

BRIEF REPORT

The Long-Term Risks in the Short-Term Benefits: Perceptions of Potentially Addictive Activities

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It is generally assumed that individuals who take risks with their health either underestimate the magnitude of those risks or seek some benefit. This study assessed whether risk taking might also result from underestimating the benefits. In Study 1, lower estimates of the pleasure of drug use and risk of addiction were significantly related to increased self-reported experimentation and problems with drug use. This relationship remained significant even after controlling for preexisting psychosocial factors. In Study 2, perceptions of these "risks-in-the-benefits" were shown (a) to be distinct from perceptions of immediate benefits and (b) to serve as a protective factor against future alcohol use. Results are discussed in terms of creating improved interventions.

Key words: addiction, perceived risks, perceived benefits, expectancy models

Taking a health risk reflects, at least in part, a conscious, volitional act. This conceptualization underlies most cognitive approaches to health decision making. For example, two of the most commonly cited theories, the health belief model (Janz & Becker, 1984) and the theory of planned behavior (Ajzen, 1991), propose weighting procedures that combine subjective assessments of the risks and the benefits of a behavior. If this is the case, then an unwise choice might reflect a misunderstanding of either the risks, the benefits, or both.

Much theoretical and empirical attention has focused on how accurately individuals perceive risks to their health (Fischhoff, 1999; Weinstein, 1989). This risk-based perspective is reflected in most prevention messages targeting adolescents, those deemed to be at the greatest risk. Although this approach has raised awareness among adolescents of the possibility of severely negative consequences, it is less clear how effective it is in increasing their

willingness to abstain from risky behaviors (cf. Cohn, Macfarlane, Yanez, & Imai, 1995; Gerrard, Gibbons, Benthin, & Hessling, 1996; Quadrel, Fischhoff, & Davis, 1993). This failure to find a strong relationship between perceptions of risk and risk-related behaviors (cf. Vaughan, 1993; Weinstein, 1984) calls for the examination of other motives related to risk taking.

The other side of the equation, the perceived benefits of high-risk behaviors, has received substantially less research attention. However, it is well-known that the rewards or benefits of engaging in risky health behaviors, such as using alcohol or drugs, can be very powerful (cf. Hull, 1943; Skinner, 1938). The salience of the benefits was shown in a study asking adolescents what sort of "things" might follow from engaging in risky behaviors. The participants spontaneously provided roughly equal numbers of good and bad consequences (Beyth-Marom, Austin, Fischhoff, Palmgren, & Jacobs-Quadrel, 1993). Moreover, alcohol-expectancy model studies have consistently found greater alcohol use among individuals who perceive greater immediate positive outcomes (Christiansen, Roehling, Smith, & Goldman, 1989; Smith, Goldman, Greenbaum, & Christiansen, 1995; Stacy, Newcomb, & Bentler, 1991; Stacy, Widaman, & Marlatt, 1990).

Though perceived benefits often do appear in general health models, these typically do not include the benefits of the risky behavior itself. This omission reflects the original intent of the models (Ajzen, 1991; Janz & Becker, 1984), which was to explain (and increase) voluntary, preventive behavior motivated by the desire to avoid disease or comply with medical recommendations. Therefore, these models focus on the perceived risks of high-risk behaviors, relative to the perceived benefits of avoiding them or adopting preventive behaviors (e.g., Janz & Becker, 1984; Prochaska et al., 1994), and do not address the perceived benefits of the high-risk behavior itself.

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Just as misperceptions about risks can lead to poor choices, so can erroneous beliefs about benefits (Fischhoff, 1992). Overestimating the pleasure of risky behaviors could lead individuals to do things that, if better informed, they would agree are "just not worth it." This view underlies many social-skills training programs, which attempt to show adolescents that they overestimate the prevalence of risky behaviors and, hence, the social benefits of engaging in them (cf. Botvin, 1996; Donaldson, Graham, & Hansen, 1994; Shope, Copeland, Marcoux, & Kamp, 1996).

Underestimating the benefits of a risky behavior could also lead to poor choices. For example, individuals might forgo attractive risky options because they fail to see how good they could be. This article concerns the cascading consequences of another possible misperception that arises when people choose an option only to discover that it is much more attractive than they had anticipated, indeed so good that they feel compelled to repeat it. A poignant example emerges from the drug field: If individuals believe that a potentially addictive drug will not be "all that pleasurable," they may (mistakenly) underestimate the temptation to use it again, and again. This concept, the unanticipated lure of addictive substances, underlies the 12-step approach to treating substance abuse (e.g., Alcoholics Anonymous, Narcotics Anonymous). These programs preach abstinence, arguing that even experienced users fail to appreciate just how good the proscribed action can make them feel. We call this misperception the *long-term risks inherent in the short-term benefit*.

