

Changing Health Behaviors to Avoid Environmental Exposures

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Objectives

- Describe three health behavior change approaches
- Employ techniques in health messaging that will increase likelihood of behavior change
- List examples of health behavior change messages that may decrease exposure to environmental contaminants

TAKE NOTES!



Pinterest <https://www.pinterest.com/pin/390616967651906168/>

Behavior change messages in environmental health

- Eat low mercury fish 2-3 times a week
- Have your children screened for lead
- Use fewer pesticides
- Get your well-water tested
- Don't microwave food in plastic containers
- Damp mop and damp dust frequently to keep contaminants in house dust down

Approaches to Behavior Change

Behavior Change in Economics

Herbert Simon, Nobel Prize in Economics 1978: people do the best they can to make decisions given constraints

- Our “constraints” are consistent and predictable

Previous assumptions about human behavior:

- People act rationally
- People make decisions that are in their best interest
- Knowledge and information drive behavior

Moses J. Get action instead of indifference: Using behavioral economics insights to deliver benefits messages. *Benefits Quarterly*, Third Quarter 2013

Kelly MP, Barker M. Why is changing health-related behavior so difficult? *Pub Health* 2016.

Behavioral Economics – Framing

Highlight the gain or loss resulting from the action/inaction

Loss framing

“Stop losing money! Use a health expense account”

vs.

“Start saving money! Use a health expense account”

Losing hurts worse than winning feels good

Gain framing

Using survival rates vs. mortality rates of a surgical procedure

Behavioral Economics – Framing

Gain

- *Set a good example for your daughter and get a mammogram.*
- *This insurance plan provides medical coverage and health savings account*

Loss

- *Your family needs you now... and later. Get a mammogram.*
- *Are you really going to pass up the \$500 bonus?*



<https://www.theodysseyonline.com/best-worst-parts-chicago-winters>

Behavior Change Models

The most fundamental issue in educational interventions is the selection of the most appropriate theory or model upon which the intervention will be based.

Behavior change models

- Social cognition models (beliefs and attitudes)
 - Health belief model
 - Theory of planned behavior
 - Self-efficacy
- Stage models

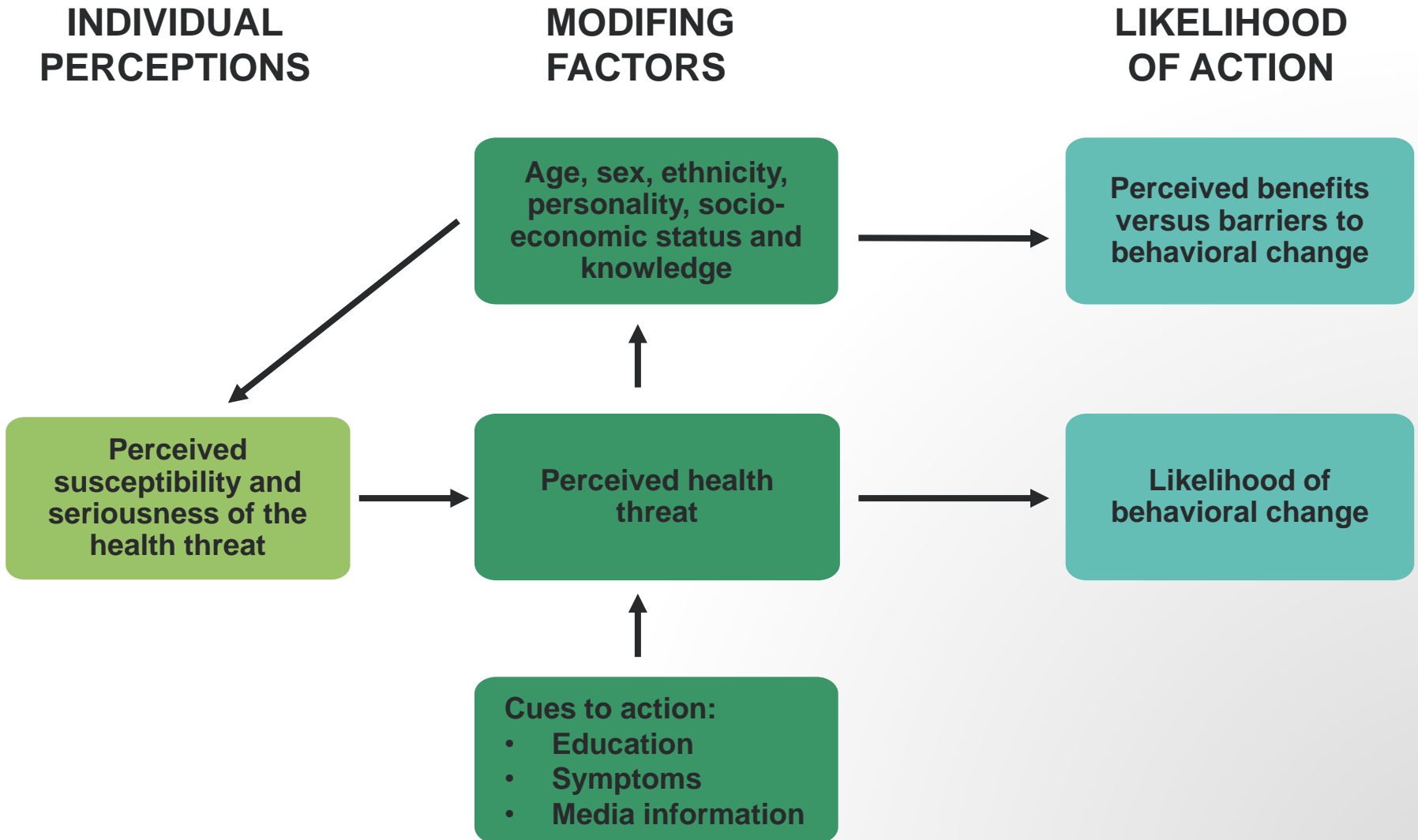
Sutton S. Health Behavior: Psychosocial Theories. 2002

