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Optimism

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ABSTRACT

Optimism is an individual difference variable that reflects the extent to which people hold generalized favorable expectancies for their future. Higher levels of optimism have been related prospectively to better subjective well-being in times of adversity or difficulty (i.e., controlling for previous well-being). Consistent with such findings, optimism has been linked to higher levels of engagement coping and lower levels of avoidance, or disengagement, coping. There is evidence that optimism is associated with taking proactive steps to protect one's health, whereas pessimism is associated with health-damaging behaviors. Consistent with such findings, optimism is also related to indicators of better physical health. The energetic, task-focused approach that optimists take to goals also relates to benefits in the socioeconomic world. Some evidence suggests that optimism relates to more persistence in educational efforts and to higher later income. Optimists also appear to fare better than pessimists in relationships. Although there are instances in which optimism fails to convey an advantage, and instances in which it may convey a disadvantage, those instances are relatively rare. In sum, the behavioral patterns of optimists appear to provide models of living for others to learn from.

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Optimists are people who expect good things to happen to them; pessimists are people who expect bad things to happen to them. Folk psychology has long held that these differences among people are

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important. Research over the past two and a half decades suggests that the folk wisdom is right (at least in this case). This rather simple difference—anticipating good versus anticipating bad—is linked to core processes that underlie behavior. The ways in which optimists and pessimists differ in their approach to the world have substantial impact on their lives. These people differ in how they confront problems; they differ in how well they cope with adversity; they also differ in their resources, both social and socioeconomic.

Individual differences in optimism are relevant to clinical psychology because this dimension is associated, both directly and indirectly, and at both an individual and a social level, with risk for psychopathology. At the most basic level, optimism by definition is inversely related to hopelessness, a risk factor for depressive disorders (Alloy et al., 2006). Further, optimism appears to confer resilience to stressful life events, which are associated with risk for both onset and relapse of psychopathology (e.g., Ellicott, Hammen, Gitlin, Brown, & Jamison, 1990; Finlay-Jones & Brown, 1981). Finally, at the broadest levels, optimism clusters with other factors such as socioeconomic status and social integration, which as a group have protective effects for both mental and physical health (House, Landis, & Umberson, 1988; Kawachi & Berkman, 2001; Lorant et al., 2003). In sum, the trait of optimism may provide cognitive, coping, and contextual resources that promote better mental health. Indeed, the pattern of associations that optimism has with various behavioral and cognitive tendencies may give us broader hints about the nature of optimal living.

1. Theoretical grounding

Scientific definitions of optimism and pessimism focus on expectancies for the future. This links these ideas to a long history of expectancy-value models of motivation. Expectancy-value theories assume that behavior reflects the pursuit of goals: desired states or actions. The more important a given goal is to the person, the greater its *value* (see Austin & Vancouver, 1996; Carver & Scheier, 1998; Higgins, 2006). The other facet of this motivational model is *expectancy*—confidence that the goal can be attained. If people doubt they can reach a goal, they may withdraw effort toward it. They may stop prematurely, or the action may never really start. People who are confident about eventually reaching an outcome will persevere even in the face of great adversity.

The expectancy construct has a wide range of applicability. Confidence and doubt can pertain to narrow contexts (e.g., the ability to go to a grocery store to obtain food), to moderately broad contexts (e.g., the ability to prepare an elegant meal), and to even broader contexts (e.g., the ability to develop a reputation as an exceptional host). Optimism and pessimism are broad, generalized versions of confidence and doubt; they are confidence and doubt pertaining to life, rather than to just a specific context (Scheier & Carver, 1992). Thus, optimists should tend to be confident and persistent in the face of diverse life challenges (even when progress is difficult or slow). Pessimists should be doubtful and hesitant in the same situations. Such differences in how people confront adversity have implications for success in completing goal-directed behavior. They also have implications for the manner in which people cope with stress.

1.1. Measurement issues

There are at least two ways to think about generalized expectancies and how to measure them. One is to measure them directly, asking people whether they expect outcomes in their lives to be good or bad (Scheier & Carver, 1992). This approach is reflected in the Life Orientation Test (LOT) and its successor the Life Orientation Test-Revised (LOT-R; Scheier, Carver, & Bridges, 1994). This is the measure we have used in our own work on this topic. It consists of a set of statements (e.g., "I'm always optimistic about my future," "I rarely count on good things happening to me" [reversed]) to which people indicate their agreement or disagreement on a multi-point scale (other measures of this trait have also been created with a similar structure, e.g., Dember, Martin, Hummer, Howe, & Melton, 1989).

A different approach to measuring optimism rests on the idea that people's expectancies for the future stem from their interpretations of the past (Peterson & Seligman, 1984). If past failures are seen as reflecting stable causes, more failure will be expected, because the cause (which is relatively permanent) is likely to remain in force. If past failures are seen as reflecting unstable causes, the outlook for the future may be brighter, because the cause may no longer be present. In line with this reasoning, some assess optimism and pessimism as patterns of attributions about the causes of events (e.g., Peterson & Seligman, 1984), and infer that the attributions ultimately yield expectancies.

It turns out, however, that stable attributions for negative events are only modestly associated with measures of generalized expectancies (Ahrens & Haaga, 1993; Peterson & Vaidya, 2001). Thus, despite the fact that the two measures relate to conceptually similar outcomes, they cannot be considered interchangeable. A preference for one approach to assessment versus the other may depend on whether one views attributions or expectancies as the more fundamental or crucial element, or the element that is more susceptible to therapeutic change.

Each measurement approach yields a continuous distribution of scores. It is common to refer to optimists and pessimists as though they were distinct categories of people, but this is a verbal convenience. Almost never is a line drawn and people placed in one group or the other. People range from very optimistic to very pessimistic, with most being somewhere between.

