

Behavior Change -- A Summary of Four Major Theories

This document presents and explains four of the most commonly cited theories used in HIV/AIDS prevention on how behavior change is believed to occur.

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Introduction

How does behavior change occur? This question probably has as many answers as there are diverse populations and cultures. Every HIV prevention program, however, is based on those answers -- theories about why people change their behaviors. These underlying principles may not be formally recognized as theories, but they focus HIV prevention efforts on the elements believed to be essential for individuals to enact and sustain behavior change.

Four of the most commonly cited theories in HIV prevention literature are outlined in this booklet: The Health Belief Model, the AIDS Risk Reduction Model, the Stages of Change, and the Theory of Reasoned Action. These theories have yet to be extensively applied in research outside of the United States, and they may not capture the elements necessary for behavior change in every culture or population. They do provide, however, four examples of how the behavior change process is believed to occur. By presenting a brief explanation of each theory, the AIDS Control and Prevention (AIDSCAP) Project hopes to encourage people working with HIV/AIDS to examine the theories, both formal and informal, that guide their prevention efforts.

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August, 1996*

Health Belief Model (HBM)

The Health Belief Model (HBM) is a psychological model that attempts to explain and predict health behaviors by focusing on the attitudes and beliefs of individuals. The HBM was developed in the 1950s as part of an effort by social psychologists in the United States Public Health Service to explain the lack of public participation in health screening and prevention programs (e.g., a free and conveniently located tuberculosis screening project). Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors, including sexual risk behaviors and the transmission of HIV/AIDS. The key variables of the HBM are as follows (Rosenstock, Strecher and Becker, 1994):

- **Perceived Threat:** Consists of two parts: perceived susceptibility and perceived severity of a health condition.
 - **Perceived Susceptibility:** One's subjective perception of the risk of contracting a health condition,
 - **Perceived Severity:** Feelings concerning the seriousness of contracting an illness or of leaving it untreated (including evaluations of both medical and clinical consequences and possible social consequences).
- **Perceived Benefits:** The believed effectiveness of strategies designed to reduce the threat of illness.
- **Perceived Barriers:** The potential negative consequences that may result from taking particular health actions, including physical, psychological, and financial demands.
- **Cues to Action:** Events, either bodily (e.g., physical symptoms of a health condition) or environmental (e.g., media publicity) that motivate people to take action. Cues to actions is an aspect of the HBM that has not been systematically studied.

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The Health Belief Model: A decade later. *Health Education Quarterly*. 11(1), 1-47.
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- **Other Variables:** Diverse demographic, sociopsychological, and structural variables that affect an individual's perceptions and thus indirectly influence health-related behavior.
- **Self-Efficacy:** The belief in being able to successfully execute the behavior required to produce the desired outcomes. (This concept was introduced by Bandura in 1977.)

Implications for Health Behaviors

HBM research has been used to explore a variety of health behaviors in diverse populations. For instance, researchers have applied the HBM to studies that attempt to explain and predict individual participation in programs for influenza inoculations, Tay-Sachs carrier status screening, high blood pressure screening, smoking cessation, seatbelt usage, exercise, nutrition, and breast self-examination. With the advent of HIV/AIDS, the model also has been used to gain a better understanding of sexual risk behaviors (Rosenstock et al., 1994). Participants in these studies, most of which were conducted in the United States, include people from the general population, homosexual men, adolescents, and pregnant women. Research designs also vary from longitudinal to cross-sectional and from retrospective to prospective studies.

In a literature review of all HBM studies published from 1974-1984, the authors identified, across study designs and populations, perceived barriers as the most influential variable for predicting and explaining health-related behaviors (Janz and Becker, 1984). Other significant HBM dimensions were perceived benefits and perceived susceptibility, with perceived severity identified as the least significant variable. More recently, though, researchers are suggesting that an individual's perceived ability to successfully carry out a "health" strategy, such as using a condom consistently, greatly influences his/her decision and ability to enact and sustain a changed behavior (Bandura, 1989).

