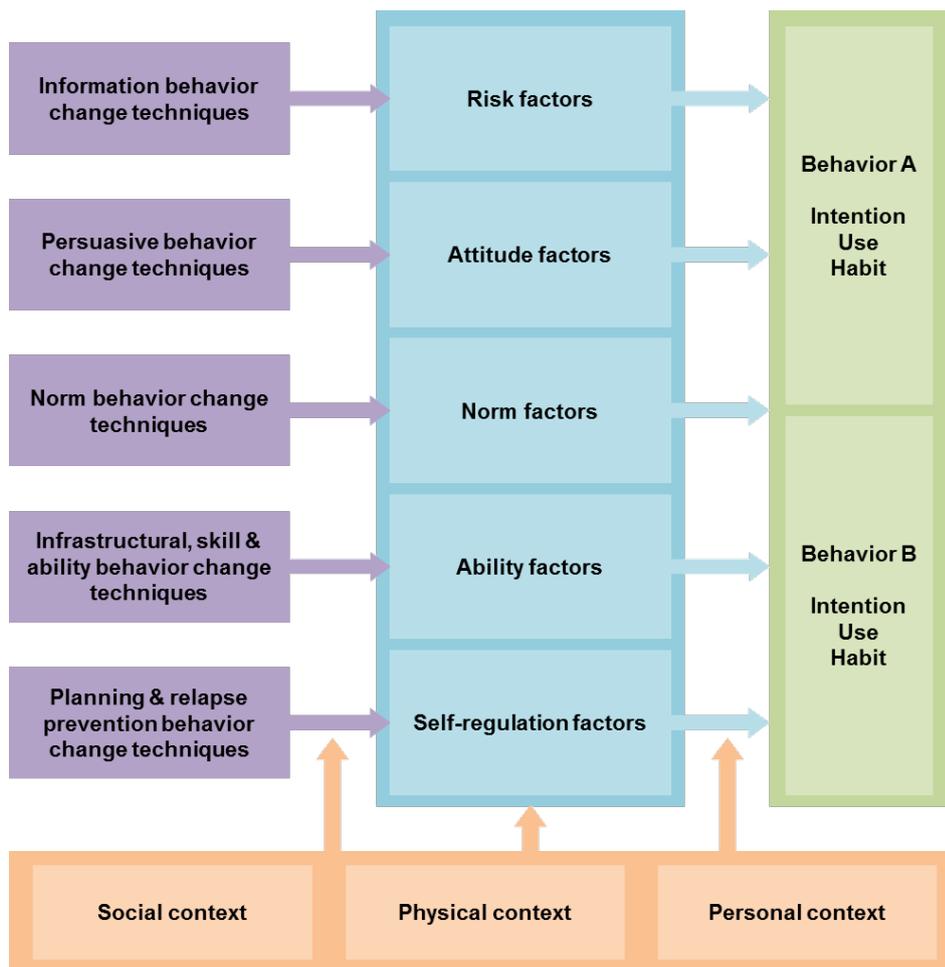


Figure: The RANAS model of behavior change.

Behavioral outcomes

All the behavioral factors together determine the behavioral outcomes. The RANAS model considers three behavioral outcomes; behavior, intention, and habit. Behavior refers to the execution of actions. Both the desired behavior and competing behaviors must be considered—for example, not only drinking safe water (Behavior A) but also drinking untreated water (Behavior B). In the water and sanitation sector, the behavior of interest often constitutes the use of a technology, such as a water source or sanitation facility. Intention represents a person's readiness to practice a behavior: how willing the person is to implement a behavior. Habits are routinized behaviors that are executed in specific, repeating situations nearly automatically and without any cognitive effort. In the table below are some example questions to measure the behavioral outcomes.

Contextual factors

Behavior and the behavioral factors that give rise to it are embedded in contextual factors. According to the RANAS model, the contextual factors can influence behavior in three ways. First, they may alter the BCTs influence on behavioral factors. For instance, an information BCT providing detailed

medical information on diarrheal disease and the necessity of handwashing may increase health knowledge and perceived vulnerability for a highly educated person but be ineffective for an illiterate person which is overchallenged by the used technical terms and complex interrelations. Second, they can affect behavior by changing the behavioral factors. For example, a person with low income might perceive soap to be very expensive while a person with high income perceives it as cheap. Third, they may alter the behavioral factors' influence on behavior; for instance, a person might be strongly committed to collecting safe water, but the commitment may not translate into behavior due to a lack of access to a safe water source. The contextual factors can be divided into three categories: the social, the physical, and the personal. The social context is constituted by culture and social relations, laws and policies, economic conditions, and the information environment. The physical context consists of the natural and built environment. Finally, the personal context is formed by socio-demographic factors such as age, sex, and education and by the physical and mental health of the person.

Table: Example questions to measure behavioral outcomes

Behavioral outcome	Example question	Response scale
Behavior (frequency)	How much of your household's drinking water is treated?	0 = Almost none; 1 = Less than half; 2 = About half; 3 = More than half; 4 = Almost all
Intention	How strongly do you intend to treat all your drinking water?	0 = Not strongly; 1 = A little strongly; 2 = Strongly; 3 = Quite strongly; 4 = Very strongly
Habit (automaticity)	How much do you feel that you treat your drinking water automatically?	0 = Not automatically; 1 = A little automatically; 2 = Automatically; 3 = Quite automatically; 4 = Very automatically

Further information

<http://www.eawag.ch/en/department/ess/main-focus/environmental-and-health-psychology-ehpsy>

Publications

Mosler, H.-J. (2012). A systematic approach to behavior change interventions for the water and sanitation sector in developing countries: a conceptual model, a review, and a guideline. *International Journal of Environmental Health Research*, 22, 431-449.

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