On the other hand, it is possible to identify people who are optimistic in an absolute sense, because they agree with optimistic items (e.g., "In uncertain times, I usually expect the best") and disagree with pessimistic items (e.g., "If something can go wrong for me, it will"). In the same way it is also possible to identify people who are pessimists in an absolute sense. Doing this reveals that pessimists are a minority. Most people are optimistic, but to varying degrees (Segerstrom, 2006a), and the literature should be interpreted in this light. Put differently, we know more about people who are less optimistic than we know about people who are truly pessimists.

1.2. Further issues

How stable is a person's level of optimism? Optimism is a trait. As with most traits, test–retest correlations are relatively high, ranging from .58 to .79 over periods lasting from a few weeks to 3 years (Atienza, Stephens, & Townsend, 2004; Lucas, Diener, & Suh, 1996; Scheier & Carver, 1985; Scheier et al., 1994). Test–retest reliability has been found to be high even across longer time periods. For example, Matthews, Räikkönen, Sutton-Tyrrell, and Kuller (2004) found a test–retest correlation of .71 across a 10.4 year period in a group of middle-age women. Some of this stability arises from optimism's stable sources. Optimism's heritability estimate is approximately 25% (Plomin et al., 1992). Even though this is lower than many personality traits, it is still substantial. Other evidence points to childhood environment, particularly the presence of resources such as parental warmth and financial security, as a predictor of adult optimism (Heinonen, Räikkönen, & Keltikangas-Järvinen, 2005; Heinonen et al., 2006).

Nonetheless, there are also variations in optimism, both moment-to-moment and over extended periods. For instance, as people prepare to confront a threat, their states of confidence may shift temporarily downward, whether they are basically optimists or pessimists (Sweeny, Carroll, & Shepperd, 2006). Indeed, long-term stability in optimism–pessimism is not always high. One 10-year test–retest correlation was only .35 (Segerstrom, 2007). This clearly indicates change in this trait for at least some people.

It is perhaps noteworthy that this study examined the stability of optimism across a period of time of considerable change in the

participants' life circumstances. That is, baseline measures occurred when participants were in law school, and the follow-up came when participants were well engaged in their law practices. Perhaps optimism is more changeable during times of life transition, when there is break from prior experience, and outcomes become more uncertain.

It is also of interest that change in that study was mainly in the optimistic direction and was predicted by increases in social resources. We will consider the effects of optimism on social and socioeconomic resource accumulation later on; evidence that optimism is also affected by such resources suggests the possibility of a mutually reinforcing cycle. The question of how readily change in optimism can be purposefully induced is also taken up later.

A final issue that bears mention is that there has been controversy about whether the optimism construct should be seen as one bipolar dimension or whether there are two separable dimensions, one pertaining to the affirmation of optimism, the other pertaining to affirmation of pessimism. There have been cases in which separating those qualities has led to better prediction of outcomes (Marshall, Wortman, Kusulas, Hervig, & Vickers, 1992; Robinson-Whelen, Kim, MacCallum, & Kiecolt-Glaser, 1997) but that consequence has by no means been universal. A number of studies aimed at settling the issue have come to different conclusions, some holding that a unidimensional view is accurate (Rauch, Schweizer, & Moosbrugger, 2007), others that there are two dimensions (Herzberg, Glaesmer, & Hoyer, 2006). The core question seems to be whether the separation of responses to positively worded items from responses to negatively worded items (a pattern that is quite common in measures with that structure) reflects method variance or substantive variance. The jury is still out on that issue. However, it remains an important clinical as well as theoretical question, in that some have argued that interventions should be targeted to address optimistic as well as pessimistic cognition (Riskind, Sarampote, & Mercier, 1996). Whether one side or the other is more important, if indeed there are two sides at all, needs further empirical clarification.

For the sake of simplicity, in this article we treat optimism–pessimism as one dimension. It should be kept in mind, however, that in some studies what mattered most was the extent to which people endorse versus reject a pessimistic outlook; in other studies what matters most was the extent to which people endorse versus reject an optimistic outlook. In yet other studies, this issue did not matter at all.

In the next sections we describe some ways in which individual differences in optimism versus pessimism, measured as expectations for one's future, relate to other aspects of life (see also Segerstrom, 2006a). Manifestations of optimism are grouped here into five sections, dealing with subjective well-being, coping, fostering and interfering with well-being, physical health, and socioeconomic and social resources.

2. Optimism and subjective well-being

A straightforward influence of optimism and pessimism is on how people feel when they encounter problems. When confronting difficulty, people's emotions range from enthusiasm and eagerness to anger, anxiety, and depression. The balance among feelings relates to differences in optimism. Optimists expect good outcomes, even when things are hard. This yields a relatively positive mix of feelings. Pessimists expect bad outcomes. This yields more negative feelings—anxiety, anger, sadness, even despair (Carver & Scheier, 1998; Scheier & Carver, 1992).

Relations between optimism and distress have been examined in a wide range of contexts. Those studied include students starting college (Aspinwall & Taylor, 1992; Brissette, Scheier, & Carver, 2002); survivors of missile attacks (Zeidner & Hammer, 1992); cancer caregivers (Given et al., 1993); Alzheimer's caregivers (Hooker, Monahan, Shifren, & Hutchinson, 1992; Shifren & Hooker, 1995); and people dealing with stresses of childbirth (Carver & Gaines, 1987), coronary artery bypass surgery (Fitzgerald, Tennen, Affleck, & Pransky, 1993; Scheier et al., 1989), failed attempts at in vitro fertilization (Litt, Tennen, Affleck, & Klock, 1992), bone marrow transplantation (Curbow, Somerfield, Baker, Wingard, & Legro, 1993), cancer (Carver et al., 1993; Friedman et al., 1992), and the progression of AIDS (Taylor et al., 1992).

The studies done vary in complexity and what they are able to show. Some of the work is cross-sectional, showing that lower optimism relates to reports of more distress in some difficult situation. What those studies cannot show is whether less optimistic people had more distress even prior to the adversity. Other studies assess people at multiple time points. These studies give a better picture of how distress shifts over time and circumstances, and allow researchers to control for initial levels of distress. We focus here on this sort of research.

