Asymmetric Paternalism to Improve Health Behaviors

George Loewenstein, PhD
Troyen Brennan, MD, JD, MPH
Kevin G. Volpp, MD, PhD

INDIVIDUAL BEHAVIOR PLAYS A CENTRAL ROLE IN THE DISease burden faced by society. Many major health problems in the United States and other developed nations, such as lung cancer, hypertension, and diabetes, are exacerbated by unhealthy behaviors. Modifiable behaviors such as tobacco use, overeating, and alcohol abuse account for nearly one-third of all deaths in the United States.[1,2] Moreover, realizing the potential benefit of some of the most promising advances in medicine, such as medications to control blood pressure, lower cholesterol levels, and prevent stroke, has been stymied by poor adherence rates among patients.[3] For example, by 1 year after having a myocardial infarction, nearly half of patients prescribed cholesterol-lowering medications have stopped taking them.[4] Reducing morbidity and mortality may depend as much on motivating changes in behavior as on developing new treatments.[5]

Economics, as the social science discipline traditionally most closely tied to public policy, could be a key discipline in addressing behaviors that are potentially harmful to health. Yet conventional economics does not provide satisfactory policy solutions to problems caused by self-harmful behavior. Economics is premised on a rational choice perspective which, by assuming that individuals make optimal decisions given their information, resources, and preferences, in effect assumes away these problems. The main policy tools suggested by conventional economics, providing information or changing prices, only partially address these problems because they fail to exploit what is known about human motivation and behavior change.

Responding in part to these limitations of conventional economics, the new field of behavioral economics has, over the last few decades, begun to import concepts from psychology.[6] Behavioral economists have identified a number of decision biases and pitfalls in decision making that can help explain when and why individuals engage in self-harming behaviors that contribute to poor health outcomes.

Insights from behavioral economics can contribute to solutions for public health problems such as medication nonadherence and sedentary lifestyles that have challenged clinicians and public health professionals for years. In this Commentary, we identify some key decision biases that ordinarily lead to self-harming behavior and show how they can be exploited in interventions to instead promote healthy behaviors.

Concepts of Behavioral Economics

Behavioral economics has identified several patterns of behavior that characterize the way individuals make decisions. For example, individuals are highly prone to keeping with customary (status quo) or default options even when superior alternatives are available, known as the status quo or default bias. For example, in New Jersey, the default on automobile insurance conferred a limited right to sue (with an option to pay extra to acquire a full right to sue), but only 20% of drivers chose to acquire this right. In contrast, in Pennsylvania, where the default was a full right to sue (with a discount if drivers switched to a limited right to sue), approximately 75% of drivers opted to retain the full right to sue.[7] Likewise, employees save more when their employer automatically deposits a significant share of salary into a retirement plan than if the default is no contribution.[8]

Individuals place disproportionate weight on present relative to future costs and benefits, known as present-biased preferences.[9] This explains why many behavioral patterns that undermine health involve immediate benefits (such as eating) coupled with delayed costs (such as obesity), or immediate costs (such as the inconvenience of taking a drug or undergoing a preventive medical procedure) coupled with delayed, and often uncertain, benefits. Caring less about the future than the present can be rational, but most individuals place much greater weight on the present than would follow from a consistent tendency to discount the future.

Most individuals are motivated by actions that produce measurable, tangible benefits but are much less motivated by actions that do not produce tangible progress toward a goal.[10] For many behaviors that undermine health, factors

Author Affiliations: Department of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, Pennsylvania (Dr Loewenstein); Aetna Inc, Hartford, Connecticut (Dr Brennan); Center for Health Equity Research & Promotion, Philadelphia Veterans Affairs Medical Center, Department of Medicine, University of Pennsylvania School of Medicine, Department of Health Care Systems, the Wharton School, University of Pennsylvania, and Leonard Davis Institute of Health Economics, Philadelphia (Dr Volpp).
Corresponding Author: George Loewenstein, PhD, Department of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, PA 15213-3890 (gl20@andrew.cmu.edu).

©2007 American Medical Association. All rights reserved.

Downloaded from www.jama.com on November 27, 2007

working against adherence, such as time costs, are tangible, whereas benefits such as reduced long-term risk of an adverse outcome are intangible and often delayed. Thus, losing weight is difficult because any single indulgence has no discernible effect on weight. The lack of motivation for actions with intangible benefits also helps explain poor adherence to treatments for disorders such as hypertension and hyperlipidemia, which show no tangible manifestation (ie, are usually asymptomatic) for patients.

Although necessarily only a partial list of documented decision errors, these phenomena help explain the lack of success of interventions that attempt to change behavior by simply informing patients about the risks of poor behavior or attempting to convince them of the long-term benefits of good behavior. According to status quo and default biases, even if patients know the best course of action, they are likely to adhere to the path of least resistance, doing what is automatic or what they have done in the past. Because of present-biased preferences and intangibility, informing patients about delayed consequences of their behavior is unlikely to have much effect because the costs of adhering to recommendations are often immediate and thus heavily weighted, whereas the benefits are often remote in time (and hence drastically discounted) and amorphous because any single self-harming action has little if any noticeable effect.

