Health Belief Model

**Origins**
- US Public Health Service
- Hochbaum (1958)
- Rosenstock (1974)

**Original Purpose:** to understand “the widespread failure of people to accept disease preventives or screening tests for the early detection of asymptomatic disease.”

**Health Belief Model Expanded: Explaining responses to symptoms & understanding non-compliance**

- People place a great deal of value on staying well or getting well
- When given preventive or curative advice, this value will lead to a high degree of compliance
- Advice must convince people of the severity of the illness
- Advice must convince people that the recommended action will in fact prevent or cure the illness

**Underlying assumptions**

- **Value-Expectancy:**
  - Based on 3 assumptions
    - There is a value placed on getting or staying well
    - There is a belief that one is susceptible to a serious health problem
    - There is an expectation (belief) that certain actions will prevent or resolve an illness at an acceptable cost

- **Theoretical Background:**
  - **Stimulus Response Theory** (Behaviorism)
    - “Learning results from events that reduce the physiological drives that induce behavior”
  - These events are reinforcements
Health Belief Model: Theoretical Background

- Stimulus Response Theory (Behaviorism)
  - The concept of drive is irrelevant to this theory
  - Behaviors are termed “operants” because they operate on the environment to produce changes resulting in reward or punishment

- Cognitive Theory
  - Learning results from testing subjective hypotheses and expectations
  - Value-expectancy
  - Reinforcements are still important but they operate through expectations and hypotheses
    - Not by direct effects on behavior

Health Belief Model: Theoretical Background

- Motivational Theory
  - People engage in behaviors when motivation exists to do so
  - “Motivation is a differential emotional arousal that occurs in response to a health matter”
    - Jones, Jones, & Katz, 1988
  - Motivation arises in response to perceived reality rather than objective circumstances

- Early study by Hochbaum (1958)
  - People at risk of having TB
  - High belief in susceptibility
  - High trust that early intervention helps
  - 87% got CXR

Health Belief Model

- General Applications
  - Screening Behaviors
  - Preventive Actions
  - Illness Behaviors
  - Sick-Role Behavior

- 4 Major Components
  - Perceived susceptibility
  - Perceived severity of the condition
  - Perceived benefits of particular behavior
  - Perceived barriers to adopting the behavior
Perceived Susceptibility

- Am I at risk of getting this disease
- In the presence of a diagnosis
- Acceptance of the diagnosis
- Perceived risk of resusceptibility
- Susceptibility to illness in general

Perceived Severity

- How serious is the illness if I get it
- How serious will it be if I don’t get treatment
  - Will I die, be in pain, or unable to function
  - Will I be unable to work and have a social life

Perceived Severity of Herpes Diagnosis (Meyer et al., 2005)

Health Belief Model

Perceived Susceptibility + Perceived Severity = Perceived Threat

Perceived Benefits

- Will this behavior prevent me from getting sick
- Will this behavior benefit me in other ways
  - Saving money
  - Pleasing other people
Perceived Barriers

- What’s going to stop me from doing this
  - Will it be expensive
  - Will it be a hassle
  - Will it be dangerous or unpleasant

Cues to Action

- Not systematically studied
- Very hard to quantify or even identify
- Part of original theory as a sort of catalyst
- May be internal (perception of body states) or external (interpersonal interaction, influence of the media)

Health Belief Model

- Self-Efficacy (Bandura, 1977)
  - A type of expectation
  - HBM outcome expectation states that a given behavior will lead to a certain outcome
  - SE efficacy expectation states that one can successfully perform the behavior needed to accomplish the outcome

Self-Efficacy & Outcome Expectations

<table>
<thead>
<tr>
<th>Self Efficacy</th>
<th>Low outcome expectation</th>
<th>High outcome expectation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High self-efficacy</td>
<td>Social activism, Protest</td>
<td>Assured, opportune action, High cognitive engagement</td>
</tr>
<tr>
<td></td>
<td>Grievance, Milieu change</td>
<td></td>
</tr>
<tr>
<td>Low self-efficacy</td>
<td>Resignation, Apathy, Withdrawal</td>
<td>Self-devaluation, Depression</td>
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Health Belief Model Expanded

- Behavior Change occurs when:
  - Sufficient perceived threat is present
  - Belief that a specific change will result in desired outcome with acceptable cost
  - AND
  - The person is competent to accomplish the change in behavior (overcome barriers)