A very early study of optimism and emotional well-being examined the development of depressed feelings after childbirth (Carver & Gaines, 1987). Women completed the LOT and a depression scale in the last third of their pregnancy. They completed the depression scale again three weeks after delivery. Optimism related to lower depression symptoms at initial assessment and also predicted lower depression postpartum, controlling for initial levels. Thus optimism appeared to confer resistance to postpartum depressive symptoms.

2.1. Medical contexts

A good deal of the work on optimism and subjective well-being has been done in the context of medical settings. Several projects have studied people having coronary artery bypass surgery. One assessed people a month before surgery and eight months afterward (Fitzgerald et al., 1993). Optimists had less distress beforehand, and (controlling for presurgical life satisfaction) optimists had more life satisfaction after surgery. Optimism about life appeared to lead to a specific optimism about the surgery, and from there to satisfaction with life. A similar study by Scheier et al. (1989) found that optimists retained higher quality of life even up to five years after the surgery.

Optimism has also been studied in the context of other health crises. An example is treatment for breast cancer (Carver et al., 1993). Women were interviewed at diagnosis, the day before surgery, a few days after surgery, and 3, 6, and 12 months later. Optimism (at initial assessment) predicted less distress over time, controlling for effects of medical variables and earlier distress. Thus, optimism predicted resilience against distress during the full year. A study of head and neck cancer patients yielded similar results (Allison, Guichard, & Gilain, 2000). Patients were assessed before treatment and three months afterward. Optimists reported higher quality of life before treatment and also after treatment, controlling for initial ratings. Although it has been suggested that optimism might set people up for disappointment (Schwarzer, 1994; Tennen, & Affleck, 1987), Stanton and Snider (1993) found that optimism predicted better mood before breast cancer biopsy, and this relationship did not change on receipt of a positive biopsy result or after surgery.

Another medical context in which optimism has been studied is in vitro fertilization, a procedure that helps people overcome fertility problems. The study focused on people who were unsuccessful (Litt et al., 1992). Eight weeks beforehand, participants reported their optimism, distress, expectancies for fertilization success, and the impact of infertility on their lives. Two weeks after notification of a negative pregnancy test, distress was measured again. Of the initial variables, only optimism predicted follow-up distress (controlling for time-1 distress). This study found that the most optimistic participants were the least distressed after a disappointing event, further contradicting the idea that optimists are more vulnerable to disappointment than pessimists.

Yet another context in which effects of optimism have been examined is treatment for ischemic heart disease. In this study (Shnek, Irvine, Stewart, & Abbey, 2001), less optimism related to more symptoms of depression shortly after hospitalization. Lower optimism also

predicted more symptoms of depression at a 1-year follow-up, when controlling for earlier depression and a variety of other variables.

2.2. Other settings

Medical conditions are not the only sources of stress in which optimism has been studied. Caregivers are another highly stressed group. One project studied a group of cancer patients and their caregivers (Given et al., 1993). Caregivers' optimism predicted less depression and less adverse impact of caregiving on their physical health. Similar results have been found among caregiver spouses of Alzheimer's patients (Hooker et al., 1992; Shifren & Hooker, 1995).

Other studies have targeted events that might be viewed as challenging, but are less severe. For example, starting college is a stressful time. At least two studies have examined the role of optimism among students adjusting to their first semester (Aspinwall & Taylor, 1992; Brissette et al., 2002). Optimism and other variables were assessed when the students arrived on campus, and measures of well-being were obtained at the end of the semester. Higher optimism predicted less distress at the end of the semester.

Indeed, the simple process of late-life aging is a challenge, confronting people with a variety of circumstances to which people must adjust. A Dutch study of elderly men examined the role of personality at the initial assessment as a predictor of depression across a 15-year follow-up (Giltay, Zitman, & Kromhout, 2006). Optimism predicted significantly lower cumulative incidence of depression symptoms.

3. Optimism, pessimism, and coping

If optimists experience less distress than pessimists when under adversity, is it just because they are cheerful people? That apparently is not the full story, because the differences often remain when controls are included for prior distress. This section considers another path to differences in well-being: differences in coping. The ways in which optimists and pessimists differ in coping resemble the differences in broad behavioral tendencies discussed earlier in the article. That is, people who are confident about eventual success continue trying, even when the going is hard. People who are doubtful try to escape the adversity by wishful thinking, they are drawn into temporary distractions that don't help solve the problem, and they sometimes even stop trying.

Differences in coping that correspond to this picture have been found in a number of studies (for detailed review and meta-analysis see Solberg Nes & Segerstrom, 2006). Early studies examined student reports of situational coping responses and general coping styles (e.g., Scheier, Carver, & Bridges, 2001), finding that optimists appear generally to be approach copers, and pessimists appear to be avoidant copers. Conceptually similar results have followed repeatedly.

Other projects have studied coping strategies in specific difficult contexts. Indeed, several of the studies described earlier, in the context of well-being, also looked at coping. In their study of coronary artery bypass surgery, Scheier et al. (1989) assessed attentional–cognitive strategies as ways of dealing with the experience. Before surgery, optimists more than pessimists reported making plans for their future and setting goals for recovery. Optimists also focused less on negative aspects of the experience—distress and symptoms. Once surgery was past, optimists were more likely than pessimists to report seeking out information about what the physician would require of them in the months ahead. Optimists also were less likely to say they were suppressing thoughts about their symptoms. There was also evidence that the positive impact of optimism on quality of life six months later occurred through the indirect effect of these differences in coping.

The study of failed in vitro fertilization described earlier (Litt et al., 1992) also examined coping. Pessimism related to escape as a coping response. Escape, in turn, led to more distress after the fertilization failure. Optimists were also more likely than pessimists to report feeling they had benefited from the experience—for example, by becoming closer to their spouse.

