

CHAPTER 19

Health Psychology Meets Health Economics

Yaniv Hanoch
Thomas Rice

Between 1991 and 2002 the number of smokers in New York City remained stable, with slightly more than 21% of the population identified as smokers. North Carolina reported a similar phenomenon, with the number of smokers showing very little fluctuation until 2006. In 2002, New York City (and New York State), and in 2006, the state of North Carolina increased the sales tax on tobacco. While North Carolina increased the sales tax from \$0.05 to \$0.35 per pack of cigarettes, the New York City increase was more dramatic, from \$0.08 to \$1.50 per pack (this was in addition to the New York State increase of about \$0.40 during the same time period). Shortly after the sales tax increase came into effect, New York City officials reported that the number of smokers decreased by 11% (from 21.6 to 19.2%; Frieden et al., 2005), and in North Carolina, cigarette sales fell by 18%. It seems that an increase in cigarettes price has had a direct and substantial effect on the number of people who smoke and/or the number of cigarettes smoked. Such findings would come as no surprise to many economists, who have long been aware of the phenomenon of price elasticity. Derived from the law of demand (one of the fundamental laws in economics), “price elasticity” assumes that people are sensitive to product price: As price goes up,

ceteris paribus, demand goes down. Thus, the theory predicts an inverse relationship between price and consumption, creating what economists call a downward-sloping demand curve (see Rice, 2003).

Changes in smoking rates are but one example where health economics and health psychology might share a common interest. Health economics, after all, studies how economics principles (the relationship between scarce resources, e.g., time and money, consumer demand) affect, relate to, and determine health behaviors and outcomes. The range of phenomena examined by health economics encompasses topics such as smoking prevention, physician reimbursement and performance, insurance and health outcome, urban and rural utilization of health services, and health disparity. What health economics tends to lack, however, is the usage of experimental design.¹ Instead, health economists typically analyze existing

¹One notable exception is the RAND Health Insurance Experiment (HIE) According to the official RAND website, “The HIE project was started in 1971 and funded by the Department of Health, Education, and Welfare (now the Department of Health and Human Services). It was a 15-year, multimillion-dollar effort that to this day remains the largest health policy study in U.S. history” (www.rand.org/health/projects/hie).

databases to understand and study health-related trends. Psychologists, on the other hand, tend to run controlled experiments more frequently, while database analysis is less common. In other words, although the tools and theories that economists and psychologists' employ might differ, both disciplines are interested in explaining and understanding the same phenomena. Thus, one can view economics and psychology as complementing one another.

The New York City cigarette tax increase provides a powerful demonstration regarding the relationship between changes in price and behavior. One might wonder, therefore, whether health psychologists can learn anything from health economists; that is, can health psychologists adopt and integrate economic theories and/or methodologies? Reading health psychology books and articles might give the impression that the answer to both questions is negative. Aside from the customary discussion regarding the relationship between health insurance and health status, there has been very little exchange of information and ideas between health economics and health psychology. Even the RAND Health Insurance Experiment is hardly mentioned in health psychology textbooks. Thus, despite the possible effects of price on promoting (positive) and preventing (negative) health behaviors, or on utilization of health services by minority groups (e.g., mammography), health psychologists have failed, for the most part, to integrate health economic thinking and ideas into their theories and experiments. This is surprising because psychologists have long known about the merit of incentives or rewards, dating back at least a century to the early work of the behaviorists' school of thought.

Indeed, the *modus operandi* in psychology has been to overlook much that has been done in economics.² The tides are rapidly changing, however, as a growing number of researchers in both disciplines have come to realize that they share much in common, namely, the desire to understand and (possi-

bly) influence behavior. While the two fields might be driven by different sets of ideas and methodologies, this, we believe, should be taken as a strength rather than a weakness, for each discipline can provide a different piece of the puzzle. In this chapter we would like to bridge the existing gap by introducing to health psychologists the ideas, methodologies, and theories common among health economics. Given the wide range of problems that health economics has tackled, we restrict our discussion to three domains: consumer behavior, health disparity, and the relationship between institutions and health. Our survey is not meant to be exhaustive, but to provide health psychologists with a sense and a flavor of economic approaches and methodologies.

Health Psychology Meets Consumer Research

The Health Psychology Division of the American Psychological Association states that its aims are the "promotion and maintenance of health, . . . the study of psychological, social, emotional, and behavioural factors in physical and mental illness, the improvement of the health care system, and formulation of health policy" (American Psychological Association, 2007). It also mentions that reports by the Surgeon General's Office indicate "that the leading causes of mortality in the U.S. have substantial behavioral components. These reports recommend that behavioral risk factors (e.g., drug and alcohol use, high risk sexual behavior, smoking, diet, a sedentary lifestyle, stress) be the main focus of efforts in the area of health promotion and disease prevention." One of main roles health psychologists can play, therefore, is to promote healthy behavior (e.g., exercising) and prevent unhealthy ones (e.g., smoking). These aims are perfectly sensible because smoking, for example, is the leading cause of preventable death (Harrell, Bangdiwala, Deng, Webb, & Bradely, 1998). Thus, although few would question the merits of promoting healthy behaviors or preventing unhealthy ones, a greater debate exists concerning the best method(s) to achieve these goals; that is, although there is a consensus regarding the potential harms of smoking, drug use, and risky sexual behavior, there is less agreement regarding the best methods

²To be fair, economists, for the most part, have ignored psychology as well. Our focus in this chapter is to inform health psychologists about economic thinking, not to inform economists about psychological findings.

to (1) prevent individuals from engaging in risky health behaviors, (2) change unhealthy behaviour, and (3) promote healthy behaviors.

In the next section, we illustrate how health economics can aid psychologists to achieve their aims in one of the domains identified by the Surgeon General's Office, namely, smoking.³ It should be clearly stated that we are not arguing that health economics should replace psychology, or that one discipline offers a better solution to these complex problems. Rather, we suggest that economic thinking and methodology could supplement and enrich methods currently employed by health psychologists. To combine findings and approaches from both fields, we believe, can provide policymakers and practitioners a richer perspective and better tools to battle these serious and important problems.