The two studies reported here test the hypothesis that understanding the "risks-in-the-benefits" of drug use can serve as a protective factor. Specifically, we propose that individuals who recognize that the immediate benefits may lead to long-term risks (e.g., that "it's so good I may not want to stop") may also reduce their risk of future temptation by avoiding present use.

In Study 1 we tested the hypothesis that individuals who are more vulnerable to experimenting and having problems with drug use also underestimate the risks of short-term benefits. To this end, we elicited respondents' (a) estimates of the benefits and costs experienced by long-term users (i.e., drug addicts),¹ (b) perceptions of drugs, (c) drug and alcohol expectancies, and (d) self-reported drug history.² We hypothesized that respondents who believe that long-term drug use is driven by the anticipated benefits would also see greater risk for long-term addiction in their own personal use. As a result, they should be less likely to experiment with addictive substances or to continue using them after experiencing initial problems.

Study 1

Method

Participants

A convenience sample of 42 undergraduates participated in partial fulfillment of an introductory-level psychology course requirement. There were no exclusion criteria. To ensure complete anonymity (as respondents could be as young as 17 years old and, therefore, revealing illegal behaviors), the Committee for the Protection of Human Subjects at the University of California, Berkeley, required that no demographic information be recorded.

Measures

Traditional expectancies. Items were drawn from Leigh and Stacy's (1993) alcohol expectancy scale, resulting in 15 positive and 15 negative consequences of drinking alcohol. These included the (a) physical effects (e.g., enjoying the "buzz," feeling sick), (b) cognitive and performance effects (e.g., feeling less alert, having memory problems), and (c) emotional effects (e.g., feeling happy, having a good time). Respondents used a percentage scale, ranging from a 0% to a 100% chance of experiencing each consequence. An example item is "How likely is it that you will get a buzz from drinking alcohol?" Analogous questions were created for marijuana.

Estimated experience of active drug users. Two questions, using the same probability scale, asked about long-term drug users. The benefit question was "What percentage of addicts use their drug-of-choice for the pure pleasure of the high?" The risk question was "What percentage of active drug users become addicted?"

Predictions of addictiveness. Using the same scale, respondents estimated the probability of addiction to beer, liquor, and marijuana if used regularly by an average person. For example, respondents were asked "If someone were to drink beer once a week for a month, what's the probability that, afterwards, they'd need it to get through the day?" Two descriptions of addiction were used, for each of the three substances: (a) needing the substance "to get through the day" and (b) needing the substance "to cope with (forget about) their problems," resulting in six items.

Psychosocial risk factors. Respondents completed a checklist of 29 self-reported problems, drawn from those used to diagnose addiction according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; American Psychiatric Association, 1994). An example is "Have you ever felt emotionally or physically bad after you stopped drinking?" Checked items were summed for each substance to create an index of problematic drug use. Respondents also completed a psychosocial risk profile including parental history of drug and alcohol use (2 items), peer history of drug and alcohol use (2 items), and personal history of drug and alcohol use (2 items). A 7-point response scale ranged from 1 (*not at all*) to 7 (*3 or more times a day*).

Frequency and quantity of drug use. Finally, respondents provided self-reports of their current use of alcohol, cigarettes, and marijuana. Frequency was measured on the same response scale described in the preceding paragraph. Quantity of drug use was measured for "most ever used" and "most used on an average day of use." Table 1 summarizes these self-reports.

Results

As predicted, respondents' estimates of the benefits of drug use for "addicts" were negatively correlated with their reported number of problems from personal use of marijuana ($r = -.41, p < .01$) and liquor ($r = -.29, p = .06$) and with their reported frequency of drinking alcohol ($r = -.42, p < .01$). Also as predicted, the estimated risk of addiction for active drug users was negatively related to the number of self-reported problems from

¹ We asked respondents about long-term drug users because we believe it would exceed the limits of imaginability for respondents to estimate how much benefit they would experience if they, themselves, were to use drugs for a long period of time, especially for those who have never tried the substance in the past.

² These histories have been used to generate profiles that predict future drug and alcohol use and abuse (Kandel & Davies, 1992; Newcomb & Felix-Ortiz, 1992; Pihl & Peterson, 1995; Stein, Newcomb, & Bentler, 1987).

