

on the general effects of religion on the average person seems disappointing in that such small relationships were found. Thus, we need more longitudinal research in which particular psychological processes are tracked over time in relationship to religious practices and beliefs.

One clear caution from these data is that researchers should not draw firm conclusions about religiosity and SWB from single, relatively small samples. Because of the size of these samples, substantial correlations were less likely to appear by chance. Thus, findings about the effects of religion, especially when they come from relatively small samples of convenience, should be replicated before they are taken seriously. Thus, conclusions such as that a certain type of religiosity correlates more strongly with SWB or that the correlations are stronger for a certain group ought to be replicated in large samples and across diverse cultures before firm conclusions are drawn.

The findings that correlations differ between communist and noncommunist nations indicate that the benefits of religion might differ depending on the cultural context. It appears that religiosity is not a strong

predictor of life satisfaction across broad samples; we need to now understand when and why it might be beneficial for certain individuals in certain circumstances and in certain cultures.

Note

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How Does Religion Benefit Health and Well-Being? Are Positive Emotions Active Ingredients?

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Religious practices, the data suggest, foster health (George, Ellison, & Larson, this issue) and well-being (Levin & Chatters, 1998). The most beneficial practices appear to be public religious participation (George et al., this issue) and positive religious coping (Pargament, this issue). What accounts for these benefits? Thus far, the data have not yielded any clear answers to questions about mechanisms (George et al., this issue). As George et al. reminded us, however, the continued search for mechanisms is critical for two reasons: First, at a basic level, scientific scrutiny is not complete until understanding is complete. Second, at a practical level, if individuals and communities wish to promote health and well-being more efficiently, it would pay to know the active ingredients in the religion–health link. Perhaps those active ingredients could be cultivated more judiciously within religious practices, or perhaps they might also be cultivated outside religious contexts with comparable benefit. An important empirical question to pursue is whether positive emotions are among the active

ingredients that account for the benefits that religious practices have for physical and mental health.

Positive Emotions Broaden and Build

Why positive emotions? Typically we think of positive emotions as simple markers of well-being. Moments in which people are feeling positive emotions such as joy, serenity, awe, and love are moments in which they are not plagued by negative emotions such as fear, anxiety, and depression. Reflecting this intuition, researchers have found that the overall balance of people's positive to negative emotions predicts their subjective well-being (Diener, Sandvik, & Pavot, 1991). Building on this finding, Kahneman (1999) suggested that "objective happiness" can be measured by tracking (and later aggregating) people's momentary good and bad feelings (see Fredrickson, 2000b, for shortcomings of this approach). According to these perspectives, positive emotions merely signal well-be-

ing. However, this is not the entire story. Positive emotions also produce health and well-being (Fredrickson, 1998, 2000a, 2001), and they do so not simply within the present, pleasant moment, but over the long term as well.

My *broaden-and-build theory* of positive emotions (Fredrickson, 1998, 2001) explains a host of impressive long-range benefits of positive emotions and provides the rationale for the prediction that positive emotions are active ingredients in the observed religion–health link. Positive emotions are adaptive and essential experiences, the theory holds, because they both *broaden* people’s momentary thought–action repertoire and *build* their enduring personal resources.

I contrast this perspective on positive emotions to traditional models of emotion based on specific action tendencies. Specific action tendencies, in my view, work well to describe the form and function of negative emotions. Without a loss of theoretical nuance, a specific action tendency can be redescribed as the outcome of a psychological process that narrows a person’s momentary thought–action repertoire by calling to mind an urge to act in a particular way (e.g., escape in fear, attack in anger, expel in disgust). In a life-threatening situation, a narrowed thought–action repertoire promotes quick and decisive action that carries direct and immediate benefit. Specific action tendencies called forth by negative emotions represent the sort of actions that worked best to save our ancestors’ lives and limbs in similar situations.