Smoking Prevention and Cessation Programs

In light of the Surgeon General's recommendations, it is no wonder that smoking has attracted much attention from economists and psychologists. However, the two fields have employed different methodologies to achieve the following goals: (1) reduce the number of people who start to smoke and (2) increase the number of smokers who quit. In what follows, we discuss how economists have used the relationship between price and behavior to suggest ways to reduce the number of people who start to smoke and increase the number of people who quit.

In the United States, smoking prevention programs tend to concentrate on the young. Indeed, many schools across the country have used such programs to increase awareness of the risks of behaviors such as smoking. California alone spent over \$400 million from 1989 to 2003 to prevent teenagers from starting to smoke. One of the rationales behind school-based prevention programs is the fact that many risky behaviors emerge during young adulthood. Indeed, over 80% of adult smokers started smoking prior to their

18th birthday (Harrell et al., 1998). However, educators, policymakers, and researchers have faced various hurdles in their attempt to reduce smoking rates and increase quit rates among the young. One of the challenges they encounter is the tendency of the young to underestimate risk, as well as the probability of becoming addicted (Johnston, O'Malley, & Bachman, 2001). To date, many methods have been utilized to combat youth smoking. In addition to school-based programs, the legislative branch, for example, has passed laws prohibiting the sale of tobacco to minors (e.g., the Synar Amendment). How successful have these programs been?

A systematic review by Wiehe, Garrison, Christakis, Ebel, and Rivara (2005; see also Glantz & Mandel, 2005) questioned the merits of school-based prevention programs, and others have had reservations about the value of legislative acts in preventing youth from taking up smoking (but see Sussman, Unger, Rohrbach, & Johnson, 2005). Wiehe and colleagues analyzed randomized controlled trials to evaluate the short- and long-term effects of different school-based prevention programs. While a number of programs produced short-term success, only one of the eight reviewed studies found a significant long-term effect (i.e., a lasting reduction in the number of young smokers). If school-based programs—which are largely grounded on psychological theories, such as the theory of planned behavior (Ajzen, 1991), of triadic influence (Flay & Petraitis, 1994), and social cognitive theory (Bandura, 1997)—have little success in reducing the number of youths who smoke, what other measures might do better?

Price increase seems to be the most successful predictor in smoking prevention and reduction: It decreases the number of youths who report intention to smoke, while increasing the number who intend to quit smoking. In their seminal work, Lewit, Coate, and Grossman (1981) were among the first to examine the relationship between economic factors (price) and youths' smoking. Analyzing a national sample of close to 7,000 youths (12 to 17 years old), they found that adolescents exhibit price elasticity of -1.44 . A "price elasticity"—the relationship between price and demand—of -1.44 means that an increase of 10% in cigarette price leads to a 14.4% decrease in the number of smokers. More importantly perhaps, Lewit

³Due to space limitations, we restrict our discussion to smoking. Similar findings and results, however, have been reported in relation to drug and alcohol abuse (Chaloupka, Grossman, & Saffer, 2002), as well as dieting (Horgen & Brownell, 2002).

and colleagues found that young adults (vs. older adults) are more price sensitive (U.S. Department of Health and Human Services, 1994). In other words, an increase of \$1 will, on average, have a greater effect on a young person than on an older one. While some of the Lewit and colleagues findings have been challenged, the general message—that economics and behavior are connected—still stands.

Based on a series of national surveys, Chaloupka and colleagues (2002; Ross & Chaloupka, 2004) analyzed the relationship between price and youths' smoking trends. In one study, Ross and Chaloupka (2003) studied smoking behavior of a nationally representative sample of over 17,000 high school students. Similar to Lewit and colleagues (1981), Ross and Chaloupka (2004) found an inverse relationship between price and consumption: As the price of cigarettes increased, demand for cigarettes declined. In fact, their data show that a small increase of \$.50 per pack in cigarette price could lead to a substantial reduction of about 18% in smoking. Using a sample of over 200 schools (with over 17,000 participants) across the United States, Ross, Powell, Taurus, and Chaloupka (2005) examined the impact of different price increases (\$.50, \$1, \$2, and \$4) on high school students' smoking intentions. Higher prices, as predicted, reduced the number of student who intended to smoke, and the actual number of cigarettes smoked. Higher prices also increased the number of student who planned to quit smoking.

Drawing on data from Canada's National Population Health Survey, Zhang, Cohen, Ferrence, and Rehm (2006) were also interested in exploring the impact of price on smoking behavior. Canada's National Population Health Survey allowed a comparison of 10 different Canadian provinces. Cigarette prices in five provinces were lower (due to greater tax breaks) than those in the remaining five provinces. Zhang and colleagues' data indicate that lower price was significantly associated with higher initiation of smoking (10.5 vs. 8.5%).

Given the robust data on the relationship between price and smoking behavior, Ross and Chaloupka (2003) stated that "the single most consistent conclusion from the economic literature on the demand for cigarettes is that consumers react to price changes according to economic theory prin-

ciples—an increase in price leads to decrease in consumption" (p. 219). While we agree that an increase in price can reduce consumption, price alone cannot explain why people start smoking, nor can it completely deter young people from starting or continuing to smoke.

This is where psychological research can play a prominent role (see Carvajal, Hanson, Downing, Coyle, & Pederson, 2004). For example, the economic analyses we reported earlier are perfectly aligned with psychological theories, such as the theory of planned behavior (see Kiviniemi & Rothman, Chapter 5, this volume). Although Ross and colleagues (2005) used a quasi-experimental design, their research highlights how psychological theories can inform economists about what motivates behavior, and also how economic principles can motivate psychological experiments. Emery, White, and Pierce's (2001) work reveals further interesting trends for psychologists. Looking at the relationship between cigarettes use and price, the authors found that changes in price had little effect on whether youths experimented with cigarettes. This suggests that other factors, such as peer pressure, might be in play. Sussman and colleagues' (2005; see also Sussman, Sun, & Dent, 2006) cautionary note—arguing against abandonment of school-based cessation programs—should therefore receive serious attention. Indeed, the youth-focused Florida Pilot Program on Tobacco Control (Bauer, Johnson, Hopkins, & Brooks, 2000)—using multilevel approaches to fight youth smoking, none of which included price change—reported promising results: significant reduction in cigarette use and increase in intention not to smoke. Due to lack of funds, however, the program has largely been shut down. Given the complex reasons underlying smoking behavior that affect young people all over the world, bringing together economic and psychological theories might prove to be a very powerful tool in lowering the number of youths who start to smoke and/or reducing the number who already do.