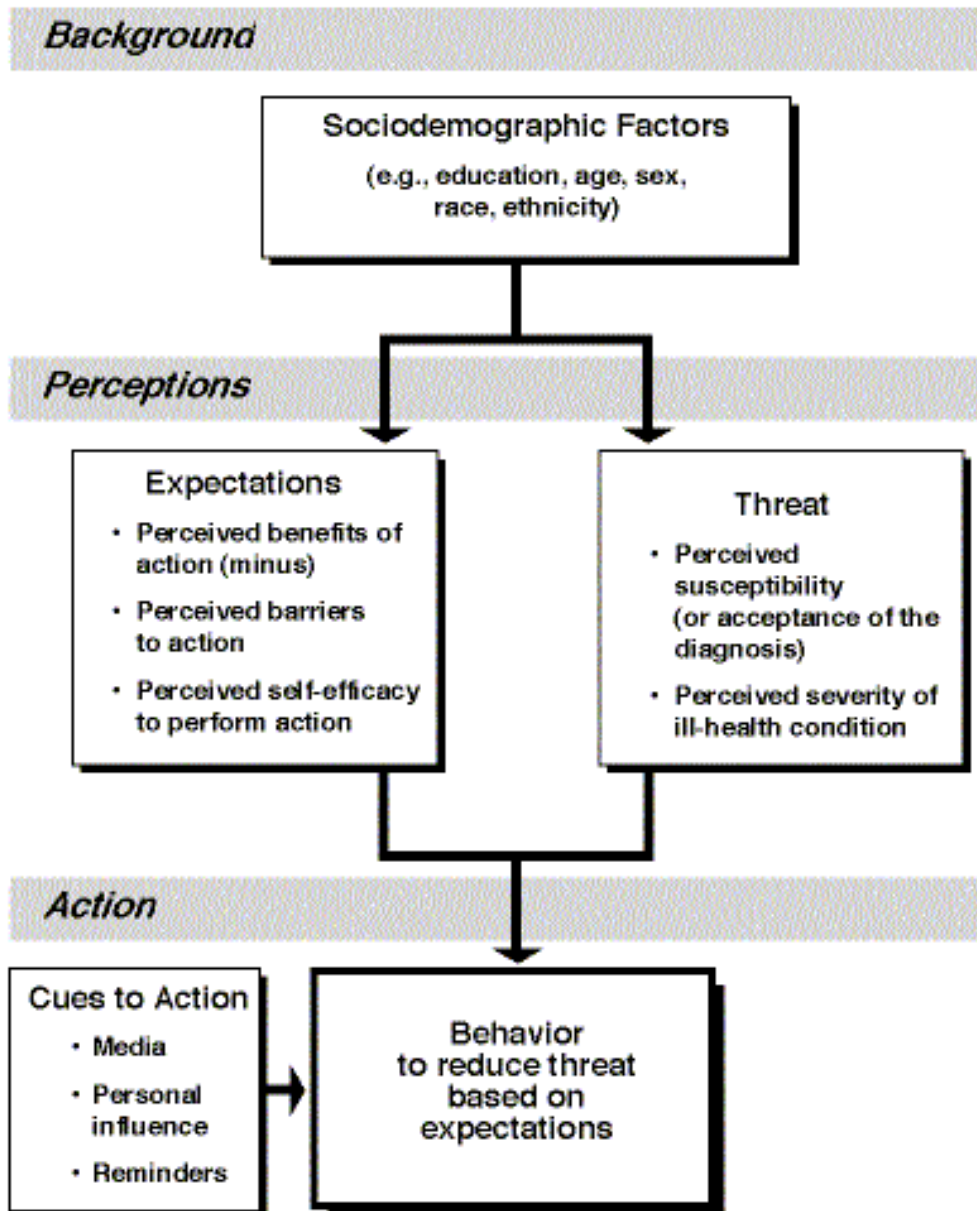
Limitations

General limitations of the HBM include: a) most HBM-based research to date has incorporated only selected components of the HBM, thereby not testing the usefulness of the model as a whole; b) as a psychological model it does not take into consideration other factors, such as environmental or economic factors, that may influence health behaviors; and c) the model does not incorporate the influence of social norms and peer influences on people's decisions regarding their health behaviors (a point to consider especially when working with adolescents on HIV/AIDS issues).