Whitlock EP et al. Evaluating Primary Care Behavioral Counseling Interventions. Am J Prev Med 2002

Health Belief Model

- Perceived susceptibility/vulnerability to a condition
- Perceived severity of the condition
- Perceived benefits of taking action to prevent the condition
- Perceived barriers to effective action

Health Belief Model



Theory of Planned Behavior/Reasoned Action

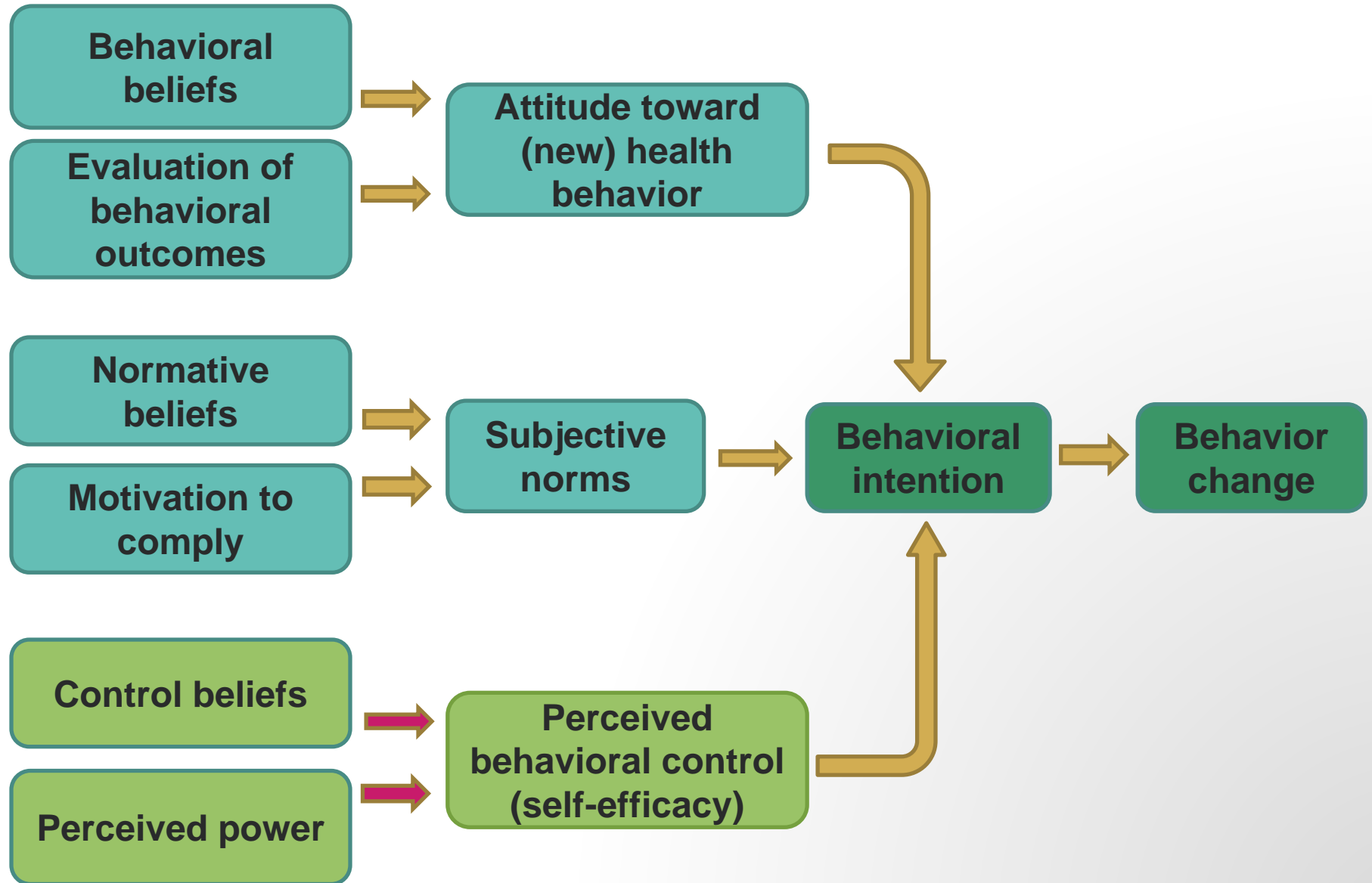
A person's *intent* to perform the behavior is the best predictor of that behavior