Economics, Psychology, and Health Disparity

The relationship between one's racial and ethnic background, and access to health services, treatments, quality of care, and varia-

tion in health outcomes has come under the scrutiny of both health care professionals and policymakers. A reminder of this relationship comes from the state of Mississippi, which, after years of reporting a steady decline in infant mortality, announced that rates among blacks have been going up (Eckholm, 2007). A report published by the Kaiser Family Foundation (KFF; 2007) reveals further disparities between whites' and blacks' health status. Blacks have a much higher rate of infant mortality than whites (in Wisconsin, the rate is 17.5 vs. 5.6 deaths per 1,000 live births, respectively), diabetes-related mortality (in Washington, the rate is 24.5 vs. 71.7 deaths per 100,000 population among whites and blacks, respectively), and annual AIDS case rate (in New York, the rate is 11.1 vs. 131.2 per 100,000 population among whites and blacks, respectively).

While the reasons underlying health disparities are multifaceted, a report to Michael O. Leavitt, then Secretary of the U.S. Department of Health and Human Services, states that "compelling evidence exists that differences in health status, access to care, and the provision of physical and mental health services are significantly related to race, ethnicity, primary language, geography, and various measures of socioeconomic position, such as educational status, income, wealth, and conditions in childhood" (National Committee on Vital and Health Statistics, 2005, p. 8). As the report to Leavitt indicates, socioeconomic factors are among the leading reasons behind health disparities. It is not surprising, therefore, that the KFF study (2007) found that higher rates of blacks than whites live in poverty (in Iowa, 49.6 vs. 10.2%, respectively), rely on Medicaid (in Rhode Island, 37.3 vs. 12.2%, respectively), and are uninsured (in Louisiana, 27.0 vs. 16.3%, respectively).⁴

One health domain that has garnered much attention has been racial and ethnic disparities in cancer screening, treatment, and outcome. In the United States, over 1 million Americans are diagnosed with can-

cer each year (National Center for Health Statistics, 2006). Not only are many types of cancers more prevalent among blacks (National Center for Health Statistics, 2006), but a greater percentage of blacks than of any other racial group die of cancer. They have, for example, 12% higher incidence of colorectal cancer than do whites. Mortality rates among blacks, however, are 36% higher than those of white (Ries et al., 2002). In fact, blacks are over 30% more likely than whites to die from cancer (Shavers & Brown, 2002).⁵ Why are mortality rates different among various ethnic and racial groups? And how can economic factors aid in explaining this issue, as well as close the health gap?

In their review of the literature, Shavers and Brown (2002) provided a useful model that can help to elucidate racial and ethnic disparities in the receipt of cancer treatment (see also Krieger, 1999). Three general themes are identified as playing a key role in racial and ethnic disparity: (1) patient factors (e.g., socioeconomic), (2) physician/clinical factors (physician recommendation), and (3) structural factors (e.g., type of hospital in which one is treated). Shavers and Brown further subdivide these three main themes into subcategories that include topics such as status of health insurance and type of insurance (under the structural barriers), clinical stage and comorbidity (under the physician barriers), and transportation and family support (under the patient barriers). While not all three factors and their subcategories are relevant for our discussion, the model helps to disentangle the economic and psychological issues. We briefly discuss, below, a few of themes identified by Shavers and Brown.

The National Health Interview Survey (Breen, Wagener, Brown, Davis, & Ballard-Barbash, 2001) conducted in 1987, 1992, and 1998 reveals that rates of breast and cervical cancer screening among blacks, Hispanics, and whites have been closing.

⁴The relationship between economic state and health status among other minority groups is not always straightforward. Infant mortality rates among Hispanics, for example, are closer to those of the white population, while their economic status is closer to that of the black population.

⁵Blacks are not the only minority group to show disproportionate incidence of cancer, yet the gap between whites and blacks is the most pronounced. Hispanics, for example, are more likely than whites or blacks to have cervical cancer, while Asians and Pacific Islanders tend to have a higher rate of stomach cancer.

Unfortunately, similar trends have not been found when we examine survival rates from breast or cervical cancer (for similar trends in cardiovascular disease, see National Center for Health Statistics, 2006). Despite having lower rates of breast cancer (Peek & Han, 2004), blacks are still more likely than whites to die from breast cancer (see Breen et al., 2001, Table 1, p. 1706).

Why do lower cancer rates not translate into lower mortality rates among blacks? One possibility for the discrepancy between low prevalence rates and relatively high mortality rates—a gap that is most pronounced between whites and blacks—is the fact that minority groups are far more likely to be diagnosed with breast cancer at a later stage than their white counterparts (Lantz et al., 2006). Stage of detection, after all, is one of the best predictors for survival rate and cure (Kosary et al., 1995). Therefore, *when* cancer is detected plays a major role in one's prognosis. Stage of detection, however, is not the only factor that contributes to the mortality rate difference between ethnic and racial groups. Aside from early detection, rapid and accurate access to treatment are key ingredients in lowering morbidity and mortality rates. Blacks, unfortunately, fall short on every facet of the process, from late diagnosis to relatively poor access to state-of-the-art treatments.

Access to mammography screening is one of the main methods for early detection of breast cancer, and regular Papanicolaou (Pap) smears are known to help reduce the chance of developing cervical cancer (Kosary et al., 1995). However, despite improvement in black women's rates of mammography screening, white women are still more likely to undergo mammography screening and Pap smears. Elmore and colleagues (2005)—who looked at medical records of 400 women diagnosed with breast cancer between 1985 and 1993, and followed up to 2001, revealed disparities between racial and ethnic groups at a number of important junctures. First, the method of detection varied among the various groups. For example, among white women, breast cancer was more likely to be diagnosed after mammographic screening or clinical breast examination, whereas black women were more likely to be diagnosed after they noticed abnormalities—a method that typically detects cancer at more

advance stages. Mammographic screening and clinical breast examination, for example, tend to reveal abnormalities earlier than do self-diagnosis, and are correlated with reduced breast cancer recurrence and mortality. Second, black women experience significantly longer times to complete the entire diagnostic procedure, whether breast abnormalities were self-detected or found via mammographic screening. Finally, white women received treatment in less time than their black counterparts. As in earlier studies (Lannin et al., 1998), Elmore et al. (2005) believe that “being underinsured and/or uninsured and having low income may be risk factors for late-stage diagnosis” (p. 145).