The Health Belief Model:
Some implications for behavior change, with reference to homosexual males. In V.M. Mayes, G.W. Albee and S.F. Schneider (Eds.), *Primary Prevention of AIDS: Psychological Approaches* (pp. 111-127). London: Sage Publications.

Rosenstock I., Strecher, V., and Becker, M. (1994).
The Health Belief Model and HIV risk behavior change. In R.J. DiClemente, and J.L. Peterson (Eds.), *Preventing AIDS: Theories and Methods of Behavioral Interventions* (pp. 5-24). New York : Plenum Press.

VanLandingham, M.J., Suprasert S., Grandjean, N., and Sittitrai, W. (1995).
Two views of risky sexual practices among Northern Thai males : The Health Belief Model and the Theory of Reasoned Action. *Journal of Health and Social Behavior*, 36, 195-212.



Source: Rosenstock I., Strecher, V., and Becker, M. (1994). The Health Belief Model and HIV risk behavior change. In R.J. DiClemente and J.L. Peterson (Eds.), Preventing AIDS: Theories and methods of behavioral interventions (pp. 5-24). New York : Plenum Press.

AIDS Risk Reduction Model (ARRM)

The AIDS Risk Reduction Model (ARRM), introduced in 1990, provides a framework for explaining and predicting the behavior change efforts of individuals specifically in relationship to the sexual transmission of HIV/AIDS. A three-stage model, the ARRM incorporates several variables from other behavior change theories, including the Health Belief Model, "efficacy" theory, emotional influences, and interpersonal processes. The stages, as well as the hypothesized factors that influence the successful completion of each stage (please see attached diagram), are as follows (Catania, Kegeles and Coates, 1990):

STAGE 1: Recognition and labeling of one's behavior as high risk

Hypothesized Influences:

- knowledge of sexual activities associated with HIV transmission;
- believing that one is personally susceptible to contracting HIV;
- believing that having AIDS is undesirable;
- social norms and networking.

STAGE 2: Making a commitment to reduce high-risk sexual contacts and to increase low-risk activities

Hypothesized Influences:

- cost and benefits;
- enjoyment (e.g., will the changes affect my enjoyment of sex?);
- response efficacy (e.g., will the changes successfully reduce my risk of HIV infection?);
- self-efficacy;
- knowledge of the health utility and enjoyability of a sexual practice, as well as social factors (group norms and social support), are believed to influence an individual's cost and benefit and self-efficacy beliefs.

STAGE 3: Taking action. This stage is broken down into three phases: 1) information seeking; 2) obtaining remedies; 3) enacting solutions. Depending on the individual, phases may occur concurrently or phases may be skipped.

Hypothesized Influences:

References and Suggested Reading

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Boyer, C.B., and Kegeles, S.M. (1991).

AIDS risk and prevention among adolescents. *Social Science and Medicine*, 33 (1), 11-23.

Catania, J.A., Kegeles, S. M., and Coates T.J. (1990).

Towards an understanding of risk behavior: An AIDS risk reduction model (ARRM). *Health Education Quarterly*, 17(1), 53-72.

Catania, J.A., Coates, T. J., and Kegeles, S. (1994).

A test of the AIDS risk reduction model: Psychosocial correlates of condom use in the AMEN cohort survey. *Health Psychology*, 13(6), 548-55.

Dolcini, M.M., Coates, T. J., Catania, J.A., Kegeles, S.M., and Hauck, W.W. (1995).

Multiple Sexual Partners and their psychosocial correlates: The population-based AIDS in multiethnic neighborhoods (AMEN) study. *Health Psychology*,

- social networks and problem-solving choices (self-help, informal and formal help);
- prior experiences with problems and solutions;
- level of self-esteem;
- resource requirements of acquiring help;
- ability to communicate verbally with sexual partner;
- sexual partner's beliefs and behaviors.