However, positive emotions seldom occur in life-threatening situations. Most often, they are experienced when people feel safe and satiated (Fredrickson, 1998). As such, a psychological process that narrows a person’s momentary thought–action repertoire to promote quick and decisive action may not be needed. Instead, positive emotions have a complementary effect: They broaden people’s momentary thought–action repertoires, widening the array of the thoughts and actions that come to mind. Joy, for instance, creates the urge to play, push the limits, and be creative, urges evident not only in social and physical behavior but also in intellectual and artistic behavior. Interest, a phenomenologically distinct positive emotion, creates the urge to explore, take in new information and experiences, and expand the self in the process. Contentment, a third distinct positive emotion, creates the urge to take time to savor current life circumstances and integrate these circumstances into new views of self and of the world. Gratitude, a fourth distinct positive emotion, creates the urge to repay kindness creatively. These various thought–action tendencies—to play, to explore, to savor and integrate, and to repay kindness—each represent ways that positive emotions broaden habitual modes of thinking or acting. In general terms, then, positive emotions appear to “enlarge” the cognitive context (Isen, 1987), an effect recently linked to in-

creases in brain dopamine levels (Ashby, Isen, & Turken, 1999).

Whereas the narrowed mindsets of negative emotions carry direct and immediate adaptive benefits in situations that threaten survival, the broadened mindsets of positive emotions are beneficial in other ways. Specifically, these broadened mindsets carry indirect and long-term adaptive benefits because broadening builds enduring personal resources (Fredrickson, 1998).

Take play, the urge associated with joy, as an example. Animal research has found that specific forms of chasing play evident in juveniles of a species—like running into a flexible sapling or branch and catapulting oneself in an unexpected direction—are reenacted in adults of that species exclusively during predator avoidance (Dolhinow, 1987). Such correspondences between juvenile play maneuvers and adult survival maneuvers suggest that juvenile play builds enduring physical resources (Boulton & Smith, 1992; Caro, 1988). Play also builds enduring social resources. Social play, with its shared amusement and smiles, builds lasting social bonds and attachments (Aron, Norman, Aron, McKenna, & Heyman, 2000; Lee, 1983; Simons, McCluskey-Fawcett, & Papini, 1986), which can become the locus of subsequent social support. Childhood play also builds enduring intellectual resources by increasing levels of creativity (Sherrod & Singer, 1989), creating theory of mind (Leslie, 1987), and fueling brain development (Panksepp, 1998b).

Like the play prompted by joy, the exploration prompted by the positive emotion of interest creates knowledge and intellectual complexity. Similarly, the savoring and integrating prompted by contentment produce self-insight and alter world views, and the creative efforts to repay kindness that accompany gratitude strengthen social bonds and develop prosocial skills. Each of these phenomenologically distinct positive emotions shares the feature of augmenting individuals’ personal resources, ranging from physical and social resources to intellectual and psychological resources (for more detailed reviews, see Fredrickson, 1998, 2000a; Fredrickson & Branigan, 2001).

Importantly, the personal resources accrued during states of positive emotions are durable. They outlast the transient emotional states that lead to their acquisition. By consequence, then, the often incidental effect of experiencing a positive emotion is an increase in one’s personal resources. These resources can be drawn on in subsequent moments and in different emotional states. Thus, the effects of positive emotions outlast their fleeting, momentary experience. Plus, these effects accumulate and compound over time, fueling an upward spiral toward improved health and well-being. The cognitive literature on depression has already documented how depression and the narrowed, pessimistic thinking that it inspires influence one another reciprocally, producing a downward spiral leading to ever-

worsening moods and even clinical levels of depression (Peterson & Seligman, 1984). The broaden-and-build theory predicts a contrasting upward spiral in which positive emotions and the broadened thinking that they inspire also influence one another reciprocally, producing appreciable gains in health and well-being (Fredrickson, 2002; Fredrickson & Joiner, 2002).

In summary, the broaden-and-build theory describes the form of positive emotions in terms of broadened thought–action repertoires and describes their function in terms of building enduring personal resources. In doing so, the theory provides a new perspective on the evolved adaptive significance of positive emotions. Those of our ancestors who succumbed to the urges sparked by positive emotions—to play, explore, and so on—would have by consequence accrued more personal resources. When these same ancestors later faced inevitable threats to life and limb, their greater personal resources would have translated into greater odds of survival and, in turn, greater odds of living long enough to reproduce. To the extent then that the capacity to experience positive emotions is genetically encoded, this capacity, through the process of natural selection, would have become part of our universal human nature.