In an earlier study, Roetzheim and colleagues (1999) examined the data of over 28,000 Florida patients diagnosed with one of four types of cancer for which early screening was available (e.g., mammography). Their analysis revealed that patients insured by Medicaid or those who lacked insurance were more likely to be diagnosed with late-stage cancer. Blacks, who were overly represented among those who relied on Medicaid or lacked insurance, were significantly more likely to be diagnosed with late-stage breast cancer. Furthermore, when the authors compared white and black patients on Medicaid or those who lacked insurance, similar results emerged. Blacks received worse cancer diagnoses.

Relying on a different dataset, Friedman and colleagues (2002) demonstrated a relationship between insurance and access to preventive medicine. Looking at over 1 million records of General Motors employees and their families, Friedman and colleagues found that access to cancer screening procedures is dependent on whether one has health insurance, but more importantly, on what kind of health insurance one has (whether it charges for or covers cancer screening procedures). Women, for example, whose insurance covered cancer screening were significantly more likely to undergo mammography screening than those who had to pay for the procedure out of their own pockets. Thus, to answer the question of what determines a woman's likelihood to receive cancer screening, one needs to remember that “low socioeconomic status [SES] is a consistent marker for mammography underuse” (Peek & Han, 2004, p. 185).

Low-income women are deemed to be the furthest away from the goals set by Healthy People 2010 (HP 2010; see *www.healthy-people.gov*). One of the goals of HP 2010 is to have 70% of low-income women undergo mammography screening. As of 2004, the rate of uninsured women who had mammographies was only 50%, while over 70% of insured women had mammographies (Peek & Han, 2004). Moreover, women who have no usual care are less than half as likely to have a mammography, 34.6 vs. 73.0%, than women who have a stable source of medical care (Swan, Breen, Coates, Rimer, & Lee, 2003), and women with higher income are 20% more likely to have a mammogram than low-income women (Blackman, Bennett, & Miller, 1999). Living in rural areas has also been shown to correlate with lower utilization of mammography screening (Coughlin, Thompson, Hall, Logan, & Uhler, 2002). Living in a rural area, it should be noted, typically means longer travel time to the health facilities where women have access to mammography screening. Longer travel time is financially costly for at least two reasons. First, it forces women to lose working hours or days due to travel. Second, travel by itself is costly, whether women use their own or public transportation.

These findings resonate well with Haitt, Klabunde, Breen, Swan, and Ballard-Barbash's (2002) work. After reviewing 73 studies based on the National Health Interview Survey between 1980 and 2001, they concluded that high SES and a usual source of health care and insurance coverage were the strongest predictors of whether a woman would undergo breast and cervical screening. Examining the responses of over 50,000 women enrolled in the Women's Health Initiative Observational Study, Hsia and colleagues (2000) found that having health insurance was the best predictor that a woman would undergo cancer screening. It should be noted that having health insurance has been linked to having a usual source of health care. Perhaps expectedly, therefore, some researchers (e.g., Selvin & Brett, 2003) found that the best predictor of having breast and cervical screening is to have usual access to healthy care. Furthermore, Selvin and Brett (2003) argue that this association is particularly strong among black women, who are more likely to be uninsured, to live in

poverty, and to lack usual access to health services.

Another question is what would be the best method to increase screening among minorities and low-income women? Economists suggest that one method to tackle some of these issues is lowering the cost of cancer screening. Even before President Clinton signed into law the Breast and Cervical Cancer Prevention and Treatment Act of 2000 (Public Law 106-354), which provides uninsured and underserved women free access to breast or cervical cancer screening and treatment, the National Breast and Cervical Cancer Early Detection Program has been able to increase the rate of low-income women who undergo cancer screening and receive treatment by simply offering it free of charge (May, Lee, Nadel, Henson, & Miller, 1998). Lowering the costs of screening procedures is one step in reducing health inequities, though it cannot serve as a universal panacea. As studies comparing Canadian and U.S. health care systems have shown, universal coverage does help to reduce health disparities, though it is unable to eliminate them (Lasser, Himmelstein, & Woolhandler, 2006).

Despite the complex web of reasons that contribute to health disparities, understanding factors underlying the phenomenon is the first step toward tackling and solving the problem. While psychologists have traditionally focused on health education and communication between health care professionals and patients, economists have been continuously charting the dynamics between economic factors, such as health insurance status, transportation, and SES, and health status. While economic factors, no doubt, play an important role in maintaining (and even widening) health disparities, it seems that they cannot explain the entire variance. A number of psychological issues still remain elusive and troubling, placing a barrier between ethnic/minority groups and better health.

Economics, Public Programs, and Older Adults' Health

In the previous two sections we illustrated how economists and psychologists approach health concerns—such as smoking

and health disparity—by employing different set of tools and methodologies. In this final section we would like to concentrate on a domain that has been dominated almost exclusively by economists—the design of national health programs. We use the new Medicare drug benefit as an illustrative case, although other national programs—such as Medicare Parts A and B and Medicaid—have also been designed largely by economists. We believe that this domain might offer a great opportunity for psychologists to share insights with policymakers and encourage greater emphasis on the relationship between institutional design and health. Despite the impact of various public policies on health (from allocation of scarce resources to promotion of health behaviors), psychologists have contributed relatively little to their design. Given the large scope of this topic, we are able to touch only briefly on the relationship between policy design and health.

We focus our discussion, therefore, on the new Medicare Modernization Act (MMA; also known as Part D), which came into effect in January 2006. The 2003 legislation, according to the Centers for Medicare and Medicaid Services, “provides seniors and individuals with disabilities with a prescription drug benefit, more choices, and better benefits under Medicare” (see www.cms.hhs.gov/mmaupdate). The MMA is one of the biggest health policy changes to take place since the birth of Medicare and Medicaid in the mid-1960s. However, from its inception, Medicare Part D has drawn much criticism. While some of it is irrelevant for our current discussion, two points in particular do concern us: (1) the large number of plans available to beneficiaries (Hanoach & Rice, 2006), and (2) the amount of information and presentation formats used to educate consumers.