Table 1
Self-Reported Substance Use for the Entire Sample

Item	M	Range	Never used (%)
Frequency of smoking cigarettes*	2.25	1-7	57
Quantity smoked on average day	1.88	0-10	
Most ever smoked at one time	6.06	0-50	
Frequency of drinking*	2.73	1-7	14
Quantity drank on average day	3.04	0-11	
Most ever drank at one time	7.56	0-20	
Frequency of smoking marijuana*	1.74	1-7	62

* Measured on a scale ranging from 1 (never) to 7 (3 or more times a day).

using marijuana ($r = -.50, p < .01$), liquor ($r = -.37, p < .05$), and beer ($r = -.34, p < .05$). Thus, respondents were more likely to report personal problems if they saw either less benefit or less risk from long-term use. The latter result has been widely demonstrated in expectancy-theory research. The former result is, we believe, new.

On the basis of their self-reports, we then categorized respondents into those reporting no experimentation with marijuana (nonusers, $n = 24$) and those reporting both experimentation and one or more associated problems (problem users, $n = 17$). (One respondent reported use but no problems and was excluded from this analysis.) The number of problems ranged from 2 to 14 ($M = 6$). As predicted, problem users reported significantly lower estimates of the benefits of drug use for addicts (nonusers, $M = 65\%$; problem users, $M = 41\%$), $F(1, 42) = 7.83, p < .01$. Problem users also estimated much lower probabilities that an average person would become addicted to beer, liquor, or marijuana after using it regularly (see Table 2).

Finally, to examine the independent contribution of the perceived risks-in-the-benefits construct, we conducted hierarchical regression analyses controlling for preexisting risk factors. The risks-in-the-benefits judgments accounted for significant additional variance in predicting the number of self-reported drug problems, beyond those predicted by preexisting factors (see Table 3).

In Study 2 we shifted the focus from what people infer from others' experience to what they expect from their own. Respondents estimated the risks-in-the-benefits that they personally would derive from drinking alcohol. We predicted that higher estimates would serve as a protective factor, reflected in reduced intentions for future use. We also elicited perceptions of short-term benefits, patterned on traditional alcohol-expectancy research, to assess the

Table 3
Predicting the Number of Problems Resulting From Drug Use On the Basis of Perceived Risks and Benefits of Long-Term Drug Users, Beyond Traditional Predictors

Predictor	R ²	F	ΔR ²	ΔF
Index of parental, peer, and own use	.35	3.096*	—	—
Plus perceived benefits	—	—	.09	5.462*
Plus perceived risks	—	—	.07	4.379*
Alcohol expectancies	.23	2.398†	—	—
Plus perceived benefits	—	—	.08	3.797†
Plus perceived risks	—	—	.11	5.199*
Marijuana expectancies	.30	3.273*	—	—
Plus perceived benefits	—	—	.11	6.146*
Plus perceived risks	—	—	.09	4.396*

Note. Dashes indicate not applicable.

† $p < .10$ (marginally significant). * $p < .05$.

additional explanatory contribution of the risks-in-the-benefits construct.

Study 2

Method

Participants

Using a snowball sampling strategy (providing respondents with incentives for bringing in friends), 129 adults were recruited from local graduate schools, medical schools, and the surrounding community. Recruitment strategies included word-of-mouth, school flyers, and E-mail to medical and graduate students. The mean age of participants was 25 years old (range = 20-31). Fifty-seven percent reported being Caucasian, 23% Asian, 6% African American, 4% Latino, and 10% "other." Women represented 65% of the sample. Just over 97% of the respondents reported having had alcohol in their lifetime, 78% reported "binge" drinking (6 or more drinks at one time) in their lifetime, and 93% reported having had alcohol in the last 6 months.

Measures

Perceived risks-in-the-benefits versus expectancies. Respondents were asked, "How much do you worry that you would like drinking alcohol so much that you wouldn't be able to stop in the future?" To distinguish perceptions of these risks-in-the-benefits from perceptions of short-term benefits, we also asked respondents about (immediate) social and physical benefits from drinking alcohol, namely, having a better time at a party and liking the buzz (these items are typical of alcohol-expectancy scales).

Table 2
Mean Judged Probabilities (in Percentages) of Addiction for Nonusers and Problem Users

Group	Beer		Liquor		Marijuana	
	Get through day	Cope	Get through day	Cope	Get through day	Cope
Nonusers	24	28*	32	34*	31	40*
Problem users	8	13*	11	14*	11	18*

Note. Get through day and Cope refer to the two definitions of addiction used.