- Not integrated into HBM early on because the model was developed to explain one-shot behaviors such as immunization
- SE becomes relevant when examining lifestyle changes and coping with chronic disease
- SE has been bundled into “perceived barriers” in some studies
  - (Rosenstock et al., 1988)
HBM: Predictive Use

- Components have different levels of reliability at predictors of behavior - listed most to least:
  - Barriers to adoption seems to be most reliable predictor
  - Benefits
  - Susceptibility
  - Severity
  - Janz & Becker, 1984

HBM + Self-Efficacy

\[\text{PERSON} \rightarrow \text{BEHAVIOR} \rightarrow \text{OUTCOME}\]

\[\uparrow \quad \uparrow\]

\[\text{efficacy} \quad \text{outcome}\]

\[\text{expectations} \quad \text{expectations}\]

\[(SE) \quad (HBE)\]

HBM: Interventions

- Mammography adoption
  - Individually tailored messages more effective
  - Based on each person’s perceived susceptibility, benefits and barriers
  - Intervention was effective in different clinical settings
    - HMO Clinic
    - General Medical Clinic

HBM: Interventions

- HIV-Protective Behaviors (text p. 56)
  - Some studies confirm link between perceived susceptibility and behavior
    - Other studies do not
      - Albarracin, Johnson, Fishbein, & Muellerleile, 2001
  - Attaching behavioral anchor to susceptibility operationalization may increase accuracy
  - Intervention complicated by co-morbid behaviors such as drug use

HBM: Interventions

- Cultural Considerations
  - Mammogram studies reveal differences in perceived barriers between white and AA women
  - Hispanic women differed from white women in their perceived vulnerability
  - Barriers differ along cultural lines
  - Also important to assess differing values placed on health in various cultures
HBM: Weaknesses

- Relationships between constructs is not clear
- Independent?
- Multiplicative?
- Temporally related?
- Without a clear definition of how the different constructs relate to each other, the HBM doesn’t function effectively as a “Model” of behavior

HBM: Weaknesses

- Limited in the amount of variability it explains in behaviors
- A meta-analysis revealed that less than 10% of variance explained by any one dimension of the HBM
- Condom study showed no predictive value of perceived severity or susceptibility
- Interventions designed to heighten sense of vulnerability are probably not going to succeed
  - Mahoney, Thombs, & Ford (1995)

Self-Efficacy

- “The conviction that one can successfully execute the behavior required to produce the outcomes”
  - Bandura, 1977, p. 193
- Bandura and others state that it’s the most important prerequisite for behavior change
- SE is specific to a given behavior and is NOT a global personality trait
**Self-Efficacy**

- Predicts initiation of new health behaviors, even under adverse conditions
- Predicts continued performance of a target health behavior, even when confronted with failure
- Predicts long-term maintenance of complex health behaviors (lifestyle) even in the presence of stress

**How do you get Self-Efficacy?**

- Performance attainments
  - Most persuasive
- Vicarious experience
  - May account for a major part of learning in life
- Verbal persuasion
  - Useful adjunct to the first two factors
- Physiological state
  - Anxiety, for example, can motivate or hinder the target behavior

**Self-Efficacy: 2 Components**

- **Situation-specific confidence** that healthy behavior will be enacted or maintained
- **Overcoming the temptation to stop** the healthy behavior when presented with difficult situations
  - Negative affect
  - Positive social situations
  - Craving
SE: Performance Attainment

- Repeated successful enactment of behaviors
  - Accomplished by chunking complex behaviors
  - Success is gauged by self-monitoring and by feedback from a valued other
  - Success must be linked with a challenge
    - Resilience is built by overcoming obstacles

Progressive goal setting
- Start with short-term goals
- Start with easily achievable goals and proceed
- Patient-provider contracts
  - Creates a more collaborative relationship

SE: Vicarious Experience

- Observation of other people with same issues
- Modeling of physician
- Media coverage & stories
  - Effect is increased as similarity of self to object increases
  - This is a powerful way to learn effective skills and strategies for meeting challenges presented by the environment

SE: Verbal Reinforcement

- Also referred to as social persuasion
- Communication of positive appraisals
  - Results in greater effort
  - Easier to undermine a person verbally than it is to be helpful
  - Creation of situations that make success more likely

SE: Physiological State

- Mood affects efficacy judgments
- Encourage use of behavior to resolve issues
  - Stress reduction & managing craving
  - Arousal during exercise
  - Make plans for coping with cravings
  - Encourage use of behavior to resolve unpleasant physiological states
    - Stress reduction, etc.