We believe that psychologists could have played a more prominent role in the design of the program by contributing their extensive knowledge of older adults’ decision-making styles and cognitive abilities. They could have also formed closer ties with policymakers because some of the concerns about the program are psychological rather than economical in nature. It is possible that more active involvement of psychologists could have averted some of the problems with the design of the program.

Given the evidence on older adults’ cognitive and decision-making capacities, one might wonder about the rationale behind the design of the Medicare program. Not only must older adults face extremely complex information, they need to do so in an environment that contains over 50 different plans. The current design of Medicare Part D can be attributed, in part, to economists’ belief that more choices are better than fewer choices. A number of assumptions are implicit in the idea that more choices are useful rather than harmful to individuals: (1) People possess enough information about the alternatives available to them; (2) they have the cognitive ability to evaluate the various options available and to choose the one that will maximize the plan’s utility; (3) consumers will not regret the options not chosen; (4) they do not think (too much) about what other individuals possess; and (5) market competition does not lead to excessive waste. Following the dictates of rational choice theory, the U.S. health care system has always championed choice, as is apparent in the plenitude of health insurers, hospitals, and specialists. The design of the Medicare drug benefit can be seen as a natural extension of this line of thought. The legislative branch, after all, could have designed the program in many different ways. However, it decided to adhere to traditional economic thinking—let too many firms compete in the market.

Psychologists have long been aware of, and interested in, people’s cognitive limitations. Starting with the pioneering work of Herbert Simon in the late 1940s (1947, 1955), the idea that people’s rationality is bounded has been largely supported by a range of experiments and findings (for reviews, see Conlisk, 1996; Kahneman, 2003; Rabin, 1998). Simon’s notion of bounded rationality was a reaction to rational choice theory—one of the pillars of economic theory. Rational choice theory, Simon argued, ignores how real people behave and make decisions. In addition, Simon (1956) was interested in the relationship between environmental properties and cognitive architecture. One of his great insights was to show that how an environment is constructed—for example, whether it is rich or poor in information—has a direct influence on an agent’s cognitive capacities and, more remarkably, on its cognitive architecture. To the best of our knowledge, most

health economists and health psychologists have been oblivious to Simon's work and the need to study how environmental structures (e.g., institutions) affect people's health and access to health services. (To be fair, economists and psychologists have been interested in how certain environmental factors, such as living in an urban or rural area, affect health.)

An area that has garnered much attention is the relationship between old age and executive functioning; that is, while young people show some cognitive limitations, these cognitive abilities tend to decline even further with age. A growing corpus of data, for example, has shown an inverse relationship between age and decision-making abilities (for a review, see Thornton & Dumke, 2005). Researchers (e.g., MacPherson, Phillips, & Della-Sala, 2002) have demonstrated that an increase in age is related to lower scores on executive function tests, working memory functioning, dual tasking (Korteling, 1991), and even routine daily tasks, such as remembering bus schedules or navigating menus. Researchers (e.g., Beisecker, 1988) have argued that even in important areas related to their own health, older adults tend to be less engaged and involved in making decisions, to encounter more difficulties recalling medically related information (Brown & Park, 2002) and treatment recommendations (Meyer, Russo, & Talbot, 1995), and generally to score lower on comprehension tests (Morrell, Park, & Poon, 1989). In a series of studies, Johnson (1990, 1993), found that older (vs. younger) adults tend to examine less information before choosing to rent an apartment, to require more time to process information, to use less information, and to reevaluate information more frequently when making a hypothetical car purchase decision.

Older adults face other obstacles in making health-related decisions. Many have poor reading or mathematical abilities. These skills, however, are necessary to comprehend fully the intricacies of insurance plans or treatment options (Hibbard, Jewett, Engelman, & Tusler, 1998). For example, a study by Finucane and colleagues (2002) examined older and younger adults' decision-making capacities by measuring their comprehension of health plan information. Older adults' scores (compared to those of

younger adults) were much lower on a number of tasks that required the use of tables or graphs.

While thinking about the merits of having a wide range of choices (e.g., it leads to market efficiency), economists, for the most part, have failed to consider the psychological price that choice might carry (see Schwartz, 2004). Indeed, policymakers have neglected, for the most part, to investigate what Medicare beneficiaries think about its intended structure. Would they prefer to encounter more or less choice? And, more importantly, does more choice hamper older adults' ability to make decisions? Economists might be surprised by the answers.

Recent psychological work has challenged the idea that having more choice is necessarily better. Schwartz (2004) suggested, in contrast to what many economists think, that having more choices does not necessarily lead to greater satisfaction. He found that "aspiration to self-determination, presumably through processes resembling those of rational choice, is a mistake, both as an empirical description of how people act and as a normative ideal" (Schwartz, 2000, p. 80). Earlier studies by Beattie, Baron, Hershey, and Spranca (1994) demonstrated that when faced with difficult medical decisions, people prefer to transfer the decision to their health caretaker rather than make the decision on their own.

Further support for the idea that more choice does not necessarily translates into better decisions emerges from the work of Iyengar and Lepper (2000). In a number of experiments, they showed that facing a large (vs. small) choice set (6 vs. 24 choices of chocolate, exams, or jams) can have negative effects on the decision maker. For example, those who faced greater choice size reported lower satisfaction with their decisions, an increased sense of regret over their choices, as well as a greater likelihood of avoidance of making a decision. In another study, Iyengar and Jiang (2005) demonstrated that having a larger array of investment options can discourage consumers from investing their money wisely. Iyengar and colleagues' studies follow earlier research by Shafir, Simonson, and Tversky (1993; see also Tversky & Shafir, 1992), which suggests that one of the main sources of decision conflict comes from consumers

being faced with competing options and feel incapable of weighing the trade-offs of one option attribute against another, when no dominate alternative exists.

