

Emotional bases for quitting smoking:  
Extending the concept of risk to discrete emotional consequences

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My argument about risk has two components. The first holds that the conceptualization of risk most useful for prevention and message designs to reduce risky behavior employs naïve causality about the antecedents and consequences of risk with the subject at the center. The second holds that the class of consequences should be broadened beyond rationalized benefits and costs to include anticipated positive and negative (discrete) emotional reactions.

Research on risk information and its impact on health decisions has been criticized on a variety of grounds. One re-conceptualization that has potential for the design of effective health messages focuses on a behavior's positive and negative consequences (Rothman & Kiviniemi, 1999; Cappella, Yzer, & Fishbein, 2003). Positive and negative consequences that are typically employed as predictors of behavioral intention and behavior are derived through procedures that produce deliberative, rational consequences (Fishbein, et al. 1992; Fishbein, et al., 2002).

The conceptualization of risk must be appropriate for the design of prevention messages. The conceptualization adopted here is that subjectively felt negative and positive consequences of a behavior and antecedents of the likelihood of that behavior are particularly useful for the design of these messages. Consequences are conceived as rational benefits and costs.

However, this view has its limits as well. I will argue and present some data in support of the claim that anticipated emotions can also be consequences. Emotional consequences of a behavior, when treated as anticipated emotions associated with the behavior, will make independent contributions to behavioral intentions. The emotional consequences of an action may be as important a set of predictors of behavioral intentions as more deliberative consequences in some circumstances, even though the emotional consequences are not typically produced during the elicitation stage of research on consequences associated with healthy and unhealthy behaviors.

Conceptualizing risk in terms of positive and negative discrete emotional consequences associated with healthy and unhealthy behaviors can add substantial variance explained to models of behavior change and open routes to persuasion that models based only on rational, deliberative consequences cannot. The claim will be illustrated with some data on quitting smoking.

### **Conceptualizing Risk via the Simulation Heuristic**

One conception of risk information holds that health risk information is a probability that a behavior leads to a particular kind of health problem. Information conceptualized in this way is often misunderstood. It is assumed to relate to personal vulnerability but does not always do so. Personal vulnerability is one of the key factors in predicting behavior intentions, and risk information (as probability or frequency) too often, therefore, fails to predict behavioral intention behavior (Rothman & Kiviniemi, 1999)). As a consequence, an alternative that is meaningful to the audience and places the subject at the center of antecedents of risk and the consequences of risk may offer a useful alternative.

A naïve causality of risk implies answers to questions such as “What can I do to increase or lower risk, in the sense of what are the antecedents to my behavior?” “How am I affected by engaging in a particular behavior either from the point of view of a preventative behavior or behavior that's risky?” The former refer to the antecedents of risky action and the latter to the consequences typically associated with a particular behavior action.

If this conception of risk is to be useful it must be related to behavior and behavioral intention. Otherwise why should we care about the risk perceptions that people have? Finally, an effective conception of risk information must be able to be harnessed in the creation of prevention messages.

The view of risk that I have sketched is based on the (independent) work of Marty Fishbein (Fishbein & Ajzen, 1975) and Mark Rothman (Rothman & Kiviniemi, 1999). The former has focused primarily on consequences of behavior and the latter on antecedents (and consequences to a lesser extent). Together they offer a conception of risk that is a naïve causality that individuals may have about the risk situation in which they find themselves.

A part of the naïve theory of risk is the role of the subject who occupies a position at the center of risk; that is, the antecedents and consequences are perceived from the point of view of the recipient. Risk information needs to be personal or personalized in some sense, so that when consequences are emphasized these consequences are meaningful and accepted as consequences by the subject. The personalization of consequences increases the likelihood that people will feel vulnerable to these consequences. When antecedents are emphasized and made personal, then the subject's understanding of the origin of a risk is made focal. It is not the factual antecedents that increase perceived risk necessarily but the perceived antecedents.