- Intent is affected by:
 - Attitude towards the behavior
 - Subjective norm (social pressure for/against)
- Self-efficacy – perceived behavioral control

Beliefs, Attitudes and Subjective Norms are informed by:

- Interaction with others
- Media messages
- Culture
- Religion
- Gender
- Personality

Theory of Planned Behavior



Self- efficacy

Perceived self-efficacy – “an individual’s level of confidence in his or her own skills and persistence to accomplish a desired goal”

Whitlock EP et al. Evaluating Primary Care Behavioral Counseling Interventions. Am J Prev Med 2002

Before delivering the message...

Assessing intent:

- How likely is it that you will...
- I expect to...

Assessing attitude:

- It's good to...
- It will be beneficial to ...

The SAGE Handbook of Persuasion: Developments in Theory and Practice. Eds. Dillard and Shen 2012

Before delivering the message...

Assessing subjective norms:

- My family will support me...
- I have friends who also...

Assessing self-efficacy

- I am confident I can...
- It will be easy for me to...

Investigating obesity risk-reduction behaviors and psychosocial factors in Chinese Americans

Table 1

Examples of questionnaire items

Constructs	Questionnaire statements
Psychosocial statements – Health Belief Model	
Perceived benefits	Limiting my intake of high-calorie soft drinks and juice will lower my likelihood of becoming obese.
Perceived barriers	I find it hard to prepare home-cooked meals due to lack of time.
Perceived susceptibility	I may develop obesity because of my sedentary lifestyle.
Perceived severity	If I gain excessive weight, my health would be in serious danger.
Cues to action	Health segments on television or radio are a reminder that I should watch my weight.
Self-efficacy	How confident are you in consuming small portion sizes of food?
Psychosocial statements – Theory of Planned Behaviour	
Behavioural intention	During the upcoming week, I plan to choose smaller portion sizes.
Attitude	Choosing home-cooked meals instead of restaurant-prepared foods is...
Normative beliefs	My parents encourage me to eat a lot of food.
Motivation to comply	I usually follow my parents' opinions on dietary matters.
Perceived behavioural control	As long as I want to, I can prevent myself from gaining excessive weight.

Table 1 Examples of questionnaire items

Published in: Doreen Liou; Kathleen Bauer; Yeon Bai; *Perspect Public Health* 134, 321-330.