The ideas developed by Simon on older adults' cognitive capacities and research into the harmful effects of too much choice should have influenced policymakers. As is evident from the design of the new Medicare Part D, policymakers have largely been unaware of this body of work and have relied almost exclusively on traditional economic thinking. Why did they fail to incorporate psychological findings? As we indicated earlier, old age is associated with decline in cognitive capabilities. Furthermore, recent research has shown that increasing the number of available choices also raises the demands on the cognitive system while reducing satisfaction levels. Nonetheless, instead of constructing a program that beneficiaries could easily navigate and understand, policymakers opted for a complex program. Indeed, the KFF's (2006) National Survey of Physicians and National Survey of Pharmacists found that doctors, pharmacists, and older adults alike deemed the program too complicated to understand. Their surveys also found that many pharmacists believe that many Medicare beneficiaries do not comprehend the new program well, if at all.

That most seniors think the new Medicare drug benefit is too complicated would not surprise many psychologists. Had they been consulted at an early stage of the program's development, they would have been in the position to alert policymakers to the possible obstacles that older adults might encounter in such a complex program. In addition, psychologists could have suggested decision-making aids to help older adults better understand the nature of the program, as well as contributed to the development of the various websites to help beneficiaries make informed decisions. For example, much of the information older adults encounter—whether in print or over the Internet—is far from ideal. Many websites, including the official site of the Centers for Medicare and Medicaid Services, which administers the program, are written in too small a font. It seems to us that the structure of the environment and how information is provided are precisely the areas in which psychologists could have contributed to make the program both more

cognitively accessible and better formulated to meet the needs of older adults.

Conclusions

A survey by the KFF/Harvard School of Public Health (2007) found that one of the top issues in the 2006 congressional election was the public concern about health care. When asked what they would like the 2008 presidential candidates to talk about, 20% of the participants mentioned health care issues, with insurance as one of the main sub-themes. On May 30, 2007, Senator Barack Obama unveiled his health care policy, declaring that he would make health coverage accessible to all, as well as reduce its costs (Toner, 2007). Whether President Obama will be able to implement a new health policy program remains to be seen; however, to do so would mark one of the most profound shifts in the history of the U.S. health care system. While we would not like to prophesy what will take place, it is clear that health economists should play a crucial role in its design and implementations. Indeed, three of Obama's top advisors are economists, while not a single psychologist (to our knowledge) has been involved in the health policy design. Yet economists and psychologists share a common interest and goal—to promote healthy behavior and reduce unhealthy behavior. How economists and psychologists approach these important problems—reducing smoking prevalence, increasing access to screening procedures, or designing institutions—is, however, fundamentally different. As we have argued throughout the chapter, both disciplines have much to contribute because neither field holds the panacea to solve the complex, myriad problems that prevail within the health care system. While access to health care does improve the chances that a woman would have mammography screening, and increasing cigarettes prices does reduce smoking prevalence, neither factor—as some economists might like to believe—is sufficient to solve the problem. At the same time, it would be wise for health psychologists to learn the tools of the trade that economists have been using, if they are ever interested in influencing policymakers and helping to design health-related institutions—as in the case of Medicare Part D.

Acknowledgment

Parts of this chapter previously appeared in Hanooh, Y., & Gummerum, M. (2008). What can health psychologists learn from health economics?: From monetary incentives to health policy programs. *Health Psychology Review*, 2, 2–19. Copyright 2008 by the European Health Psychology Society. Reprinted with permission from Taylor & Francis (www.informaworld.com).

Further Reading

- Friedman, C., Ahmed, F., Franks, A., Weatherup, T., Manning, M., Vance, A., et al. (2002). Association between health insurance coverage of office visit and cancer screening among women. *Medical Care*, 40, 1060–1067.
- Horgen, K. B., & Brownell, K. D. (2002). Comparison of price change and health message interventions in promoting healthy food choice. *Health Psychology*, 21, 505–512.
- Marteau, T. M., Ashcroft, R. E., & Oliver, A. (2009). Using financial incentives to achieve healthy behaviour. *British Medical Journal*, 338, 983–985.
- Rice, T. (2003). *The economics of health reconsidered* (2nd ed.). Chicago: Health Administration Press.
- Ross, H., & Chaloupka, F. J. (2004). The effect of public policies and prices on youth smoking. *Southern Economic Journal*, 70, 796–815.
- Volpp, K. G., John, L. K., Troxel, A. B., Norton, L., Fassbender, J., & Loewenstein, G. (2008). Financial incentive-based approaches for weight loss: A randomized trial. *Journal of the American Medical Association*, 300, 2631–2637.

References

- Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behavior and Human Decision Process*, 50, 179–211.
- American Psychological Association, Health Psychology, Division 38. (2007). *Mission statement*. Retrieved May 5, 2007, from www.health-psych.org/mission.php.
- Bandura, A. (1997). *The exercise of control*. New York: Freeman.
- Bauer, U. E., Johnson, T. M., Hopkins, R. S., & Brooks, R. G. (2000). Changes in youth cigarettes use and intention following implementation of a tobacco control program: Findings from the Florida Youth Tobacco survey, 1999–2000. *Journal of the American Medical Association*, 284, 723–728.
- Beattie, J. J., Baron, J., Hershey, J. C., & Spranca, M. (1994). Determinants of decision atti-