What these outcomes and antecedents produce is what I would call a lay causality about risk – in terms of the life style choices and other more determinate factors that give rise to a risky behavior and the consequences of that behavior. Although this is neither scientific causality, nor factual causality, it is causality from the point of view of the person who is affected by it. The consequences of behavior and the antecedents of behaviors are understood from the point of view of the person and the person is, in a sense, located at the causal center of antecedents and consequences.

Another way to describe this view of naïve causality is as a simulation heuristic (Kahneman & Tversky, 1982). The simulation is a construction of what is believed to be the (naïve) causes and (naïve) consequences of a behavior providing subjective estimates about the likelihood that something will happen and how, if an event happens, it will come out (Fiske & Taylor, 1991). Mental simulations about what could have been or about what could be have been shown to intensify emotional reactions (Kahneman & Tversky, 1982) and alter expectations (Taylor & Schneider, 1989).

What are some of the implications of this view for the measurement of risk? What is measured is a kind of mental space of antecedents and consequences in a target population. These consequences and antecedents will not particularly useful, unless they predict at least attitude toward the behavior and behavioral intention. Ultimately, they should predict behavior. Second, the antecedents and consequences need to be assessed from a subjective point of view, so the point of view needs to be from the person, not necessarily the point of view of a factual science base. In short, antecedents and consequences are replaced by a subject's perceived antecedents and consequences which -- because they are meaningful to the target audience -- become likely predictors of behavioral intention and the sources of content in the design of health messages.

To be more concrete, consider an example of the negative and positive consequences of quitting smoking: "I'd like to ask you what you think the consequences of smoking are for you?" [and] "How likely is it the following will happen to if you completely and permanently stop smoking in the next three months?" Some alternative consequences include: "I would do less harm to people around me; I would have trouble keeping my weight down; I would decrease my chances of getting cancer." So the focus in these questions is on consequences from an individual's point of view.

Next consider the subjective perception concerning antecedents with an example an example from condom use: "Suppose in the next six months you had a new sex partner who's

HIV status you did not know. How sure are you that using condoms every time you have receptive oral sex with that partner would protect you from getting HIV?” In this example, use of a condom is the antecedent behavior for a subsequent cognitive state. Here if you do a behavior, what’s the outcome? “How sure are you that using condoms every time you have receptive anal sex with that partner would protect you from getting HIV?” Obviously, a series of context specific statements is required.

### **Anticipated Emotions as Consequences**

These examples emphasize the rational in the sense that they represent a naïve rational (i.e. causal) theory of antecedents and consequences centered on the individual’s beliefs. Some of these beliefs can include emotional consequences, anticipated and actual. This addition can complement the deliberative processes of rational animals.

Some recent work by Loewenstein, Weber, Hsee, and Welch (2001) considers the role of emotional and rational processes in decision-making. They identify these two broad views of emotion in decision-making, one consequentialist and the other they dub “emotion-as-feeling.” These two approaches are described in Figure 1.

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Figure 1 about here  
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The consequentialist view implies that behavioral intentions result from cognitive evaluations in just the way they are described in theories such as reasoned action (Fishbein & Ajzen, 1975) and its extensions (Fishbein, et al., 1992). That is, anticipated outcomes and the subjective probabilities that those anticipated outcomes are going to actually take place combine to produce a disposition toward action. Emotion is a component in all consequentialist views, but emotion simply attends to or goes hand in hand with the consequentialist or more cognitive points of view. This is the old argument that cognitions and emotions are inseparable and that when people activate cognitive dispositions they are also activating emotional dispositions as well. Emotions attend cognitions but are merely covariates exerting no distinctive causal force.

The “feeling as emotion” viewpoint goes beyond the claim suggesting that it is not just the cognitive evaluation that has an effect on behavioral intention with emotion an associate of cognition but rather that there is a wholly separate path through which emotions work to predict behavioral intention. This emotional path would either support the cognitive evaluation or oppose it, providing a causal force in an opposite direction.

