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NorthPoint Domain Inc.  
One Joy Street  
Boston, MA  
02108-1403 USA

(800) 603-1420

www.northpointdomain.com  
memberservices@npdinc.com

## Theoretical Foundation Bolsters Effect of Internet Interventions

**More extensive use of theory, and supplementary tools such as email and text messaging, contributes to greater behavior change**

Internet-based health interventions have greater impact when they are grounded in science theory, according to a study published recently in the *Journal of Medical Internet Research*. Incorporating multiple behavior change techniques and modes of delivery also increases their power.

Prior research indicated that health promotion interventions delivered via the Internet have positive yet variable effects on behaviors such as tobacco use, physical activity, and diet. No data existed regarding effectiveness of the different strategies, so the authors of the current study sought to investigate. They used a recently developed behavior change coding system to identify the characteristics of successful programs and to assess how theories and various delivery methods affected results.

The authors conducted computerized searches of Web of Science conference proceedings, BIOSIS Previews, and Medline, and included randomized trials involving Internet-based programs that measured a health-related behavior after the intervention. Eighty-five studies met these criteria.

Mode of delivery was divided into automated functions such as testimonials and games or reinforcing messages, communicative functions such as discussion boards or "Ask-the-Expert" capabilities, and supplementary functions such as email and

videoconferencing. A wide variety of theoretical tools were employed in the studies. The three most frequent ones were social cognitive theory, the transtheoretical model, and the theory of reasoned action/planned behavior.

Analysis revealed a larger effect in studies utilizing theory — and

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increasing effect when more than one theory was used — especially in interventions that targeted one specific behavior versus multiple behaviors. Interventions based on the theory of reasoned action/planned behavior appeared to have the most positive impact on patients' behavior. This theory states that an individual's behavior is determined primarily by his or her intention to perform an action, which is a product of attitude, subjective norms, and perceived efficacy. The authors noted that subjects were influenced more by others' behavior than by others' approval. Interventions addressing stress management or general communication skills training had the largest effects overall. Also, use of communication functions, particularly access to an advisor, text messages, and email, in conjunction with the

Internet intervention, was highly effective.

The authors concluded that more study is necessary, but that their review “provides a framework for research that can contribute to a science of Internet-based interventions and our findings provide a rationale for investing in more intensive theory-based interventions that incorporate multiple behavior change techniques and modes of delivery.”

**Source:** Webb TL, Joseph J, Yardley L, Michie S. 2010. Using the Internet to promote health behavior change: a systematic review and meta-analysis of the impact of theoretical basis, use of behavior change techniques, and mode of delivery on efficacy. *Journal of Medical Internet Research* 12(1):e4.

## Women Still Lacking Heart Disease Awareness

The authors state that numerous barriers to prevention still exist

**A**wareness of cardiovascular disease (CVD) as the leading cause of death among women has nearly doubled since 1997, but that number is stabilizing and continues to lag in racial/ethnic minorities, according to the results of study published on the *Circulation: Cardiovascular Quality and Outcomes* website. Numerous misperceptions and barriers to prevention persist and women strongly favor environmental approaches to facilitate preventive action.

Cardiovascular disease is the leading killer of American women.

In the past 10 years, awareness of CVD among women doubled, which research has shown correlates positively with action to reduce this risk. In 1997, the American Heart Association began triennial surveys in random samples of women to track their awareness, knowledge, and perceptions related to heart disease and stroke according to race/ethnicity and age. The current study sought to assess the current

levels in a nationally representative sample including an oversampling of African American, Hispanic, and Asian women and to examine trends over time. The researchers also sought to explore barriers to women taking preventive action.

A total of 2,300 women ages 25 and older completed the survey, 1,142 women through random

digit dialing, and 1,158 women through the Internet. The proportion of women who were aware that CVD is the leading cause of death has increased significantly since

1997. Awareness among telephone participants was greater in 2009 compared to 1997 (54 percent versus 30 percent), but not different than 2006 (57 percent). Although the gap has narrowed since 1997, African American and Hispanic women were significantly less aware than white women. Only 53 percent of women said they would call 9-1-1 if they thought they were having symptoms of a heart attack. The majority of

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women cited therapies to prevent CVD that are not evidence-based. Common barriers to prevention were family/caretaking responsibilities (51 percent) and confusion in the media (42 percent). Community-level changes women thought would be helpful were access to healthy foods (91 percent), public recreation facilities (80 percent), and nutrition information (79 percent).

“The survey responses suggest that sustained educational efforts are needed to raise awareness, particularly among vulnerable populations. More emphasis should be placed on raising awareness of the symptoms of

heart disease and informing women of the importance of calling 9-1-1. Many misperceptions remain about how to lower CVD risk; programs are needed to help women take action and should incorporate evidence-based prevention education,” the authors conclude.

**Source:** Mosca L, Mochari-Greenberger H, Dolor RJ, et al. 2010. Twelve-year follow-up of American women’s awareness of cardiovascular disease risk and barriers to hearth health. Published on the *Circulation: Cardiovascular Quality and Outcomes* website.

## Hot Topic Highlights

*Cardiology Domain recently posted the following Hot Topic to your website:*

### **Ablation Less Effective for Women with Atrial Fibrillation**

A study published in *Heart Rhythm* found that female patients fail ablation procedures for atrial fibrillation more frequently than men. Researchers evaluated a type of radiofrequency ablation called pulmonary vein antrum isolation and found that the treatment was unsuccessful for 31.5 percent of women compared to 22.5 percent of men. Women also developed complications more frequently than men. Women tended to be older, had received more unsuccessful antiarrhythmic medical treatment, and were referred for ablation later than their male counterparts.

**Source:**

Patel D, Mohanty P, Di Biase L, et al. 2010. Outcomes and complications of catheter ablation for atrial fibrillation in females. *Heart Rhythm* 7:167-172.