Relations between optimism and coping also have been examined among cancer patients in several studies. Stanton and Snider (1993) found that pessimistic women used more cognitive avoidance in coping with an upcoming biopsy than optimists. Cognitive avoidance before the biopsy predicted distress afterward among women with positive diagnoses.

Another study of cancer patients mentioned earlier (Carver et al., 1993) examined how women coped with treatment for breast cancer during the first year after diagnosis. Both before and after surgery, optimism related to coping that involved accepting the reality of the situation as one that must be dealt with, placing as positive a light on it as possible, and trying to relieve the situation with humor. Pessimism related to overt denial (reports of trying to push the reality of the situation away) and to giving-up tendencies at each time point. The coping responses that were related to optimism and pessimism were also related to distress. Further analyses revealed that the effect of optimism on distress was largely indirect through coping, particularly at postsurgery.

Another study of coping among women under treatment for breast cancer (Schou, Ekeberg, & Ruland, 2005) focused on two coping responses: fighting spirit (confronting the cancer and trying to beat it) and hopelessness/helplessness (feeling a sense of giving up). These responses mediated the relationship between optimism and quality of life a year after diagnosis. The greater fighting spirit of optimists (assessed before diagnosis) predicted better quality of life at the one-year follow-up. Hopelessness/helplessness (reported by pessimists) predicted poorer quality of life.

3.1. Categories of coping

As reflected in the preceding paragraphs, there are many distinct ways to cope, and many different ways to assess coping (Compas et al., 2001; Folkman & Moskowitz, 2004; Skinner et al., 2003). There are also many ways to categorize these various responses (Carver & Connor-Smith, 2010; Skinner et al., 2003). Perhaps the best known distinction, made very early in the analysis of coping, is between problem-focused coping—aimed at doing something about the stressor itself to blunt its impact—and emotion-focused coping—aimed at soothing distress (Lazarus & Folkman, 1984). Another particularly important distinction is between engagement or approach coping—aimed at dealing with the stressor or emotions stemming from it—and disengagement or avoidance coping—aimed at escaping the stressor or emotions stemming from it (e.g., Roth & Cohen, 1986; Skinner et al., 2003).

In their meta-analysis of optimism and coping, Solberg Nes and Segerstrom (2006) crossed these two distinctions, fitting particular coping responses from various studies into the 4 resulting categories. Optimism was positively associated with broad measures of engagement coping, and with problem-focused coping. Optimism was also positively, and about equivalently, associated with the two subsets of engagement coping responses: those that are problem-focused (e.g., planning, seeking instrumental support) and those that are emotion-focused (e.g., cognitive restructuring, acceptance). Furthermore, optimists were responsive to what sort of stressor was being confronted. Optimism predicted more problem-focused coping with controllable stressors (e.g., academic demands) and more emotion-focused coping with uncontrollable stressors (e.g., trauma). Thus, optimism predicted active attempts to both change and accommodate to stressful circumstances, in ways that reflect flexible engagement.

The pattern for disengagement coping was generally opposite that of engagement coping. Optimism related negatively to disengagement coping, and to both specific subsets of problem-focused disengagement (e.g., behavioral disengagement) and emotion-focused disengagement (e.g., denial, wishful thinking). As would be expected from the expectancy-value viewpoint, then, the relationship of optimism to

coping differed far more substantially between engagement and disengagement than between problem focus and emotion focus.

In sum, optimists appear to differ from pessimists in stable coping tendencies and in coping responses that emerge when confronting stressful situations (Solberg Nes & Segerstrom, 2006). Particularly noteworthy may be the contrast between acceptance and active denial. Denial (refusing to accept the reality of the situation) means trying to maintain a worldview that is no longer valid. Acceptance implies restructuring one's perceptions to come to grips with the situation.

It should be stressed that acceptance here does not mean giving up. There is evidence that resignation to illness may actually hasten death (Greer, Morris, Pettingale, & Haybittle, 1990; Reed, Kemeny, Taylor, Wang, & Visscher, 1994). Acceptance of the reality of the diagnosis has different consequences. By accepting that life is compromised (but not over), people develop adaptive parameters within which to live the time that's left to them. Acceptance may actually serve the purpose of keeping the person goal-engaged, and indeed "life-engaged" (Scheier & Carver, 2001).

4. Fostering and interfering with well-being

The concept of coping readily broadens into related content areas. A simple extension is to what has been called preventive or proactive coping (Aspinwall & Taylor, 1997), processes that promote good health and well-being rather than just reacting to adversity. Perhaps optimists take active steps to ensure positive outcomes in their future. This would resemble problem-focused coping, except that it is intended to prevent a stressor from arising.

4.1. Optimism and health promotion

There are many ways in which this might occur. An example is seeking knowledge pertaining to areas of potential risk. One study investigated heart-attack-related knowledge in a group of middle-aged adults (Radcliffe & Klein, 2002). Some might expect that adults who are optimistic would not make much effort to learn about risks related to heart attacks. Those high in dispositional optimism, however, actually knew more about the risk factors than those who were less optimistic.

Proactive efforts in health promotion have also been examined among patients in a cardiac rehabilitation program (Shepperd, Maroto, & Pbert, 1996). Optimism predicted success in lowering levels of saturated fat, body fat, and an index of overall coronary risk. Optimism also related to increases in exercise. Another study of the lifestyles of coronary artery bypass patients five years after surgery found optimists more likely than pessimists to be taking vitamins, eating low-fat foods, and to be enrolled in a cardiac rehabilitation program (Scheier & Carver, 1992). Another proactive health-related behavior concerns HIV risk. By avoiding certain sexual practices (e.g., sex with unknown partners), people reduce risk of infection. One study of HIV-negative gay men found that optimists reported fewer anonymous sexual partners than pessimists (Taylor et al., 1992). This suggests that optimists were making efforts to reduce their risk, safeguarding their health.