The hypothesis is that there are two distinct routes to behavioral intention, one through emotion and one through cognitive consequences. This hypothesis assumes that anticipated emotions, not emotions that are contemporaneous with the behavior or even the behavioral intention. One argument for positing alternative pathways is based on studies from brain physiology (LeDoux & Phelps, 2000) studies. A second is that anticipated emotion and rational consequences have separate, distinct predictors (Loewenstein et al., 2001).

So the key hypothesis is that there are two routes to behavioral intention. One is through cognitive consequences that have emotional tone and a second through discrete emotional routes conceptualized as anticipated emotions. These hypotheses were tested using some standard predictors from consequentialist theories. Previous research indicates that social normative approval, personal efficacy, past smoking history, and behavioral beliefs and attitudes should affect smoking intentions (Skara, Sussman, & Dent, 2001; Choi, et al., 2001 Henrikus, Jeffrey & Landau, 1995). Our study extended these predictions to quitting intentions. To test the “emotion-as-feeling” prediction, anticipated emotional reactions to quitting were added. We

hypothesized that unique variance would be added to the intention to quit once typical predictors such as attitude, social normative pressure, personal efficacy, and past smoking history were taken into account.

### **Data**

Data come from a nationally representative sample of smokers. The sample was obtained via an RDD survey conducted in May-June 2002 by Schulman, Ronca & Bucuvalas, Inc. on behalf of the University of Pennsylvania. The sample included 450 young adults aged 18 to 25 who had smoked at least one whole cigarette in the past six months. The overall response rate for the survey was 43.9%.

### **Measures**

Two measures of *intention* were obtained. Intention to *try* to quit smoking completely and permanently in the next three months was assessed and a similar question asked how likely it is that the person *will* quit smoking completely and permanently in the next three months.

*Attitude* toward trying to quit smoking completely and permanently in the next three months was measured by the average of three semantic differential items, ranging from -2 as “very bad/harmful/foolish” to 2 as “very good/beneficial/wise”.

*Behavioral beliefs* are the positive and negative consequences that a person thinks will occur as a result of trying to quit smoking. Behavioral beliefs were assessed by asking respondents to indicate the extent to which they thought that their trying to quit smoking would lead to 13 outcomes, such as “I would have better health” and “I would be more tense.”

*Subjective norms* toward trying to quit smoking were measured by responses to the item, “How do you think most people important to you would feel if you quit smoking completely and permanently in the next three months?”

*Self-efficacy* was measured by the question “How sure are you that you can quit smoking cigarettes completely and permanently in the next three months if you really wanted to?”

*Smoking behaviors* were assessed by 5 items that measured whether respondents smoked at least 100 cigarettes in their lifetime, whether they ever smoked a cigarette every day for at least a month, whether in the last 30 days they smoked at least one cigarette daily, whether they consider themselves smokers and addicted to smoking. All items were coded “1” for an affirmative answer and “0” for a negative one. The items were averaged into an index (Cronbach’s  $\alpha = .87$ ).<sup>1</sup>

*Emotions toward quitting smoking* were measured by the question “I am going to read a list of words that some people use to describe how they feel about quitting smoking permanently and completely. Please tell me if the word describes how YOU feel about your intention to quit smoking”. The emotion items used were: “proud”, “disgusted”, “angry”, “apprehensive”, and “hopeful”. Each item was coded on a 4-point scale, ranging from 0 as “not [proud] at all” to 3 as “extremely [proud]”.

Respondents reported their *age* (M=21.36 years), level of *education* (15.2% “Less than high school”, 71.6% “High school and some college”, 13.2% “College or more”), *income* (with 50% of the sample reporting an annual household total income before taxes of \$30,000 or less), *marital status* (21.3% married or living as married), *religion* (35.6% Protestant, 26.8% Catholic, 9% “Other”, and 28.6% “No religious preference”), and *race* (78% White, 9.5% Black, 12.5% Other).

### **Analytic Procedure**

OLS regression analysis is used to test hypotheses. The two measures of intention were tested separately. First, each measure of intention is predicted from demographics as a first

block, the direct measures of attitude, perceived social norms, self-efficacy, sensation seeking, the smoking behavior index as the second block, and emotions toward quitting as the third block. Only coefficients for final models are reported, as well as the change in the R<sup>2</sup> associated with the introduction of each block of predictors.