Do Healthy Religious Practices Foster Positive Emotions?

The broaden-and-build theory suggests that positive emotions can transform individuals for the better, helping them to be more resilient, more creative and wise, more virtuous, more socially integrated, and on top of all this physically healthier (Fredrickson, 2000a). Existing data suggest a similar set of beneficial outcomes for certain forms of religious practices. Thus, it seems reasonable to speculate whether benefits to health and well-being accrue among religious believers because they, more than nonbelievers, experience meaningful positive emotions. This is a tractable empirical question worthy of pursuit. This is not to suggest that religion is an automatic fountain of positive emotions. As Exline (this issue) put it, God is not a “placid smiley face in the sky, advancing humanity’s ongoing quest to ‘have a nice day.’” Any close and realistic look at religious practices reveals that they can also readily foster negative emotions and unhealthy ways of coping (Exline, this issue; Pargament, this issue).

Notably, in sifting the good from the bad, one of Pargament’s (this issue) conclusions were that religious practices “built on a belief in a greater meaning in life” are the most beneficial. The focus on meaning—or what George et al. (this issue) called “sense of coherence”—is important. Finding positive meaning is perhaps the most reliable path to cultivating positive

emotions (Folkman, 1997; Fredrickson, 2000a; Ryff & Singer, 1998). To the extent that religions offer their believers worldviews that help them to find positive meaning both in ordinary daily events (e.g., a chance encounter with an acquaintance’s child), and in major life challenges (e.g., a diagnosis of cancer), they also cultivate positive emotions such as joy, serenity, awe, gratitude, and hope. According to the broaden-and-build theory, these positive emotions should in turn broaden people’s mindsets, making them more creative and integrative in their thinking, and build and replenish critical personal and social resources, such as resilience, optimism, and social support. These resources, a wide range of studies have shown, enhance health and well-being.

One critical implication of this analysis is that the search for mediators in the link between religious practices on one hand and health and well-being on the other should not be single focused. We should expect and test for multiple links in the causal chain. For instance, positive emotions are not the sole mediator to position between religious practices and improved health and well-being (e.g., religious practices → positive emotions → improved health and well-being). The broaden-and-build theory offers a more detailed causal model (e.g., religious practices → finding positive meaning → positive emotions → broadened mindsets → augmented personal resources → improved health and well-being). Positive emotions are worthy of the spotlight, however, because they are intrinsically motivating. People seek them out for their own sake, recreating circumstances that have made them feel good. In this sense, positive emotions provide the fuel in a self-sustaining system of continued growth and healthy development. They are, perhaps, the most potent active ingredients in the hypothesized causal chain.

In testing this causal model, researchers would be wise to heed the advice of George et al. (this issue). They noted that typical measures of social support from family and friends do not mediate the religion–health link as well as newly devised measures of “religious support” (i.e., support received from one’s congregation). Likewise, it would likely be most fruitful to distinguish conceptually and empirically secular positive emotions (i.e., positive emotions felt outside religious or sacred contexts) from one or more categories of religious or sacred positive emotions, which might include positive emotions felt in religious services, toward God, toward other believers, or otherwise connected to that which believers deem sacred. In addition, Pargament (this issue) reminded that religious practices are dynamic processes that change over time and circumstance. Likewise, emotions are dynamic, changing, and context sensitive. One implication of these observations is that survey research methods that conceptualize religious practices and emotions as static “person variables” may be inappropriate empiri-

cal tools (for a review of strategies for measuring emotions, see Larsen & Fredrickson, 1999).