In short, contrary to the rational choice perspective that individuals will behave in a self-interested fashion if given accurate information, a wide range of decision biases contribute to unhealthy behaviors.

Using Behavioral Economics to Change Behavior

Behavioral economists have proposed an approach to public policy, termed *asymmetric paternalism*.[11,12] Asymmetric paternalism is *paternalistic* in the sense of attempting to help individuals achieve their own goals—in effect protecting them from themselves, as compared with conventional forms of regulation designed to prevent individuals from harming others.

Asymmetric paternalism is *asymmetric* in the sense of helping individuals who are prone to making irrational decisions while not harming those making informed, deliberate decisions. Asymmetric paternalism differs from heavy-handed paternalism in attempting to help individuals without limiting freedom of choice. For example, arranging the presentation of food in a cafeteria line so that the healthy foods appear first is likely to increase the amount of healthy food chosen without depriving those who want the unhealthy foods of the opportunity to purchase them.[12] Asymmetric paternalism is also asymmetric in the sense that those who believe individuals behave optimally should not object, because such measures do not limit freedom, whereas those who accept the limits of relying on human rationality should endorse such measures.

Rather than focusing on giving individuals information about the long-term consequences of their behavior, an approach that is at best partially effective, many specific interventions proposed by advocates of asymmetric paternalism use a common strategy: they exploit the same biases that ordinarily contribute to self-harmful behavior instead to promote healthy behavior.

For instance, there are many ways in which the default or status quo alternative is often the unhealthy one. At fast food restaurants, for example, combination meals typically include large sodas, which become even larger if the meal is "supersized." Replacing the soft drink with a bottle of water as the default, with soda served only on request, would cost restaurants little and preserve freedom of choice while potentially producing a major change in beverage consumption behavior. Defaults could also be used to advantage when it comes to beneficial medical tests. For many types of medical tests, the default is to not get the test. Patients and clinicians are responsible for remembering, for example, that a patient has not had a colonoscopy for 5 years and is due to get one. An asymmetrically paternalistic policy would change the default such that the next test is automatically scheduled (with provision made for reminders), eg, when the patient undergoes the current test, the next test would need to be unscheduled to be avoided. Another possible policy would establish obtaining a second opinion for certain types of medical procedures as the default, which could only be overridden by making an explicit decision, with an appropriate rationale, for not doing so.

Present-biased preferences can also be exploited to help individuals rather than harm them by altering immediate costs and benefits. The key, again consistent with changing the path of least resistance, is to make healthy behaviors more convenient (less immediately costly) and unhealthy behaviors less convenient (more immediately costly). For example, companies could offer free chilled bottles of water within easy access of employees or students, while soft drinks could be sold in less convenient locations farther away from employee work stations or offices. Positioning the soft drink vending machines in obscure places will also help because individuals will not constantly have to choose whether or not to consume them, a choice that requires, and thus depletes, will power each time it is made in favor of the healthier alternative.[13]

Similar measures could be introduced in schools. Healthy foods could be served in convenient containers that could be obtained and consumed quickly, leaving the student with free time for desired activities. Less healthy foods could be located in less convenient locations. This subtle change in the path of least resistance could potentially produce a major change in behavior. Rather than requiring individuals to make decisions based on consideration of their long-term best interests, these strategies attempt to change short-term incentives in such a way that the actions that are beneficial to the individual are also easier to choose. Some schools have implemented this approach, banning or making vari-

©2007 American Medical Association. All rights reserved.

Downloaded from www.jama.com on November 27, 2007

ous products less accessible, eg, by removing soda and candy from vending machines.[14]

It is also possible to take advantage of another feature of present-biased preferences. Individuals are often willing to commit themselves to far-sighted behavior—eg, to saving money or dieting "in the future"—because doing so does not entail immediate costs.[15] This aspect of present-biased preferences can be exploited by giving individuals choices between health-benefiting and health-harming behaviors before the time they will actually have to act on them. For example, individuals could choose to schedule gym visits and laboratory tests to monitor their cholesterol levels ahead of time and to voluntarily accept financial penalties for last-minute cancellation. Soft drink machines could be programmed with a personal identification code such that the machine cannot be accessed on the following day if an individual has not enabled his or her access or, conversely, if the individual has disabled his or her own access. An individual with a goal of losing weight is much more likely to be willing to deny himself or herself the pleasure of tomorrow's soft drink than today's.