## Results<sup>2</sup>

Results are presented in Table 1 for the intention to quit measured as “try to quit.”

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Table 1  
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Demographic controls explain a small amount of the variance (< 3 %). Standard predictors from consequentialist models, including attitude toward the behavior, self efficacy, social norms, and smoking history add an additional 17% of variance. Block 3 adds the quitting emotions, explaining an additional 20% of the variance in intention to quit. Anticipating feelings of being proud and hopeful are associated with the intention to quit.

Lewis (2000) would probably call these the moral emotions, and these two anticipated emotions nearly doubled the variance explained. It is important to emphasize that attitudes toward quitting are controlled before anticipated emotions are included. Attitudes are assumed to measure some of the affect associated with intentions to quit smoking. Positive and negative affect are controlled out before discrete anticipated emotions enter. So, the moral emotions that predict intentions are not just adding a positive and negative affect, because that affect is already removed from the model through the covariation of attitude, itself a strong and consistent predictor of the intention to quit.

## Implications

One of the most important implications of our results concerns risk as positive and negative consequences. The prediction of behavioral intention to quit is explained by a variety of perceived consequences captured by rational and deliberative factors such as reducing harm to others, improving one’s health, becoming more tense, showing independence, and so on. However, emotional results such as feeling proud and being hopeful are very strong and consistent predictors of the intention to quit. These are consequences of a positive kind that are as readily exploitable in persuasion campaigns as any other consequence is. For example, the positive consequences of quitting can be emphasized as opposed to the negative consequences of failing to quit. Unlike the more cognitively based consequences, emotional ones may be able to be activated through emotional appeals. Given their apparent predictive power in our cross sectional data, such appeals may be especially effective.

Our data invite the interpretation that emotions are consequences and that as consequences they can be exploited as the basis for appeals to the negative emotional consequences of continued smoking and the positive emotional consequences of quit attempts and actual quitting.

Are there two independent pathways to predicting quitting intentions here? Well, the data of Table 1 are consistent with that interpretation. Obviously additional testing with other behaviors and other audiences is necessary before this second pathway can be established as theoretically robust. In addition, the predictive power of anticipated emotions requires longitudinal data, not simply the cross-sectional data presented here.

There are some clear implications for prevention. The patterns of belief acceptance and rejection in the target population dictate prevention topics (Cappella, Yzer, & Fishbein, 2003). For example, smokers who are at risk for “quit failures” tend to believe that quitting will make

them more irritable and more tense while those more likely to be successful quitters believe these consequences are less likely. When anticipated emotions are added to the list of behavioral beliefs associated with quitting, moral emotions offer points at which persuasive interventions might take place in activating the intention to quit smoking.

Finally, consider some broader implications for conceptualizing risk and risk information. Risk must be linked to the activation of vulnerability if it is going to have implications for intentions and ultimately behavior. To insure a linkage between risk information and personal vulnerability, I have advocated risk as a “simulation heuristic.” Essentially, risk information matters when it activates implicit causal theories in which the antecedents and consequences of a behavior (or condition) are defined and experienced from the point of view of the person experiencing them. Prevention (and health) messages can take advantage of this subjective cognitive space of naïve causes and consequences to move an audience in healthier directions. Where naïve causal theories are factually incorrect, educational messages can be crafted and disseminated. Where naïve causal theories give a low priority to important antecedents or consequences for a healthy life style, priming toward greater salience can be employed (Cappella et al, 2000). The conceptualization of risk being advocated requires that the meaning of risk to the subject be made central and that naïve theories of antecedent risk and consequent risk provide the bases for persuasive appeals for healthier, less risky life decisions. One new component of meaningful consequences includes anticipated emotional outcomes.