In addition to the stages and influences listed above, the authors of the ARRM (Catania et al., 1990) identified other internal and external factors that may motivate individual movement across stages. For instance, aversive emotional states (e.g., high levels of distress over HIV/AIDS or alcohol and drug use that blunt emotional states) may facilitate or hinder the labeling of one's behaviors. External motivators, such as public education campaigns, an image of a person dying from AIDS, or informal support groups, may also cause people to examine and potentially change their sexual activities.

To date, ARRM studies in the United States have examined a variety of populations, including people attending HIV testing clinics, gay and bisexual men, unmarried white, black and hispanic heterosexuals, and adolescent females attending family planning centers. (These are unpublished studies conducted by the Center for AIDS Prevention as described in Catania et al., 1990.) Results from a published study revealed how difficult it was for urban and rural women in Zaire to label their behavior as problematic: only one-third of the study participants felt personally at risk for contracting HIV/AIDS (Bertrand, Brown, Kinzonzi, Mansilu and Djunghu, 1992). Other research has expanded the ARRM to examine the behaviors of injecting drug users, as well as the protective behaviors of women who are already infected with HIV (Malow, Corrigan, Cunningham, West and Pena, 1993; Kline and VanLandingham, 1994).

Limitations:

A general limitation of the ARRM model is its focus on the individual. For instance, many women in an ARRM-based study in Kampala, Uganda, felt at risk for HIV, not due to their own behavior but because of the behaviors of their sexual partners -- an issue the women reported was outside of their control (McGrath et al., 1993). As a result, the researchers suggested that the ARRM take into greater consideration the sociocultural issues that influence, and may limit, an individual's behavior choices and ability to take action.

14(1), 22-31.

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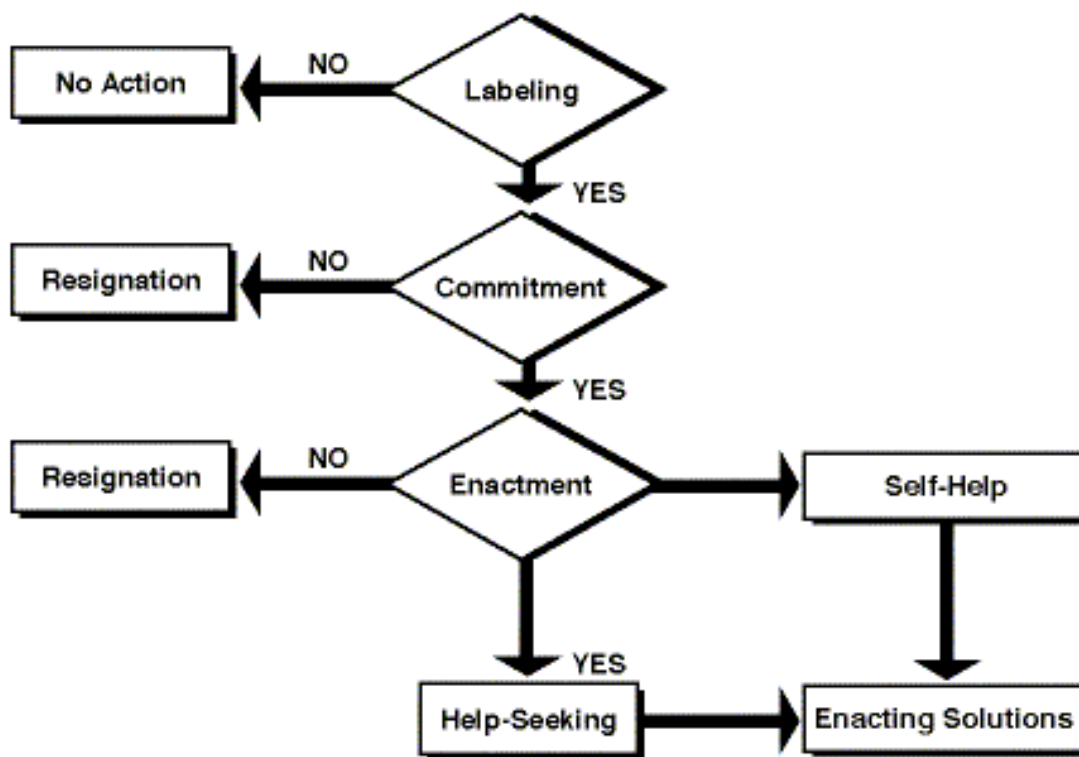
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Source: Catania, J.A., Kegeles, S.M., and Coates T.J. (1990). Towards an understanding of risk behavior: An AIDS risk reduction model (ARRM). *Health Education Quarterly*, 17(1), 53-72.