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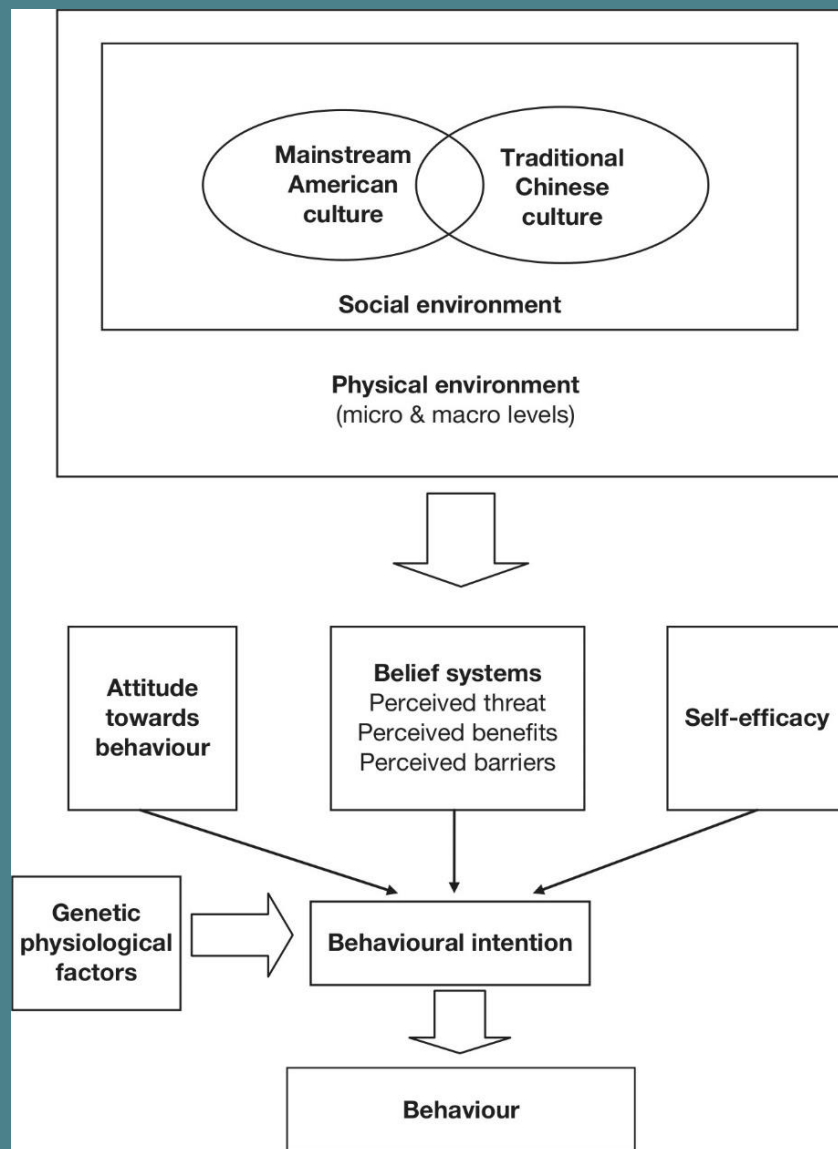