In sum, optimists appear to take action to minimize health risks. They do not simply stick their heads in the sand and ignore threats to well-being. They attend to risks, but they do so selectively. They focus on risks that apply to them and relate to potentially serious health problems (Aspinwall & Brunhart, 1996). If the potential problem is minor, or if it is unlikely to bear on them, they are not especially vigilant. Optimists appear to scan for threats to well-being but save their behavioral responses for threats that are truly meaningful.

It might seem paradoxical that people who expect good things to happen take active steps to make sure good things *do* happen. But experience presumably teaches people that their own efforts play an important part in many kinds of life outcomes. Optimists may be more confident than pessimists that their efforts will be successful. For that reason, they are quicker to engage those efforts when there is a need for them.

4.2. Pessimism and health-defeating behaviors

We have characterized optimists as being persistent in trying to reach goals and pessimists as less persistent and more likely to give up. There is, in fact, evidence of giving-up tendencies among pessimists. Some of these giving-up tendencies have adverse consequences. For example, giving up may underlie excessive alcohol use, which is often seen as an escape from problems. Pessimists are more vulnerable than optimists to such maladaptive behavior.

One study of women with a family history of alcoholism found that pessimists in that group were more likely than optimists to report drinking problems (Ohannessian, Hesselbrock, Tennen, & Affleck, 1993). In another study, people who had been treated for alcohol abuse were followed as they entered an aftercare program. Pessimists were more likely to drop out and return to drinking than optimists (Strack, Carver, & Blaney, 1987). Yet another study (Park, Moore, Turner, & Adler, 1997) found that, among pregnant women, optimists were less likely to engage in substance abuse during the course of their pregnancies.

A more recent study examined a different indicator of giving up: the disruption of normal social activities. In this study, breast cancer patients reported illness-related disruption of social activities after treatment (Carver, Lehman, & Antoni, 2003). At each assessment, pessimism predicted more disruption, along with emotional distress and fatigue. When confronted with a health threat, pessimism led to a withdrawal from the social activities that are important to a normal life.

Giving up can be reflected in many ways. Alcohol dulls awareness of problems. Sometimes, though, giving up is more complete. Sometimes people give up not just on specific goals, but on their lives, by suicide. It is often assumed that depression is the best indicator of suicide risk. But at least one study found that pessimism was actually a stronger predictor of this act, the ultimate disengagement from life (Beck, Steer, Kovacs, & Garrison, 1985).

In sum, a sizeable body of evidence indicates that pessimism can lead people into self-defeating patterns. The result can be less persistence, more avoidance coping, health-damaging behavior, and potentially even an impulse to escape from life altogether. Without confidence about the future, there may be nothing to sustain life.

5. Optimism and physical health

The preceding sections on subjective well-being and coping included frequent mention of medical problems. As is implied by that, much of the research on optimism has been conducted in the domain of health psychology. Some of that research has gone on to examine optimism and physical well-being. Although this article is primarily about psychological health, there are also reasons to consider the relevance of this trait for physical health. The general line of thinking underlying this research is that optimists may be less reactive than pessimists to the stresses of life; the lower physiological stress responses may (over many years) result in less physical wear and tear on the body; the end result may be better physical health and even greater longevity. This section describes a few examples of this type of studies (for broader treatment and meta-analysis see Rasmussen, Scheier, & Greenhouse, 2009).

Carotid intima thickness is an index of atherosclerosis in the carotid artery, a physical marker of the development of heart disease. In one study bearing on physical well-being, intima thickness was measured among middle-aged women at a baseline assessment and at three-year follow-up (Matthews et al., 2004). Greater pessimism at the initial assessment predicted increases in intima thickness at follow-up. Optimists experienced almost no increase over the three-year period.

Another project concerning cardiovascular health examined patterns of rehospitalization after coronary artery bypass surgery (Scheier et al., 1999). The need for rehospitalization is quite common in this population. In this study, however, optimism predicted significantly less likelihood of rehospitalization and a longer time before it occurred. Interestingly, this study also found that the effects of optimism were independent of self-esteem, depression, and neuroticism, suggesting that it is more than the association of optimism with these variables that is producing the effect. This same conclusion is echoed in the recent meta-analysis conducted by Rasmussen et al. (2009). In that meta-analysis, optimism was found to have a significant effect on health even in those studies that adjusted for neuroticism and other psychosocial factors.

Perhaps the most compelling study to date on optimism and cardiovascular disease grew out of the Women's Health Initiative (WHI). That was a large scale project designed to study changes in and predictors of quality of life, chronic disease, morbidity and mortality among women across America. Using WHI participants, Tindale et al. (2009) studied over 95,000 women across an 8 year period. All of the women were free of cancer and cardiovascular disease at study entry. The results were clear and striking. Optimists were less likely then pessimists to develop coronary heart disease (CHD), were less likely to die from CHD-related causes, and had lower total mortality due to all causes, across the 8 years of study. The advantage due to optimism ranged from 9% for incident cases of CHD to 30% for CHD-related mortality.

Individual differences in healing and immunity have also been examined. In one study, men receiving a biopsy were followed throughout the healing process (Ebrecht et al., 2004). The sample was split into “slow healing” and “fast healing” groups. Slow healers were significantly lower in optimism than fast healers. In another study, older adults received an influenza vaccine; optimism predicted a better immune response two weeks later (Kohut, Cooper, Nickolaus, Russell, & Cunnick, 2002; for broader treatment of optimism and immunity, see Szondy, 2004). Other research has found, however, that under very high challenge, optimism related to lower, rather than higher, immune responses (Segerstrom, 2005, 2006b). Segerstrom (2005, 2006b) suggested that the reduction under high challenge may reflect greater behavioral engagement with the challenge, which can suppress immune responses so as to conserve energy.

The physiological stress responses and physical health outcomes that relate to optimism are important in and of themselves. However, they also suggest additional pathways by which optimism could influence mental health. For example, neurophysiological substrates of stress such as norepinephrine and corticotrophin releasing hormone have been implicated in anxiety disorders (Brunello et al., 2003; Dunn & Berridge, 1990). As another example, myocardial infarction greatly increases the risk for major depressive disorder (Lesperance, Frasure-Smith, & Talajic, 1996). Thus, differences in physiological reactivity to stress may themselves result in differences in vulnerability to psychological problems.