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**Table 1:** Intention to Try to quit: B's, beta's, and R<sup>2</sup> change for three blocks of predictors (Controls, IM predictors, and quitting- and smoking-related emotions)

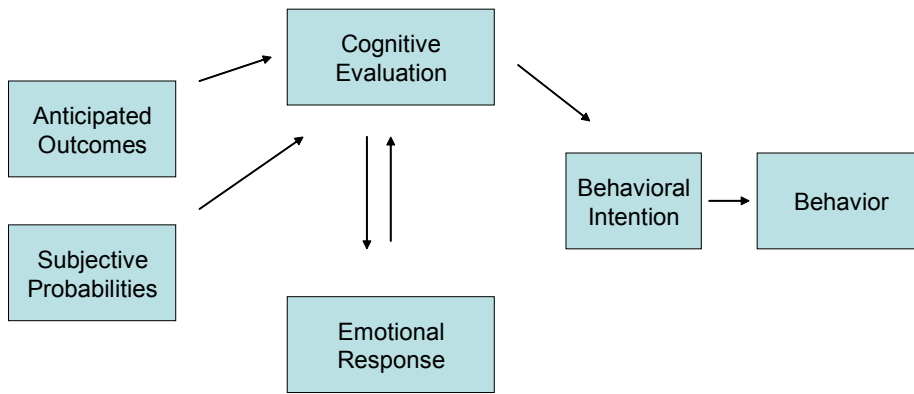
	B	Beta
Constant	2.236***	
1 Controls		
R <sup>2</sup> Change .027#		
2 Attitude toward quitting smoking	.182**	.121
Self-Efficacy	.129***	.148
Perceived Social Norms	.047	.038
Sensation Seeking	-.082	-.046
Smoking Behavior Index	-.401***	-.170
R <sup>2</sup> Change .172***		
3 Quitting-Related Emotions		
Proud	.201***	.306
Disgusted	.126*	.103
Angry	-.005	-.003
Apprehensive	.034	.038
Hopeful	.191***	.256
R <sup>2</sup> Change .212***		
R <sup>2</sup>	.411	
N	397	

#p<.1; \*p<.05; \*\*p<.01; \*\*\*p<.001

Note: The above models enter the following controls as the first block, but do not report them: age, race (Black), education, marital status (married), religion (Protestant), and income. Standardized and unstandardized coefficients are reported for the full models only.

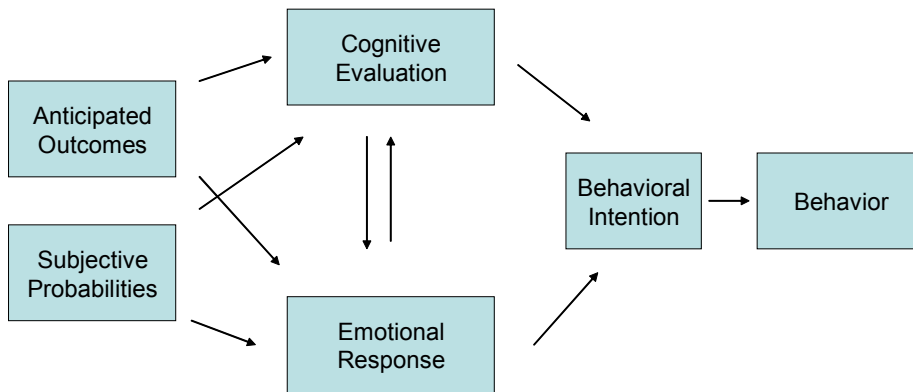
# Emotion In Consequentialist Theories

(apologies Loewenstein et al, p. 270)



# Risk-as-Emotion

(apologies Loewenstein et al, p. 270)



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<sup>1</sup> All analyses were also run with an index made up of smoking behaviors only, excluding the measures of the perceptual measures of smoking status and smoking addiction. The three item behavioral measure had an alpha of .81. The index of smoking behaviors produced no significant differences from those reported here using the more general index of smoking behaviors and smoking perceptions.

<sup>2</sup> A complete set of analyses can be found in Cappella, Romantan, & Lerman (2003) available from the first author.