Park, California: SAGE Publications.

Stages of Change

Psychologists developed the Stages of Change Theory in 1982 to compare smokers in therapy and self-changers along a behavior change continuum. The rationale behind "staging" people, as such, was to tailor therapy to a person's needs at his/her particular point in the change process. As a result, the four original components of the Stages of Change Theory (precontemplation, contemplation, action, and maintenance) were identified and presented as a linear process of change. Since then, a fifth stage (preparation for action) has been incorporated into the theory, as well as ten processes that help predict and motivate individual movement across stages. In addition, the stages are no longer considered to be linear; rather, they are components of a cyclical process that varies for each individual. The stages and processes, as described by Prochaska, DiClemente and Norcross (1992), are listed below.

- **Precontemplation:** Individual has the problem (whether he/she recognizes it or not) and has no intention of changing.

Processes: Consciousness raising

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Centers for Disease Control and Prevention. (1993).

Distribution of STD clinic patients along a stages of behavioral change continuum -- selected sites, 1993. *MMWR*, 42,880-883.

Galavotti, C., Cabral, R., Grimley, D., Riley, G.E., and Prochaska, J.O. (1993).

Measurement of condom and other contraceptive behavior change among women at high risk of HIV infection and transmission. Paper presented at the IX International Conference on

(information and knowledge)

Dramatic relief (role playing)

Environmental reevaluation (how problem affects physical environment)

- **Contemplation:** Individual recognizes the problem and is seriously thinking about changing.

Processes: Self-reevaluation (assessing one's feelings regarding behavior)

- **Preparation for Action:** Individual recognizes the problem and intends to change the behavior within the next month. Some behavior change efforts may be reported, such as inconsistent condom usage. However, the defined behavior change criterion has not been reached (i.e., consistent condom usage).

Processes: Self-liberation (commitment or belief in ability to change)

- **Action:** Individual has enacted consistent behavior change (i.e., consistent condom usage) for less than six months.

Processes: Reinforcement management (overt and covert rewards)

Helping relationships (social support, self-help groups)

Counterconditioning (alternatives for behavior)

Stimulus control (avoid high-risk cues)

- **Maintenance:** Individual maintains new behavior for six months or more.

A variety of behaviors, such as smoking cessation, weight control efforts and mammography screening, have been explored in U.S. populations using the Stages of Change Theory (Prochaska, 1994). More recently, this theory has been applied in research on sexual behaviors and HIV/AIDS. For example, the Centers for Disease Control and Prevention (CDC) is

AIDS (Abstr PO-D38-4416), Berlin, Germany.

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Prochaska, J.O. (1994).

Strong and weak principles for progressing from precontemplation to action on the basis of twelve problem behaviors. *Health Psychology*, 13(1), 47-51.

Prochaska, J.O. and DiClemente C.C. (1986).