To sum up, the available research suggests that optimism is relevant to biological outcomes. One study even found that optimism predicts longer life. Among 900 elderly Dutch persons, those reporting a high level of optimism at baseline were less likely to die over the next 10 years (Giltay, Geleijnse, Zitman, Hoekstra, & Schouten, 2004). The evidence on biological outcomes is less consistent than it is for self-reports concerning health (Rasmussen et al., 2009), but relations between optimism and physical well-being clearly deserve further study.

6. Optimism and resources

6.1. Optimism and socioeconomic status

Health psychology and the domain of subjective well-being have probably been the main arenas for studying effects of optimism and pessimism. However, not all research on this trait has had this focus. Optimists' tendency toward persistent goal pursuit, their active coping with stressors, and even their better health, can make it possible for them to translate short-term tendencies toward approach (rather than withdrawal) into long-term resources. Although there have been few studies of the associations of optimism with socioeconomic resources, the available evidence points toward correlations with two indicators of socioeconomic status: education and income.

In a large sample of first-year undergraduates, dispositional optimism before starting school was associated with a significantly higher probability of returning the second year (Solberg Nes, Evans, & Segerstrom, 2009). The dropout rate for pessimists (about 30%) was roughly twice that for the very optimistic (about 15%). In a smaller sample of law students, dispositional optimism before starting school predicted higher income 10 years later. Each mean item increment in optimism at the start of law school (e.g., from a mean item score of 3 to 4) was associated with a $32,667 increment in annual income (Segerstrom, 2007).

It is also the case that socioeconomic resources are linked to the development of optimism over time. In a study alluded to earlier, Heinonen et al. (2006) assessed the parental socioeconomic status (an aggregate of education level, occupational class, and employment status) of a group of children who were either 3 or 6 years of age in 1980. These children were again assessed 21 years later when they were 24 and 27 years old, respectively. There was a significant positive association between parental indicators of socioeconomic status (SES) in 1980 and adult optimism 21 years later. The effect of childhood SES on adult level of opimism–pessimism remained significant even when adult SES was controlled. Thus, a poor childhood socioeconomic circumstance breeds pessimism later in life.

6.2. Optimism and social resources

Optimists are also likely to benefit in the social domain. For example, a study by Brissette et al. (2002) described earlier examined how students coped with the challenge of starting college. Beyond subjective well-being, this study also made the point that optimists experienced greater increases in their social networks across the first semester of school than did pessimists. Other research has also found associations between expecting positive outcomes in the future and having broader social networks (MacLeod & Conway, 2005).

We noted earlier that pessimistic women under treatment for breast cancer were more likely to report withdrawing from their social activities because of their treatment than were more optimistic women (Carver et al., 2003). This is a real problem, because social networks are very important to well-being (Taylor, 2007). Interestingly, there is evidence that social networks and optimism may have mutually reinforcing effects: Segerstrom (2007) found that developing larger social networks over a 10-year period was related to increases in optimism over that same period.

A number of people have by now come to characterize optimism as a positive resource for relationships, both for general social networks and also for close relationships. Why do optimists have better social connections than pessimists? One reason is that optimists are easier to like than pessimists. Studies have confirmed that people are more accepting of someone who expresses positive expectations for the future and more rejecting of someone who expresses negative expectations (Carver, Kus, & Scheier, 1994; Helweg-Larsen, Sadeghian, & Webb, 2002). Another study found that actual social interactions with optimistic people are more positive than those with less optimistic people (Räikkönen, Matthews, Flory, Owens, & Gump, 1999). In yet another study, pessimism among men who were about to undergo coronary artery bypass surgery predicted reports of higher caregiver burden from their wives 18 months later (Ruiz, Matthews, Scheier, & Schulz, 2006).

Another contributor to better social relations may derive from the fact that optimists tend to see things in the best light, perhaps including things pertaining to their relationships. This might make the optimist more satisfied in the relationship even if things are not perfect. Indeed, a recent study of close relationships found that optimists had higher relationship satisfaction than pessimists, and that this difference was mediated by perceptions of the relative supportiveness of their partners (Srivastava, McGonigal, Richards, Butler, & Gross, 2006). Of course, it may be that partners of optimists really *are* more ready to be supportive than partners of pessimists, because optimists are easier to like (and thus support). This study controlled for that possibility, however. Even with that control, optimists perceived more supportiveness in their partners than pessimists. Evidence that optimists perceive greater social support than pessimists also comes from other sources (e.g., Abend & Williamson, 2002; Trunzo & Pinto, 2003).

Yet another reason why optimism represents a resource for relationships may be that optimists work harder (or work more effectively) at their relationships. This would be consistent with their generally greater engagement with high priority tasks (Geers, Wellman, & Lassiter, 2009). In a study bearing on this question (Srivastava et al., 2006), relationship partners first had a conversation in the laboratory about the area of their greatest disagreement. Then the couples rated their own behavior and their partner's behavior during that interaction. From this was created an index of positive engagement (being a good listener, not criticizing, trying to understand the other's point of view). A week later, the couples were asked how well the conflict had been resolved by that time.

The following associations emerged: Optimism predicted perceptions of greater supportiveness from the partner, which predicted more positive engagement in the conflict discussion. More positive engagement in the discussion predicted better conflict resolution a week later. These effects occurred in the individual's own reports, and also in the reports of the partners. Finally, the beneficial effect of optimism on conflict resolution was partially mediated by perceptions of supportiveness and by positive engagement.