- tude. *Journal of Behavioral Decision Making*, 7, 129–144.
- Beisecker, A. E. (1988). Aging and the desire for information and input in medical decisions: Patient consumerism in medical encounter. *Gerontologist*, 28, 330–335.
- Blackman, D. K., Bennett, E. M., & Miller, D. S. (1999). Trends in self-reported use of mammograms (1989–97) and Papanicolaou tests (1991–97—Behavioral Risk Factors Surveillance System. *Morbidity and Mortality Weekly Report*, 48, 1–22.
- Breen, N., Wagener, D. K., Brown, M. L., Davis, W. W., & Ballard-Barbash, R. (2001). Progress in cancer screening over a decade: Results of cancer screening from 1987, 1992, and 1998 National Health Interview Survey. *Journal of the National Cancer Institute*, 93, 1704–1713.
- Brown, S. C., & Park, D. C. (2002). Roles of age and familiarity in learning health information. *Educational Gerontology*, 28, 695–710.
- Carvajal, S. C., Hanson, C., Downing, R. A., Coyle, K. K., & Pederson, L. L. (2004). Theory-based determinants of youth smoking: A multiple influence approach. *Journal of Applied Social Psychology*, 34, 59–84.
- Chaloupka, F. J., Grossman, M., & Saffer, H. (2002). The effects of price on alcohol consumption and alcohol-related problems. *Alcohol Research and Health*, 26, 22–34.
- Conlisk, J. (1996). Why bounded rationality? *Journal of Economic Literature*, 34, 669–700.
- Coughlin, S. S., Thompson, T. D., Hall, H. I., Logan, P., & Uhler, R. J. (2002). Breast and cervical carcinoma screening practices among women in rural and nonrural areas of the United States. *Cancer*, 94, 2801–2812.
- Eckholm, E. (2007). In turnabout, infant deaths climb in South. *New York Times*. Retrieved April 22, 2007, from www.nytimes.com/2007/04/22/health/22infant.html?ex=1180584000&en=5b29704d014b531b&ei=5070.
- Elmore, J. G., Nakano, C. Y., Linden, H. M., Reisch, L. M., Ayanian, J. Z., & Larson, E. B. (2005). Racial inequities in the timing of breast cancer detection, diagnosis, and initiation of treatment. *Medical Care*, 43, 141–148.
- Emery, S., White, M. M., & Pierce, J. P. (2001). Does cigarette price influence adolescent experimentation? *Journal of Health Economics*, 20, 261–270.
- Finucane, M. L., Slovic, P., Hibbard, J. D., Peters, E., Mertz, C. K., & Macgregor, D. G. (2002). Aging and decision-making competence: An analysis of comprehension and consistency skills in older versus younger adults considering health-plan options. *Journal of Behavioral Decision Making*, 15, 141–164.
- Flay, B. R., & Petraitis, J. (1994). The theory of triadic influence: A new theory of health be-

- haviour with implications for preventive interventions. In G. L. Albrecht (Ed.), *Advances in medical sociology* (Vol. IV, pp. 19–44). Greenwich, CT: JAI Pres.
- Frieden, T. R., Mostashari, F., Kerker, B. D., Miller, N., Hajat, A., & Frankel, M. (2005). Adult tobacco use levels after intensive tobacco control measures: New York City, 2002–2003. *American Journal of Public Health, 95*, 1016–1023.
- Friedman, C., Ahmed, F., Franks, A., Weatherup, T., Manning, M., Vance, A., et al. (2002). Association between health insurance coverage of office visit and cancer screening among women. *Medical Care, 40*, 1060–1067.
- Glantz, S. A., & Mandel, L. L. (2005). Since school-based smoking prevention programs do not work, what should we do? *Journal of Adolescent Health, 36*, 157–159.
- Haitt, R. A., Klabunde, K., Breen, N., Swan, J., & Ballard-Barbash, R. (2002). Cancer screening practices from National Health Interview Surveys: Past, present, and future. *Journal of the National Cancer Institute, 94*, 1837–1846.
- Hanoch, Y., & Rice, T. (2006). Can limiting choice increase social welfare?: The elderly and health insurance choice. *Milbank Quarterly, 84*, 37–73.
- Harrell, J. S., Bangdiwala, S. I., Deng, S., Webb, J. P., & Bradely, C. (1998). Smoking initiation in youth: The role of gender, race, socioeconomic, and developmental status. *Journal of Adolescent Health, 23*, 271–279.
- Hibbard, J. H., Jewett, J. J., Engelmann, S., & Tusler, M. (1998). Can Medicare beneficiaries make informed choices? *Health Affairs, 17*, 181–193.
- Horgen, K. B., & Brownell, K. D. (2002). Comparison of price change and health message interventions in promoting healthy food choice. *Health Psychology, 21*, 505–512.
- Hsia, J., Kemper, E., Kiefe, C., Zapka, J., Sofaer, S., Pettinger, M., et al. (2000). The importance of health insurance as a determinant of cancer screening: Evidence from women's health initiative. *Preventive Medicine, 31*, 261–270.
- Iyengar, S. S., & Jiang, W. (2005). *The psychological costs of ever increasing choice: A fall-back to the sure bet*. Manuscript submitted for publication.
- Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology, 79*, 995–1006.
- Johnson, M. M. S. (1990). Age differences in decision making: A process methodology for examining strategic information processing. *Journal of Gerontology, 45*, P75–P78.
- Johnson, M. M. S. (1993). Thinking about strategies during, before, and after making a decision. *Psychology and Aging, 8*, 231–241.
- Johnston, L. D., O'Malley, P. M., & Bachman, J. D. (2001). *Monitoring the future: National survey results on drug use, 1975–2000: Vol. I. Secondary school students*. Bethesda, MD: National Institute on Drug Abuse.
- Kahneman, D. (2003). Maps of bounded rationality: Psychology for behavioral economics. *American Economic Review, 93*, 1449–1475.
- Kaiser Family Foundation. (2006). *National Survey of Pharmacists and National Survey of Physician*. Retrieved April 10, 2007, from www.kff.org/kaiserpolls/upload/7556.pdf.
- Kaiser Family Foundation. (2007). *Key health and health care indicators by race/ethnicity and state*. Retrieved May 4, 2007, from www.kff.org/minorityhealth/upload/7633.pdf.
- Kaiser Family Foundation/Harvard School of Public Health. (2007). *The public's health care agenda for the new congress and presidential campaign*. Retrieved February 8, 2007, from www.kff.org/kaiserpolls/upload/7597.pdf.
- Korteling, J. E. (1991). Effects of skill integration and perceptual competition on age-related differences in dual-task performance. *Human Factors, 33*, 35–44.
- Kosary, C. L., Reis, L. A. G., Miller, B. A., Hankey, B. F., Harras, A., & Edwards, B. K. (Eds.). (1995). *SEER Cancer Statistics Review, 1973–1992: Tables and graphs* (NIH Publication No. 96-2789). Bethesda, MD: National Institutes of Health.
- Krieger, N. (1999). Embodying inequality: A review of concepts, measures, and methods for studying health consequences of discrimination. *International Journal of Health Services, 29*, 295–352.
- Lannin, D. R., Matthews, H. F., Mitchell, J., Swanson, M., Swanson, F., & Edwards, M. (1998). The influence of race, socioeconomic factors, and cultural factors on breast cancer stage in the rural southern United States. *Journal of the American Medical Association, 279*, 1801–1807.
- Lantz, P. M., Mujahid, M., Schwartz, K., Janz, N. K., Fagerlin, A., Salem, B., et al. (2006). The influence of race, ethnicity, and individual socioeconomic factors on breast cancer stage of detection. *American Journal of Public Health, 96*, 2173–2178.
- Lasser, K. E., Himmelstein, D. U., & Woolhandler, S. (2006). Access to care, health status, and health disparities in the United States and Canada: Results of a cross-national population-based survey. *American Journal of Public Health, 96*, 1300–1307.
- Lewit, E. M., Coate, D., & Grossman, M. (1981). The effects of government regulation on teenage smoking. *Journal of Law and Economics, 24*, 545–569.
- MacPherson, S. E., Phillips, L. H., & Della-Sala, S. (2002). Age, executive function, and social decision making: A dorsolateral prefrontal