Towards a comprehensive model of change. In U. Miller, N. Heather, (Eds.), *Treating Addictive Behaviors* (pp. 3-27). New York: Plenum Press.

using the Stages of Change Theory in an HIV/AIDS Counseling and Testing Study at sexually transmitted disease (STD) clinics. Consequently, the counseling provided will be based on the client's particular stage (CDC, 1993). Populations for other stages of change research conducted in the U.S. consist of women, men who have sex with men but do not identify themselves as homosexual, intravenous drug users, prostitutes, couples, and youth. Preliminary results from these studies support the Stages of Change Theory as a method for characterizing individuals along a change continuum with the intent of enhancing the effectiveness of HIV/AIDS interventions. In addition, the theory offers a method for evaluating programs by measuring individual change.

Studies have also examined the usefulness of merging aspects of other theories into the Stages of Change. These additional components are often applied in an effort to clarify how individuals move across stages. For instance, a U.S. study examined a variety of behavior problems using the Stages of Change Theory and two constructs from the Decisional Balance Model (Prochaska, 1994). The incorporation of aspects from the Decisional Balance Model into the study strengthened the Stages of Change Theory by clarifying what motivates movement from one stage to the next. Overall, the merging of components from various theories is common, as researchers and programmers seek to gain a better understanding of how behavior change occurs.

Limitations:

As a psychological theory, the stages of change focuses on the individual without assessing the role that structural and environmental issues may have on a person's ability to enact behavior change. In addition, since the stages of change presents a descriptive rather than a causative explanation of behavior, the relationship between stages is not always clear. Finally, each of the stages may not be suitable for characterizing every population. For instance, a study of sex workers in Bolivia discovered that few study participants were in the precontemplative, contemplative stages in regard to using condoms with their clients (Posner, 1995).

Prochaska, J.O., DiClemente, C.C. and Norcross, J.C. (1992).

In search of how people change—applications to addictive behaviors. *American Psychologist*, 47 (9), 1102-1114.

Prochaska, J.O., Velicer W. F., DiClemente, C.C. and Fava, J. (1988).

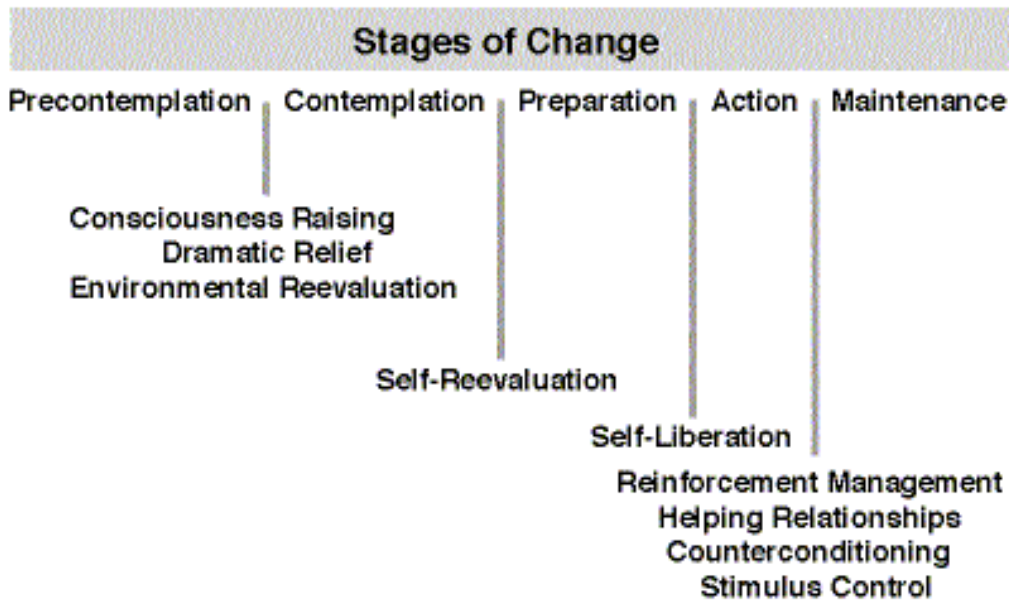
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Prochaska, J.O, Velicer, W. F., Rossi, J.S., Goldstein, M.G., Marcus, B.H., Rakowski, W. Fiore, C., Harlow, L.L., Redding, C. A., Rosenbloom, D., and Rossi, S.R. (1994).