One year later the couples were contacted and were asked about the status of the relationship. About a third of the couples had broken up by that time. Men's optimism (but not women's optimism) was a significant predictor of the relationship's survival, and again there was evidence of partial mediation by perceptions of partner supportiveness. This was the only part of the study with a gender difference. Srivastava et al. (2006) noted that men's social support tends to be more bound up in their partners, whereas women have support from multiple sources, and suggested that this may have made the difference in partner supportiveness more salient and more impactful for the men.

Another recent project examined the idea that optimists would have an orientation to relationships that fosters effective problem solving, just as optimists engage in problem-focused coping when under stress. This project (Assad, Donnellan, & Conger, 2007) studied married couples across a 2-year period. Participants completed measures of cooperative problem solving, both for themselves and for their spouses. They were also videotaped while discussing diverse aspects of their relationship. Raters coded the tapes for relationship quality and negative interactions. Optimism was associated with better relationship quality, with less negative interactions, and with higher levels of cooperative problem solving.

This study also examined prediction of relationship status two years later. In this case, women's optimism (but not men's) was a significant predictor of relationship survival. Among those who were still married, optimism at time 1 also predicted relationship quality, even when controlling for earlier relationship quality.

In sum, although there are relatively few studies of the role of optimism in relationships, what evidence does exist is consistent in indicating that pessimists have a harder road than do optimists. Given the importance of close relationships (Kawachi & Berkman, 2001; Uchino, 2004), this represents yet one more area in which the optimist appears to have the advantage.

7. Does optimism have any drawbacks?

The evidence reviewed in the preceding sections suggests that optimists have somehow found the keys to a rich and fulfilling life. Compared to people who are more pessimistic, they experience less distress when they encounter adversity. They cope with stressful situations by remaining engaged in the goals and activities that the stressor is threatening. They engage in problem-focused coping when there is something to be done, and they display accommodative coping when the adversity simply has to be endured. Perhaps as a result of these differences in coping, they also have better health-related outcomes and better social connections, both broadly and in intimate relationships. These properties sound, to the Western mind at least, quite adaptive. Optimists seem to have the kind of life we all want.

Some have asked, however, whether the qualities that follow from optimism can potentially lead to problems in certain kinds of contexts. Consider problem gambling, which can cost large amounts of money and create additional problems in work and relationships. Gibson and Sanbonmatsu (2004) reasoned that gambling is a context in which positive expectancies and persistence might be counterproductive. Indeed, they found a variety of worrisome tendencies among optimists. Optimists had more positive expectations for gambling than did pessimists, and they were less likely to reduce their betting after poor outcomes. Participants in that research were not people with actual gambling problems. But this pattern suggests the possibility that optimists may be more likely to develop such problems than pessimists.

Another set of studies asks whether the persistence of optimists can create problems because they fail to recognize what they cannot accomplish. More simply, perhaps optimists don't know when to quit. Certainly there are circumstances in which people have to recognize that their goals are lost, and that the adaptive course is to turn away from them (Wrosch, Scheier, Carver, & Schulz, 2003). Does the persistence of the optimist prevent that from occurring?

One project on this question stemmed from the reasoning that greater persistence should lead to development of greater goal conflict, partly because commitment to many goals makes people spread their resources thinner (Segerstrom & Solberg Nes, 2006). Two studies (one of them prospective) found that optimism did relate to greater goal conflict. However, this conflict had no adverse psychological consequences. Evidence from the second study suggested that optimistic people balanced expectancy, value, and cost of goal pursuit more effectively than did pessimistic people. Optimists were committed to more mutually demanding goals, but they were more efficient at managing the conflict. Perhaps years of practice had led to this greater efficiency.

Other research (Aspinwall & Richter, 1999) examined people's willingness to disengage from tasks on which they were failing (the task actually was impossible). In one condition, there was no alternative task to turn to; in other conditions there was an alternative. When there was no alternative task to switch to, everyone persisted at the impossible task. When there was another task, optimism related to faster disengagement from the impossible task. In effect, optimists gave up on a task they could not master in order to turn to a similar task that they *could* perhaps master. Indeed, if they had been led to think that the other task measured a somewhat different skill, they even outperformed the less optimistic people.

These results parallel associations between optimism and goal disengagement and goal re-engagement reported by others (Rasmussen, Wrosch, Scheier, & Carver, 2006). That is, when goals are percieved to be unattainable, optimists do not find it easier to disengage from those goals than pessimists. They do report, however, that it is easier for them to find new goals to value and pursue (see also, Duke, Leventhal, Brownlee, & Leventhal, 2002).

Yet another set of studies deals with the question of whether optimism causes people to see only what they want to see, and ignore threats. The initial evidence suggested the opposite: that optimists pay closer attention to information about health threats than pessimists, provided the threat is serious and is relevant to them (Aspinwall & Brunhart, 1996). More recently, however, Luo and Isaacowitz (2007) found the reverse effect.

Other studies have tied optimism to an attentional bias toward positive over negative stimuli (Isaacowitz, 2005; Segerstrom, 2001). For example, in one study optimists looked at pictures of skin cancers more briefly than pessimists (Isaacowitz, 2005). Exactly how to interpret the aggregated information on this question is not clear. It may be, for example, that optimists prefer to attend to positively-valenced stimuli, but are quick to encode threat-related information when that information is perceived as being useful to them. Alternatively, optimists may know that they are already engaging in health protective behaviors, and so have less need to gather further information about the disease.

In sum, there do appear to be at least some cases in which optimism has drawbacks. It is not clear how circumscribed these cases are, or whether there are moderators that serve to limit the range of the problems. This doubtless will remain a topic for future work.

8. Cultural issues

The picture described in the preceding pages has been relative coherent and internally consistent. We should note explicitly, however, that much of what is known about optimism comes from studies of North Americans, mostly of European descent. An important question is the extent to which the knowledge derived from these studies generalizes to other groups. The information on that question is limited, but so far there have been both differences and similarities (Chang, 2002; Chang, Chang, & Sanna, 2009).