* $p < .05$.

Intentions to drink. Three questions asked respondents about their intentions to drink alcohol in the next 6 months: for example, "Do you plan to drink alcohol sometime in the next 6 months?" The 4-point response scale ranged from 1 (*definitely will*) to 4 (*definitely will not*). Responses were summed in an index, with an alpha of .985.

Results

A linear regression analysis related drinking behavior to perceptions. As predicted, participants who saw greater perceived risks-in-the-benefits reported significantly lower intentions to drink alcohol, $F(1, 125) = 8.261$, $\beta = -.45$, $p < .01$.

A hierarchical regression analysis was conducted in order to distinguish perceived risks-in-the-benefits from traditional short-term expectancies. Perceived short-term benefits were entered in the first step and perceived risks-in-the-benefits in the second. As predicted by expectancy researchers, perceived short-term benefits were positively related to intentions to drink alcohol, $R^2 = .09$, $F(2, 123) = 6.68$, $p < .01$. When perceived risks-in-the-benefits were entered into the equation, they proved to be a psychologically distinct construct, accounting for additional variance after controlling for these perceived short-term benefits, $\Delta R^2 = .04$, $\Delta F(3, 122) = 6.29$, $p < .01$. More importantly, as predicted, greater perceived risks-in-the-benefits were related to decreased intentions to drink alcohol ($\beta = -.39$).

Discussion

Drug and alcohol use are among the leading causes of adolescent morbidity and mortality (Resnick et al., 1997). Cognitive approaches have assumed—and found—that individuals who engage in risky behaviors must either underestimate the risks or see compensating benefits (cf. Weinstein, 1984, 1989; Zuckerman, 1984). Our two studies examined the role played by another cognitive factor, perceptions of the risks created by the benefits.

Study 1 replicated past research in finding that participants who saw less risk of addiction were more likely to report experimentation and problems with drug use. It also provided the new result that participants who saw greater benefits of drug use for long-term users (addicts) also reported less experimentation and fewer problems with drug use. Moreover, perceived risks-in-the-benefits retained a significant predictive role, even after controlling for traditional psychosocial risk factors and perceived short-term risks and benefits of alcohol and marijuana use (as found in expectancy research).

Study 2 demonstrated that perceptions of the risks-in-the-benefits (a) remained significant predictors when referring to the self (rather than to addicts) and (b) were psychologically distinct from perceptions of the short-term benefits used in alcohol-expectancy studies. Again replicating past research, intentions to drink alcohol were higher for respondents who saw greater short-term benefits. However, the new result is that respondents who perceived the risks-in-the-benefits (that these short-term benefits might put them at risk for long-term use) reported lower intentions to drink.

These findings could be interpreted in terms of an insensitivity to temptation. Individuals who do not fully appreciate just how good drugs and alcohol can be may underestimate the temptation to use them again. Such insensitivity may prevail in the early stages of problem use (of the sort reported by a significant portion

of respondents in Study 1), when intense, short-term benefits have yet to be coupled with long-term negative outcomes.

An alternative hypothesis is that nonusers' awareness of the risks-in-the-benefits simply reflects an overly simplistic view of drug use or an attempt to justify their own nonuse. If this were true, then it seems unlikely that they would rate drug use as more pleasurable. Moreover, such naivete could not account for the findings in Study 2, which included respondents experienced with alcohol use. As indicated earlier, this study replicated the consistent finding of expectancy researchers (increased intentions to drink for those who saw greater immediate benefit). More importantly, it also found that respondents who saw greater perceived risks-in-the-benefits reported decreased intentions to drink, even after controlling for the expectancy items. Therefore, although inexperience may partially explain the findings of Study 1, it seems unlikely that it accounts for Study 2's results.

These two exploratory studies were intended to open inquiry into a part of the risk-behavior puzzle that has not received sustained empirical attention: how awareness of the allure of the benefits of risk taking may serve as a protective factor against future use and abuse. Our studies have obvious limitations, including (a) relatively few measures, (b) convenience samples, and (c) a cross-sectional design, precluding strong causal inferences. If our hypothesis were sustained in future studies, however, it would suggest an additional intervention strategy, albeit one that might leave some health educators uneasy: Creating awareness of how (unimaginably) good addictive behaviors can be may serve as a way to protect young people against future use and abuse.

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