More fine-grained empirical approaches promise to help scientists understand the richness of spiritual life more fully and perhaps lessen the possibility of reducing the benefits of religious practices solely to psychological processes. They can also uniquely address a number of compelling empirical questions: Do believers experience more frequent secular and sacred positive emotions than nonbelievers? If so, in what contexts? Are certain positive emotions, such as gratitude, experienced more frequently, or differently, by believers and nonbelievers (for reviews of beneficial repercussions of gratitude, see Fredrickson, in press; McCullough, Kilpatrick, Emmons, & Larson, 2001)? Are sacred positive emotions somehow more generative of upward spirals and improved health and well-being than secular positive emotions? If so, can this be traced to deeper underlying positive meanings, more sustained positive experiences, or both? What roles do public participation and positive religious coping play in generating and sustaining secular and sacred positive emotions? Are some religions more likely than others to generate sacred positive emotions? If so, can this account for denominational differences in the health benefits? These and other questions about the emotional lives of those who engage in religious practices warrant empirical attention.

Pargament (this issue) concluded by describing religion as perhaps “the most distinctively human of all phenomena.” Emotions, we know, are not distinctively human but are instead shared widely with other animals (Panksepp, 1998a). Even so, many still hold that the rich emotional lives of humans simply must surpass those of animals. Perhaps what is distinctively human about our emotional lives then is our ability to open our minds far enough to fathom or create a connection to God, or another Higher Power. This broadened mindset can in turn provide a wellspring of profoundly experienced emotions, many of them positive. Thus, religious practices may be distinctive human ways of proactively cultivating positive emotions with their attendant adaptive benefits.

Notes

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Why Study Religion?

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A psychologist unfamiliar with the modern psychology of religion might approach the target articles fearing to find dogma, ideological bias, or even a certain amount of flakiness. Thankfully, none of this is present. The sound of grinding axes is utterly absent from these articles, and the authors address the pros and cons of religious involvement and the psychological mechanisms that might mediate the effects of religion in a straightforward, open-minded, and objective manner. However, these articles and their inclusion in this issue of *Psychological Inquiry* clearly do have an underlying agenda: to justify the enterprise of the psychological study of religion. Every scientist is of course entitled to study whatever he or she wants, but the question still deserves to be considered: Of all the topics a psychologist could choose to examine, why religion?

There seem to be two kinds of answers. The first is that religious involvement, beliefs, and practices can be shown to have important consequences. Involvement in a religious community may offer the considerable benefits of social support and thus aid coping. Religious beliefs may organize one's comprehension of an otherwise chaotic world. Religious practices may provide a structure to one's life and guidelines for what to do and what not to do. In particular, religious practice (usually) leads to good health outcomes, apparently because some religions provide specific laws that promote good health, such as the Mormon proscription against smoking, and nearly all promote the idea that the body is a temple that deserves respect and care. This pragmatic justification for studying religion is implicit in all three target articles and is and fully explicit in George, Ellison, and Larson's (this issue) quest for the "active ingredients"—an excellent phrase—that underlie the effect of religion on health.

The idea that religion should be studied because of its effects on health and other important life outcomes

is reasonable but has a notable limitation. The mediators of religion's effects are not specific to religion. Involvement in a stamp club, encounter group, or Internet chat room may provide social support. Belief in a pervasive political ideology, such as Marxism, or in the immutability of the laws of physics, logic, or scientific methodology may structure one's comprehension of an otherwise chaotic world. Systems as diverse as English Common Law and subjective expected utility theory are available to provide direction for how we should act, and guidelines toward good health are at least as numerous in the *Consumer Reports on Health* as in the Bible, Koran, or Book of Mormon.

In other words, the active ingredients of religion in relationship to real-life outcomes are shared with many other possible sources, to say the least. To understand how these ingredients work, therefore, it may be a better strategy to focus on the ingredients rather than on one particular source, even religion. For example, psychologists interested in how (some) religions help people cope with stress might be well advised to study the many different variables that affect coping. Similarly, those interested in the role of religion in social support should consider the other sources and basic mechanisms of social support, and those interested in the religious promotion of behaviors that lead to good health should study health habits, and so forth. Religion can certainly be included in such studies as one among many possible independent variables; however, to promote a psychology of religion per se threatens to set up yet another isolated subfield, and psychology is too Balkanized already (Funder, 2001). Moreover, the effects of religion are so diverse depending on the specific religion, the specific outcome, and the context (as is well described in the target articles) that the psychol-