One difference is that Asians seem to distinguish more sharply than European Americans between affirmation of an optimistic view and rejection of a pessimistic view. There is no consistent pattern of overall mean differences in optimism between cultures, but there have been some differences in patterns. In one study, an Asian American sample endorsed pessimism more than a European American sample; in another study, South Koreans endorsed pessimism less than European Americans (Chang, Sanna, & Yang, 2003). Thus far, the evidence suggests that optimism and pessimism relate to quality of life outcomes in the same general way across cultures (Chang, 2002). This line of inquiry is likely to become more important over time.

9. Can pessimists become optimists?

Given the many ways in which optimists' lives seem to be better than those of pessimists, an important question is whether optimism can be acquired. People's levels of optimism appear to be trait-like, and thus relatively stable over time. Change certainly is possible (see Segerstrom, 2006a), but questions remain about how large a change can reasonably be expected from a person and how permanent such a change will be. There also remain questions about whether an optimistic view that is induced, either by intervention or by structured practice, has the same beneficial effects as derive from a naturally occurring optimistic view.

The most straightforward way to talk about turning a pessimist into an optimist is the set of techniques known collectively as cognitive–behavioral therapies. The logic behind these techniques is that people sometimes have patterns of negative cognitive distortions. Certain kinds of negative thoughts foster negative affect and lead people to stop trying to reach their goals. We would imagine the interior monologue of the pessimist is filled with such negativity. This class of therapies aims to make the cognitions more positive, thereby reducing distress and fostering renewed effort toward desired ends. Beliefs about one's future would certainly be an important subset of the cognitions to target for change in such therapies (for an example of this viewpoint applied to optimism see Pretzer & Walsh, 2002; Segerstrom, 2006a). From a cognitive–behavioral view, the key would appear to be to train oneself to think in the ways optimists think and act in the ways optimists act.

Riskind et al. (1996) have suggested one more twist on that reasoning, which returns us to the question of whether absence of pessimism is the same as presence of optimism. Specifically, they noted that much of cognitive therapy is aimed at reducing negative thoughts (in effect, reducing pessimism), and that much less is aimed at actually enhancing positive thoughts (increasing optimism). A decrease in negative thinking does not necessarily translate into an increase in positive thinking. Riskind et al. (1996) argued for the importance of actively developing a positive perspective. They suggested both the challenging of beliefs that are not only negative but actually "optimism-suppressing" (e.g., "I don't deserve good outcomes") and actively engaging in rehearsing positive strategies and positive outcomes.

Although some projects have aimed specifically at increasing optimism, interventions need not have that specific focus to have that effect. When people change negative schemas about themselves and the world, or when they learn to deal more effectively with stress, they may gravitate to a more optimistic view of life more generally. As an example, Antoni et al. (2001) tested an intervention among women who were newly diagnosed with non-metastatic breast cancer. The multi-modal intervention that they implemented was an effort to instill a range of stress-management techniques. Positive reframing was one element in the broader treatment, but a relatively minor element. Nonetheless, that intervention proved to increase women's optimism scores over time, compared to a control condition.

Two other studies were conducted by Seligman and colleagues to try to prevent depression among college students at risk for depression (Seligman, Schulman, DeRubeis, & Hollon, 1999; Seligman, Schulman, & Tryon, 2007). These studies also employed multi-modal cognitive–behavioral procedures, aimed at teaching skills to decrease negative automatic thoughts and increase more constructive thoughts and behaviors. Both studies found evidence that the intervention reduced the incidence of episodes of moderate depression compared to a control condition, and that changes in pessimistic style mediated those changes.

We have focused here on changes in generalized optimism, but it should also be apparent that cognitive–behavioral interventions often—perhaps even usually—target beliefs that are domain-specific rather than global. These domain-specific beliefs include domain-specific pessimism. As noted earlier in the article, confidence and doubt can exist at many levels of abstraction. Generally speaking, change away from domain-specific pessimism should also reverberate back into reduction of more generalized pessimism. Presumably that is why generalized optimism sometimes results from therapies that are not targeted toward change in that trait.

It is important to recognize, though, that it can be unwise to simply substitute an unquestioning optimism for an existing doubt, whether domain-specific or generalized. There are contexts in which pessimism may follow from demanding too much. That is, sometimes people demand perfection from themselves, hardly ever see perfection, and as a result develop doubts about their adequacy. What a person with this pattern needs is realistic goals, and practice in adopting alternative goals to replace those that cannot be attained (Carver & Scheier, 2003; Wrosch et al., 2003).

10. Concluding Comment and Future Directions

A large and growing literature indicates that people who dispositionally hold positive expectations for the future respond to difficulty and adversity in more adaptive ways than people who hold negative expectations. Furthermore, optimism is likely to confer benefits in both intrapersonal and interpersonal domains, even in the absence of stress. Expectancies influence how people approach both stressors and

opportunities, and they influence the success with which people deal with them. There are some ways in which the focused efforts and persistence of the optimist can go awry; however, these cases are few in number compared to the benefits that optimism seems to confer.

Optimism has been linked to better emotional well-being, more effective coping strategies, and even to better outcomes in several areas of physical health. The advantages of optimism also seem to translate into the domains of interpersonal relationships: optimists are better liked than pessimists, they benefit from their natural tendency to see things in the best light, and they appear to engage more productive effort in the sorts of problem solving that keep relationships alive.

Given the accumulation of evidence, it is clear that optimism is an individual difference variable that plays a central role in human experience. From a personality psychologist's point of view, this is the reality of individual differences. From a clinical point of view, however, the evidence is a stimulus to learn what we can from optimists so that the mechanisms and processes that characterize their approach to the world can be taught to pessimists. To date, very little systematic work has explored interventions to assist pessimistic persons to deal more effectively with adversity in their lives. We know that the trait under discussion is relatively stable over time, and that there is a genetic component to the variations among people. Still, even if this quality is resistant to change, change has been documented in certain contexts. Attention needs to be devoted to what components that might be included in intervention efforts and to study the effectiveness of these interventions in concrete settings.

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