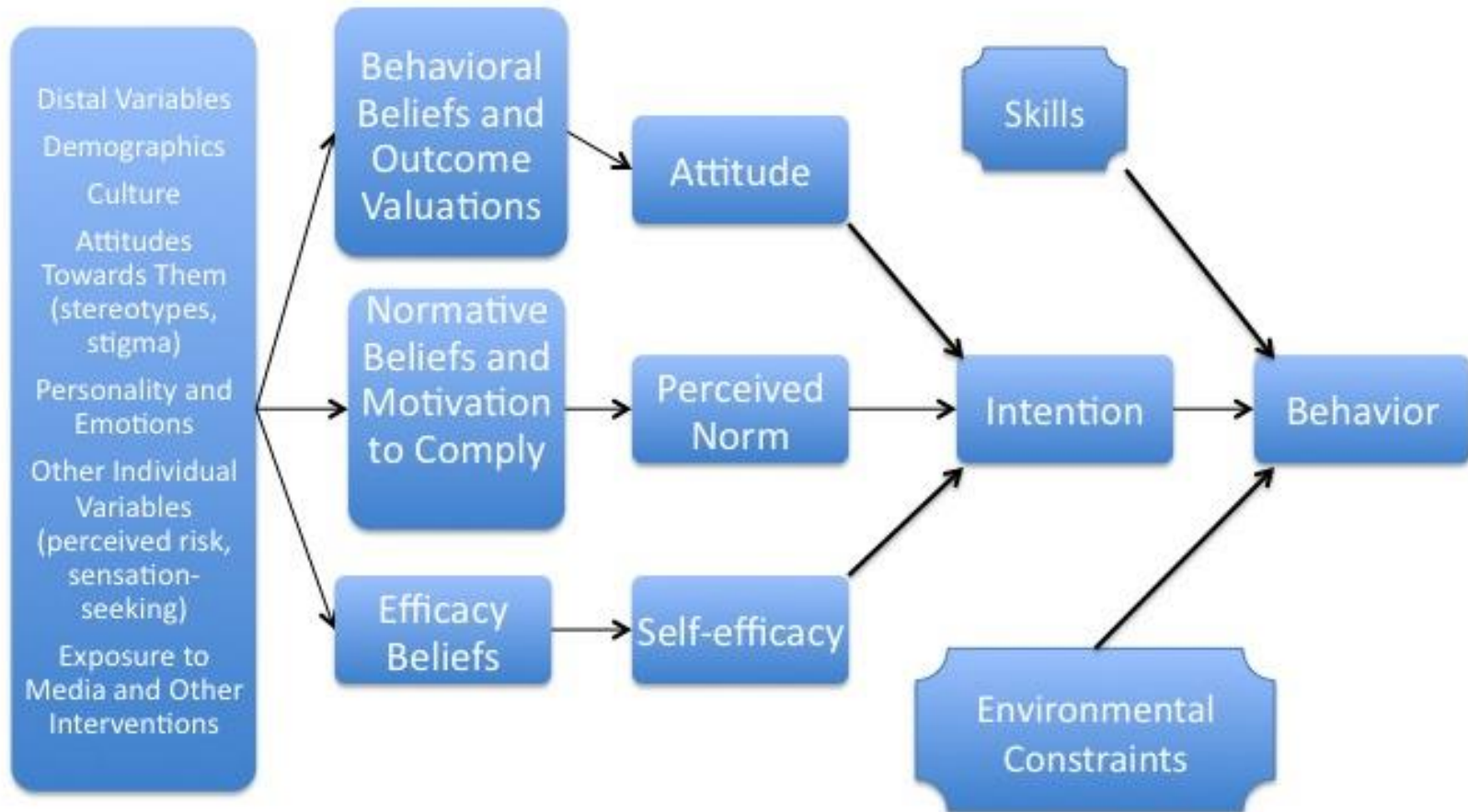
Figure 1 Chinese American model for obesity prevention

Published in: Doreen Liou; Kathleen Bauer; Yeon Bai; *Perspect Public Health* 134, 321-330.

DOI: 10.1177/1757913913486874

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An Integrative Model of Behavior Prediction



Fishbein, M. & Yzer, M.C. (2003). Using theory to design effective health behavior interventions. *Communication Theory*; 13:164-183.

Health Belief and TPB: Calcium intake to prevent osteoporosis

- Educational sessions included:
 - Participants shared their knowledge, perceptions, and apprehensions regarding low Ca intake and risk of osteoporosis
 - Brainstorming on how to overcome barriers
 - Provided with information – dietary recommendations, etc.
- Post-intervention: Higher calcium intake was explained by higher *perceived susceptibility*, *increased perception of severity*, and *increase in self-efficacy*

Bhurosy T, Jeewon R. Effectiveness of Theory-Driven Nutritional Education Program in Improving Calcium Intake among Older Mauritian Adults. Sci World J; 2013

Table 3. Attributes from health behavior change theories and models that predispose an individual to successful behavior change^{39,45,49}

- 1. Strongly wants and intends to change for clear, personal reasons
- 2. Faces a minimum of obstacles (information processing, physical, logistical, or environmental barriers) to change
- 3. Has the requisite skills and self-confidence to make a change
- 4. Feels positively about the change and believes it will result in meaningful benefit(s)
- 5. Perceives the change as congruent with his/her self-image and social group(s) norms
- 6. Receives reminders, encouragement, and support to change at appropriate times and places from valued persons and community sources, and is in a largely supportive community/environment for the change

Table 3. Whitlock EP et al. Evaluating Primary Care Behavioral Counseling Interventions. Am J Prev Med 2002

Stage models of behavior change



DNA info.com

Stage models

People at different stages require different interventions

Transtheoretical model (TTM)

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance



<https://www.theodysseyonline.com/best-worst-parts-chicago-winters>

Using narratives: *Statistics are not more powerful than stories*

- Narrative – a story with a beginning, middle and end (conflict resolution)
- Instead of inspiring argument, listeners soften their position, increase engagement

Thompson T, Kreuter M. Using written narratives in public health practice: A creating writing perspective. *Prev Chronic Dis* 2014;11:130402.