- theory of cognitive aging. *Psychology and Aging*, 17, 598–609.
- May, D. S., Lee, N. C., Nadel, M. R., Henson, R. M., & Miller, D. S. (1998). The National Breast and Cervical Cancer Early Detection Program: Report on the first 4 years of mammography provided to medically underserved women. *American Journal of Roentgenology*, 170, 97–104.
- Meyer, B. J. F., Russo, C., & Talbot, A. (1995). Discourse comprehension and problem solving: Decisions about the treatment of breast cancer by women across the life span. *Psychology and Aging*, 10, 84–103.
- Morrell, R. W., Park, D. C., & Poon, L. W. (1989). Quality of instructions on prescription drug labels: Effects on memory and comprehension in young and old adults. *Gerontologist*, 29, 345–354.
- National Center for Health Statistics. (2006). Health, United States, 2006. Retrieved May 30, 2007, from www.cdc.gov/nchs/data/abus/abus06.pdf.
- National Committee on Vital and Health Statistics. (2005). *Eliminating health disparities: Strengthening data on race, ethnicity, language in the U.S.* Retrieved May 15, 2007, from www.ncvhs.hhs.gov/051107rpt.pdf.
- Peek, M. E., & Han, J. H. (2004). Disparities in screening mammography: Current status, interventions, and implications. *Journal of General Internal Medicine*, 19, 184–194.
- Rabin, M. (1998). Psychology and economics. *Journal of Economic Literature*, 36, 11–46.
- Rice, T. (2003). *The economics of health reconsidered* (2nd ed.). Chicago: Health Administration Press.
- Ries, L. A. G., Eisner, P., Kosary, C. L., Hankey, B. F., Miller, B. A., Clegg, L., et al. (2002). *SEER Cancer Statistics Review, 1973–1999*. Bethesda, MD: National Cancer Institute. Retrieved from seer.cancer.gov/csr/1973-1999.
- Roetzheim, R. G., Pal, N., Tennat, C., Voti, L., Ayanian, J. Z., Schawbe, A., et al. (1999). Effects of health insurance and race on early detection of cancer. *Journal of the National Cancer Institute*, 91, 1409–1415.
- Ross, H., & Chaloupka, F. J. (2003). The effect of cigarette prices on youth smoking. *Health Economics*, 12, 217–230.
- Ross, H., & Chaloupka, F. J. (2004). The effect of public policies and prices on youth smoking. *Southern Economic Journal*, 70, 796–815.
- Ross, H., Powell, L. M., Taurus, J. A., & Chaloupka, F. J. (2005). New evidence on youth smoking behaviour based on experimental price increase. *Contemporary Economic Policy*, 23, 195–210.
- Schwartz, B. (2000). Self-determination: The tyranny of freedom. *American Psychologist*, 55, 79–88.
- Schwartz, B. (2004). *The paradox of choice: Why more is less*. New York: HarperCollins.
- Selvin, E., & Brett, K. M. (2003). Breast and cervical cancer screening: Sociodemographic predictors among white, black, and Hispanic women. *American Journal of Public Health*, 93, 618–623.
- Shafir, E., Simonson, I., & Tversky, A. (1993). Reasoned-based choice. *Cognition*, 49, 11–36.
- Shavers, V. C., & Brown, M. L. (2002). Racial and ethnic disparities in the receipt of cancer treatment. *Journal of the National Cancer Institute*, 94, 334–357.
- Simon, H. A. (1947). *Administrative behavior*. New York: Macmillan.
- Simon, H. A. (1955). A behavioral model of rational choice. *Quarterly Journal of Economics*, 69, 99–118.
- Simon, H. A. (1956). Rational choice, and the structure of the environment. *Psychological Review*, 63, 129–138.
- Sussman, S., Sun, P., & Dent, C. W. (2006). A meta-analysis of teen cigarettes smoking cessation. *Health Psychology*, 25, 549–557.
- Sussman, S., Unger, J., Rohrbach, L. A., & Johnson, A. C. (2005). School-based smoking prevention research. *Journal of Adolescent Health*, 37, 4.
- Swan, J., Breen, N., Coates, R. J., Rimer, B. K., & Lee, N. C. (2003). Progress in cancer screening practices in the United States: Results from the 2000 National Health Interview Survey. *Cancer*, 97, 1528–1540.
- Thornton, W. J. L., & Dumke, H. A. (2005). Age differences in everyday problem-solving and decision-making effectiveness: A meta-analytic review. *Psychology and Aging*, 20, 85–99.
- Toner, R. (2007). Obama calls for wider and less costly health care coverage. *New York Times*. Retrieved May 30, 2007, from www.nytimes.com/2007/05/30/us/politics/30obama.html?ref=health.
- Tversky, A., & Shafir, E. (1992). Choice under conflict: The dynamics of deferred decision. *Psychological Science*, 3, 358–361.
- U.S. Department of Health and Human Services. (1994). *Preventing tobacco use among young people. A report of the Surgeon General*. Atlanta, GA: Centers for Disease Control, Office on Smoking and Health.
- Wiehe, S. E., Garrison, M. M., Christakis, D. A., Ebel, B. E., & Rivara, F. P. (2005). A systematic review of school-based smoking prevention trials with long-term follow-up. *Journal of Adolescent Health*, 36, 162–169.
- Zhang, B., Cohen, J., Ferrence, R., & Rehm, J. (2006). The impact of tobacco tax cuts on smoking initiation among Canadian young adults. *American Journal of Preventive Medicine*, 30, 474–479.