Stages of change and decisional balance for 12 problem behaviors. *Health Psychology*, 13(1), 39-46.

Rietmeijer C., Davis, T., Martindale, C., Kane, M., Cole, V., Schnell, D., and Cohn, D. (1992).

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Source: Prochaska, J.O., DiClemente, C.C. and Norcross, J.C. (1992). In search of how people change -- applications to addictive behaviors. *American Psychologist*, 47(9), 1102-1114.

Theory of Reasoned Action (TRA)

Research using the Theory of Reasoned Action (TRA) has explained and predicted a variety of human behaviors since 1967. Based on the premise that humans are rational and that the behaviors being explored are under volitional control, the theory provides a construct that links individual beliefs, attitudes, intentions, and behavior (Fishbein, Middlestadt and Hitchcock, 1994). The theory variables and their definitions, as described by Fishbein et al. (1994), are:

- **Behavior:** A specific behavior defined by a combination of four components: action, target, context, and time (e.g., implementing a sexual HIV risk reduction strategy (action) by using condoms with commercial sex workers (target) in brothels (context) every time (time)).
- **Intention:** The intent to perform a behavior is the best predictor that a desired behavior will actually occur. In order to measure it accurately and effectively, intent should be defined using the same components used to define behavior: action, target, context, and time. Both attitude and norms, described below, influence one's intention to perform a behavior.
- **Attitude:** A person's positive or negative feelings toward performing the defined behavior.

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Understanding attitudes and predicting social behavior. New Jersey: Prentice-Hall, Inc.

Fishbein, M., and Middlestadt, S.E. (1989).

Using the theory of reasoned action as a framework for understanding and changing AIDS-related behaviors. In V.M. Mays, G.W. Albee, and S.F. Schneider (Eds.), *Primary prevention of AIDS: Psychological approaches* (pp. 93-110). London: Sage Publications.

Fishbein, M., Middlestadt, S.E., and Hitchcock, P.J. (1994).

- **Behavioral Beliefs:** Behavioral beliefs are a combination of a person's beliefs regarding the outcomes of a defined behavior and the person's evaluation of potential outcomes. These beliefs will differ from population to population. For instance, married heterosexuals may consider introducing condoms into their relationship an admission of infidelity, while for homosexual males in high prevalence areas it may be viewed as a sign of trust and caring.
- **Norms:** A person's perception of other people's opinions regarding the defined behavior.
 - **Normative Beliefs:** Normative beliefs are a combination of a person's beliefs regarding other people's views of a behavior and the person's willingness to conform to those views. As with behavioral beliefs, normative beliefs regarding other people's opinions and the evaluation of those opinions will vary from population to population.

The TRA provides a framework for linking each of the above variables together (see diagram). Essentially, the behavioral and normative beliefs -- referred to as cognitive structures -- influence individual attitudes and subjective norms, respectively. In turn, attitudes and norms shape a person's intention to perform a behavior. Finally, as the authors of the TRA argue, a person's intention remains the best indicator that the desired behavior will occur. Overall, the TRA model supports a linear process in which changes in an individual's behavioral and normative beliefs will ultimately affect the individual's actual behavior.

The attitude and norm variables, and their underlying cognitive structures, often exert different degrees of influence over a person's intention. For example, results from a study of northern Thai males revealed that men's perceptions of peer norms were the best predictor of condom use (VanLandingham, Suprasert, Grandjean and Sittitjai, 1995). Yet in a study of college females in the United States, attitudinal beliefs exerted greater influence on the intent to use condoms by sexually inexperienced females (Middlestadt and Fishbein, 1990). In order to develop appropriate interventions for a specific population and behavior, therefore, it is important to determine which variable and its corresponding cognitive structures exerts the greatest influence on the study population (Fishbein et al., 1994).