Using narratives can help:

- Overcome resistance
- Reduce complex or emotional material
- Overcome medical mistrust

“It was hard sharing my cancer diagnosis with my son.”

VS.

“When I told my 8-yr old son I had cancer, he didn’t say anything for a minute. I could see there were tears in his big brown eyes, but he brushed them away with the back of his hand. Then he threw his arms around me and squeezed me hard.”

Melanoma prevention

Narrative: first person account of a 21-yr old student who had been diagnosed with skin cancer, with photo

Non-narrative: factual information about skin CA diagnosis and a drawing of the layers of the skin

Both contained similar info about susceptibility, consequences, self-efficacy

Melanoma prevention

Recipients of the narrative message:

- 3 x more likely to have checked their skin for moles one month afterward
- 2 x more likely to have talked to family members about skin cancer

Great Lakes fish consumption

- Brochures
 - Narrative
 - FAQs

Lauber, T.B., N.A. Connelly, B.A. Knuth, and J. Niederdeppe. 2011. Factors influencing fish consumption in key audiences in the Great Lakes region. HDRU Publ. No. 11-8. Dept. of Nat. Resour., N.Y.S. Coll. Agric. and Life Sci., Cornell Univ., Ithaca, N.Y. 65 pp.

Do you think eating fish has risks for women who might become pregnant?

Like Jennifer, you might be surprised to learn that fish is an important part of a healthy diet.

After being away for several years, Jennifer and Mike recently moved back to their hometown of Chicago, Illinois. They decided it was time to try to have a baby. A baby is a big change, so Jennifer began doing her homework on exercise and nutrition that would help her have a healthy baby.

Jennifer found a website with guidelines about eating fish for women of childbearing age. The website explained that, although many women don't eat fish before and during pregnancy, certain fish are actually a great source of omega-3s. Omega-3s are important for a baby's development and are not found in many other foods. Fish are also a very nutritious food for children to eat as they grow.

Jennifer wasn't convinced. She looked for other sources and found the Illinois Department of Public Health's Fish Consumption Guidelines. These guidelines confirmed that while some types of fish contain higher levels of chemicals like mercury or PCBs, many fish are healthy for women and children to eat. These guidelines (found in this brochure) helped her to choose which fish are healthiest to eat and which she should avoid.

Now that Jennifer is pregnant she is using the guidelines to choose which fish to eat. She is happy because salmon is one of her favorite foods!



Frequently Asked Questions about Eating Fish

I heard that eating fish has risks for women who might become pregnant – is this true?

Certain fish are actually a great source of omega-3s. Omega-3s are important for a baby's development and are not found in many other foods. Fish are also a very nutritious food for children to eat as they grow.

But aren't there harmful chemicals in fish, too?

Some types of fish contain higher levels of chemicals like mercury or PCBs, but many fish are healthy for women and children to eat.

Where can I find out which fish are healthy to eat and which I should avoid?

Illinois's Fish Consumption Guidelines can help you to choose which fish are healthiest to eat and which you should avoid. These guidelines can be found in this brochure!



Great Lakes fish consumption

Narrative format:

- increased consumption among women who were eating the least amount of fish
- decreased consumption among women who were eating too much fish

Lauber, T.B., N.A. Connelly, B.A. Knuth, and J. Niederdeppe. 2011. Factors influencing fish consumption in key audiences in the Great Lakes region. HDRU Publ. No. 11-8. Dept. of Nat. Resour., N.Y.S. Coll. Agric. and Life Sci., Cornell Univ., Ithaca, N.Y. 65 pp.

YOUR TURN!

Create a Health Message

- Have your child tested for lead
- Don't microwave food in plastic containers
- Minimize use of synthetic chemicals (fragrances, home cleaners, plastics)

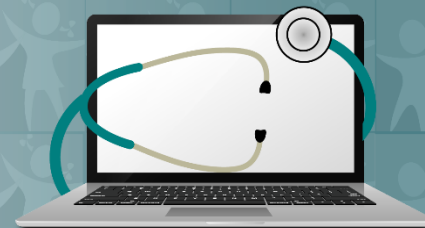
Remember:

- Social norms
- Gain/loss framing
- Beliefs/attitudes
- Perceived barriers
- Self-efficacy
- Narratives



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Pediatric Environmental
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Resource Catalog

Fact sheets, journal publications, reports, and other resources for parents, community members, patients and healthcare professionals

Topics included:
Air Quality, Pesticides, Natural Disasters, BPA, Mold, Lead, Mercury