Self-Efficacy Beliefs

- Four major ways that efficacy beliefs affect human functioning
  - Cognitive
  - Motivational
  - Affective
  - Selection Processes
SE Effects on Cognitions

- SE directs goal-setting
- SE shapes pre-behavior imagery
- SE enhances resiliency of cognitive abilities in stressful, distracting situations

SE Effects on Motivation

- Most human motivation is a product of anticipation and forethought (cognition)
- Cognitive motivators in theory
  - Causal attributions
  - Outcome expectancies
  - Recognized goals

SE Effects on Motivation

- Causal attributions are affected by SE beliefs
  - High SE attributes failure to insufficient effort
  - Low SE attributes failure to low ability

SE Effects on Affect

- Perceived control over stressors alleviates anxiety
- Perceived control over thought processes helps regulate stress and depression
- Lack of perceived control leads to depression
  - Unattainable standards
  - Low sense of social efficacy leads to isolation
  - Inability to control ruminative thoughts

SE Effects on Affect

- Lack of perceived control leads to stress
  - Stress is a subjective event
  - Has impact on all systems of the body
  - At the root of most disease processes
Appraisals in SE Theory

- How do you evaluate your performance?
  - Selective self-monitoring
    - Positive vs. Negative aspects of performance
  - Credibility of the source
  - Attributional Processes
    - “An achievement will enhance SE only if it is attributed to one’s own ability or skill and not to external, chance, or temporary factors.”
  - Strecher et al., 1986 page 448.

SE: What it Isn’t

- Health Locus of Control
  - Belief that one’s health is controlled by external or internal forces
  - Internal locus can exist without confidence that one can accomplish healthy behavior change
- Self-esteem
  - Evaluation of self-worth rather than an evaluation of specific capabilities in specific situations

SE: Developmental Aspects

- Personal agency in newborns comes about as result of action and reaction
- SE fostered by parental responsiveness in early childhood
- Peers in late childhood
  - Modeling competent behavior
  - Providing comparisons for social judgment

Self-Efficacy Beliefs

- “Distortion” of reality
- People tend to overestimate their capabilities when they err
  - Self-enhancing biases
    - This often leads to significant achievement
    - Traumatized and/or distressed people are more objectively correct in their appraisals!

Assessing Self-Efficacy

- Self-Report measures
- Modified for specific populations and issues
- General SE Scale available
  - Schwarzer & Jerusalem 1993
  - Distributed to thousands of people from 14 different cultures
Self-Efficacy: Research

- Condom Use: 4 components of confidence
  - Mechanics of use
  - Dealing with partner disapproval
  - Ability to be assertive about using condoms
  - Ability to use a condom when intoxicated
  - All but mechanics are powerful discriminators of non-users vs. ritualistic users
    - Mahoney, Thombs, & Ford, 1995

- High self-efficacy + internal locus of control led to greater weight loss in study of obese women
  - Strecher et al., 1986

- Enhancing SE produced greater rates of tobacco cessation
  - Nicki et al., 1985

Self-Efficacy: Applications

- Enhances quality of life (QOL) in people with COPD

- SE mediates the effects of pulmonary function on QOL
  - Dyspnea
  - Walking Ability
  - Perceived Exercise Tolerance
    - Kohler, Fish, & Greene, 2002

- Self-efficacy has a direct effect on coping strategies

- SE promotes the use of effective and useful coping strategies

- These strategies lead to less functional disability
  - Kohler, Fish, & Greene, 2002

- In chronic illness, perception can be more important than objective measures in predicting outcomes

  - “functional limitations may be governed more by beliefs of capability than by degree of actual physical impairment.”
    - Bandura, 1997, p. 300

- SE mediates the effects of environmental stressors on physiological responses

- Research with people with spider phobias

- Measured blood levels of catecholamines at various levels of exposure to spiders

- Strengthening SE diminished and/or eliminated catecholamine responses to stressors
  - Bandura et al., 1985