While the overweighting of immediate and tangible costs and benefits typically works against healthy behavior, these same factors can be used to promote adherence to healthy actions by providing tangible but small immediate rewards for beneficial behaviors. Funding could be provided by employers or insurers for whom this might be a cost-effective way to improve health and worker productivity.[16] Such rewards have been shown to have dramatic effects in the area of cocaine addiction.[17] Many patients with drug addiction experience major adverse consequences, such as loss of their livelihood and disenfranchisement from their families, but these costs are often insufficient to motivate abstinence. Small incentives offered on proof of abstinence have succeeded in helping to achieve smoking cessation, when the far greater (but delayed) incentives for abstinence have failed.[18] Such an approach could be used more widely in contexts like weight loss or medication nonadherence.

Conclusion

Specific asymmetrically paternalistic policies will inevitably generate controversy. For example, not everyone will agree about which medical tests are advisable and which health behaviors are worthwhile. But the guiding principle of asymmetric paternalism is that institutions and incentives should be structured and aligned in such a way to maximize the likelihood that individuals will engage in behaviors that are beneficial, making those who would otherwise engage in unhealthy behaviors better off without adverse consequences to others. Given the high rates of unhealthy behaviors in the United States and the attendant consequences for health and health care costs, wide-scale testing of this approach deserves serious consideration.

Financial Disclosures: Dr Volpp has received support from AstraZeneca for convening a conference on medication adherence and research support for a specific project from Pfizer. No other authors reported disclosures.
Funding/Support: Dr Volpp was supported by a Research Career Transitional Award from Veterans Affairs Health Services Research & Development Service. Dr Brennan is an employee of Aetna Inc.
Role of the Sponsor: The sponsor played no role in the collection, management, analysis, and interpretation of the data; or in the preparation, review, or approval of the manuscript.

REFERENCES

1. Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000 [published correction appears in *JAMA*. 2005;293(3):298]. *JAMA*. 2004;291(10):1238-1245.
2. Flegal KM, Graubard BI, Williamson DF, Gail MH. Excess deaths associated with underweight, overweight, and obesity. *JAMA*. 2005;293(15):1861-1867.
3. Kripalani S, Yao X, Haynes RB. Interventions to enhance medication adherence in chronic medical conditions: a systematic review. *Arch Intern Med*. 2007; 167(6):540-549.
4. Jackevicius CA, Mamdani M, Tu JV. Adherence with statin therapy in elderly patients with and without acute coronary syndromes. *JAMA*. 2002;288(4):462-467.
5. Schroeder SA. We can do better—improving the health of the American people. *N Engl J Med*. 2007;357(12):1221-1228.
6. Camerer C, Loewenstein G. Behavioral economics: past, present, future. In: Camerer C, Loewenstein G, Rabin M, eds. *Advances in Behavioral Economics*. New York, NY and Princeton, NJ: Russell Sage Foundation Press and Princeton University Press; 2003.
7. Johnson EJ, Hershey J, Meszaros J, Kunreuther H. Framing, probability distortions, and insurance decisions. *J Risk Uncertainty*. 1993;7:35-53.
8. Madrian BC, Shea DF. The power of suggestion: inertia in 401(k) participation and savings behavior. *Q J Econ*. 2001;116(4):1149-1187.
9. O'Donoghue T, Rabin M. Doing it now or later. *Am Econ Rev*. 1999;89(1): 103-124.
10. Weber BJ, Chapman GB. Playing for peanuts: why is risk seeking more common for low-stakes gambles? *Organ Behav Hum Decis Process*. 2005;97:31-46.
11. Camerer C, Issacharoff S, Loewenstein G, O'Donoghue T, Rabin M. Regulation for conservatives: behavioral economics and the case for "asymmetric paternalism." *Univ PA Law Rev*. 2003;151(3):1211-1254.
12. Thaler RH, Sunstein CR. Libertarian paternalism. *Am Econ Rev*. 2003;93 (2):175-179.
13. Baumeister RF, Vohs KD. *Time and Decision: Economic and Psychological Perspectives on Intertemporal Choice*. Willpower, choice, and self-control. In: Lowenstein G, Read D, Baumeister RF, eds. New York, New York:Russell Sage Foundation Press;2003.
14. Martin A. The school cafeteria, on a diet. New York Times. September 5, 2007.
15. Thaler RH, Benartzi S. Save more tomorrow: using behavioral economics to increase employee saving. *J Political Economy*. 2004;112(1):S164-S187.
16. Warner KE, Smith RJ, Smith DG, Fries BE. Health and economic implications of a work-site smoking-cessation program: a simulation analysis. *J Occup Environ Med*. 1996;38(10):981-992.
17. Higgins ST, Wong CJ, Badger GJ, Ogden DE, Dantona RL. Contingent reinforcement increases cocaine abstinence during outpatient treatment and 1 year of follow-up. *J Consult Clin Psychol*. 2000;68(1):64-72.
18. Volpp KG, Gurmankin Levy A, Asch DA, et al. A randomized controlled trial of financial incentives for smoking cessation. *Cancer Epidemiol Biomarkers Prev*. 2006;15(1):12-18.

©2007 American Medical Association. All rights reserved.

Downloaded from www.jama.com on November 27, 2007