To date, behaviors explored using the TRA include smoking, drinking, signing up for treatment programs, using contraceptives, dieting, wearing seatbelts or safety helmets, exercising regularly, voting, and breast-feeding (Fishbein et al., 1994). Studies conducted in Zimbabwe applied the theory to research on condom usage by females and males (Montano,

Using information to change sexually transmitted disease-related behaviors. In R.J. DiClemente and J.L. Peterson (Eds.), *Preventing AIDS: Theories and methods of behavioral interventions* (pp. 61-78). New York: Plenum Press.

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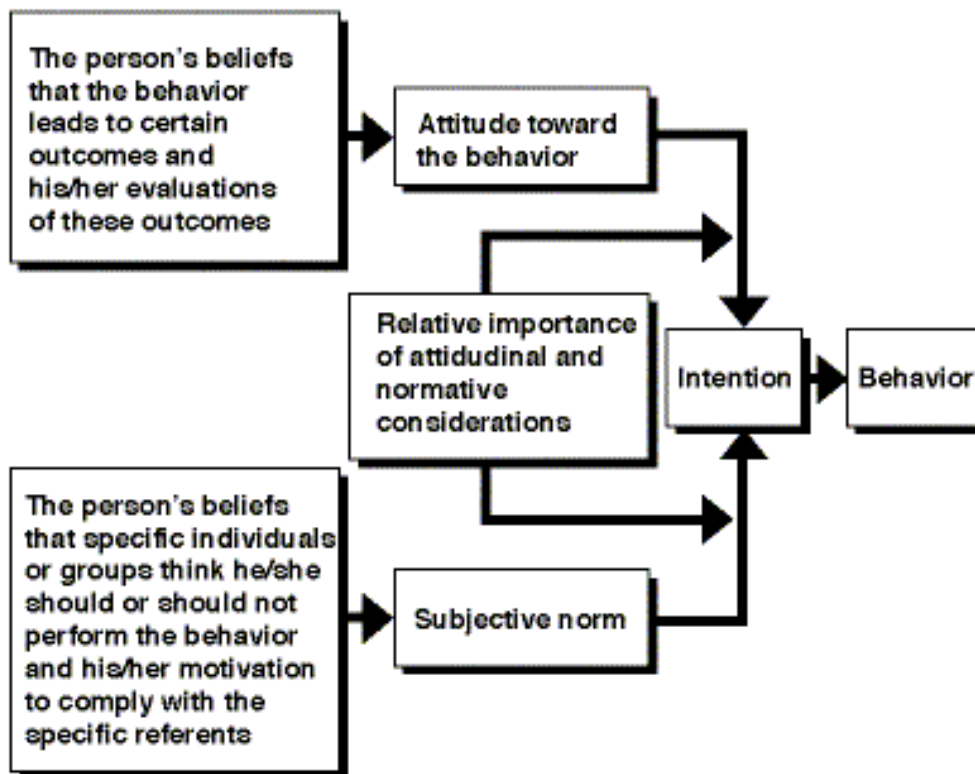
Flaws in the theory of reasoned action. In D.J. Terry, C. Gallois, and M. McCamish (Eds.), *The theory of reasoned action: Its application to AIDS-*

Kasprzyk and Wilson, 1990; Wilson, Zenda and Lavelle, 1993). Other study populations for TRA HIV/AIDS research include women, STD clinic patients, female commercial sex workers, men who have sex with men, college students, and injecting drug users (please see references and suggested reading list).

Limitations:

Some limitations of the TRA include the inability of the theory, due to its individualistic approach, to consider the role of environmental and structural issues and the linearity of the theory components (Kippax and Crawford, 1993). Individuals may first change their behavior and then their beliefs/attitudes about it. For example, studies on the impact of seatbelt laws in the United States revealed that people often changed their negative attitudes about the use of seatbelts as they grew accustomed to the new behavior.

Theory of Reasoned Action



Source: Ajen,I., Fishbein, M. (1980) Understanding attitudes and predicting social behavior. New Jersey: Prentice-Hall, Inc.

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Factors influencing intended condom use among Zimbabwean students. Paper presented at the VIII International Conference on AIDS (Abstr PoD5389), Amsterdam, The Netherlands.

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