

4

Eudaimonic and Hedonic Well-Being

An Integrative Perspective with Linkages to Sociodemographic Factors and Health

Carol D. Ryff, Jennifer Morozink Boylan, and Julie A. Kirsch

Abstract

This chapter provides an overview of two prominent approaches to well-being, the hedonic and the eudaimonic, both with roots traceable to the ancient Greeks. We first examine the distant history of each approach and then describe scientific endeavors seeking to translate the ideas to empirical assessment tools. We then review how these two varieties of well-being are distributed in the general population by attending to their associations with major demographic factors (age, socioeconomic status, gender, race) as well as the interplay (intersectionality) of such factors. Such information contextualizes what is known about who reports they are or are not experiencing various aspects of well-being. The third section then examines how hedonic and eudaimonic well-being are linked with multiple indicators of health (self-reported, morbidity, mortality, biological systems). Although extensive research exists, there is a paucity of studies that have jointly examined both types of well-being. The fourth section draws attention to changing historical conditions and what that means for the future study of well-being and health.

Two prominent varieties of well-being, namely hedonic and eudaimonic well-being, are the focus of this chapter. Because extensive research over multiple decades has grown up around these two approaches, the objective is to distill what has been learned from prior studies in hopes of building a cumulative science of well-being. We begin by reviewing the conceptual meanings and philosophical origins of hedonia and eudaimonia, followed

by consideration of how the ideas were translated to scientific tools needed to assess the two broad approaches to well-being. Not included in our coverage are more recent perspectives on well-being (e.g., Goodman, Disabato, Kashdan et al., 2017; Su, Tay, & Diener, 2014; VanderWeele, 2017), given that limited research has been assembled on these relative to hedonic and eudaimonic approaches.

Following definitional beginnings, the second section summarizes evidence on how hedonic and eudaimonic well-being are distributed in the general population. Specifically, we examine how they are associated with key sociodemographic variables (age, socioeconomic status [SES], gender, race). Although frequently included in analytic models as covariates, these mostly assigned variables warrant careful consideration in their own right because they afford critical windows into life contexts. That is, they situate human lives within broader social structural realities that are critical for understanding experiences of well-being. We also draw attention to the interplay (intersectionality) of these defining attributes and call for further work of this nature in future studies. Again, we note that our look at correlates of hedonic and eudaimonic well-being is not exhaustive. For example, we do not include personality or relational correlates (e.g., Marks & Lambert, 1998; Pavot, Diener, & Fujita, 1990; Schmutte & Ryff, 1997), nor do we consider how religiosity and spirituality matter for well-being and health (e.g., Greenfield, Vaillant, & Marks, 2009; Koenig, King, & Carson, 2012), even though several chapters in this volume (Chapters 10, 11, and 16, all in this volume) address religion and spirituality.

Maintaining a selective focus on hedonic and eudaimonic well-being, the third section then examines how they are linked with multiple indicators of health. Our coverage includes self-reported health, morbidity, mortality, and biological systems. Although only limited studies have included measures of both types of well-being, those that have underscore the independent effects of each. Tracking these associations longitudinally, as is done in the chapter by Trudel-Fitzgerald, Kubzansky, and VanderWeele (Chapter 5, in this volume) linking well-being to mortality, is a key future direction.

Because economic, social, and political change has been prominent in recent times, a fourth section then calls for greater attention to historical dynamics in future research on well-being. We consider how heightened job, financial, and housing hardships, which unfolded during the Great Recession, matter for people's subjective views about their lives and for their health. Building on evidence of increased experiences of despair, particularly

among disadvantaged segments of society, we call for future inquiries that address growing problems of inequality.

What Is Psychological Well-Being?

There are multiple ways to conceptualize and measure what it is to be well. Interestingly, the definitional challenges have distant philosophical roots. The ancient Greeks, for example, were interested in fundamental questions about how to live—effectively, what constitutes a good life. Aristippus (435–356 BCE) taught that the goal of life is to experience the maximum amount of pleasure and that happiness consists of the totality of one’s hedonic moments (Laertius, 1925). He took pride in extracting enjoyment from many circumstances and, relatedly, in controlling both adversity and prosperity. Epicurus (341–270 BCE), in turn, founded the school of philosophy known as epicureanism, which sought to attain a happy, tranquil life, one characterized by peace and freedom from fear and pain. Living a self-sufficient life surrounded by friends was also part of his view (Barnes, 1986). In notable contrast, Aristotle’s (384–322 BCE) *Nicomachean Ethics*, written in 350 BCE, stated that the highest of all human goods achievable by human action was “eudaimonia,” which he defined as activity of the soul in accord with virtue. The highest virtue for Aristotle was thus a kind of personal excellence; that is, achieving the best that is within us.

These contrasting conceptions of well-lived lives continue to have resonance in our own era. Ryan and Deci’s (2001) integrative review of the field of well-being, in fact, organized it in terms of two broad traditions: one dealing with happiness (hedonic well-being) and the other dealing with human potential (eudaimonic well-being). Both formulations have been fundamental in current efforts to understand the nature of human well-being (Huta & Waterman, 2014; Vittersø, 2013; Waterman, 1993). Although other psychological characteristics (e.g., optimism, sense of control, conscientiousness) constitute valued aspects of positive functioning, as noted in our introduction, coverage in this chapter is restricted to hedonic and eudaimonic well-being.

The Hedonic Approach

Kahneman, Diener, and Schwarz (1999) defined hedonic psychology as the study of what makes experiences in life pleasant and unpleasant, thus aligning

themselves with certain conceptions from the ancient Greeks. Nonetheless, it is important to underscore that multiple additional terms (and related assessment items)—subjective well-being, life satisfaction, happiness, positive and negative affect—are exemplars of the hedonic approach. In addition, it is useful to recognize that many “indicators” in this arena had little, if any, conceptual or philosophical foundation. For example, in the middle of the past century, interest in subjective well-being emerged not in an effort to illuminate meanings of hedonic psychology, but rather in pursuit of ideas about quality of life that could serve as a window on social change (Land, 1975). The argument at the time (Andrews & Withey, 1976; Campbell, Converse, & Rodgers (1976) was that even though people live in objectively defined environments (e.g., income), it is their *subjective experience* that offers uniquely relevant information on quality of life.

Others from that era (Bradburn, 1969; Cantril, 1965; Gurin, Veroff, & Feld, 1960) considered life satisfaction and happiness to be key components of well-being. According to Bradburn (1969), happiness results from a balance between positive and negative affect. This distinction between pleasant and unpleasant aspects of personal experience continued to be fundamental in subsequent conceptions of hedonic well-being (Diener, Smith, & Fujita, 1995), along with life satisfaction, which came to be seen as the more evaluative and judgmental assessment of one’s life. While the social indicators movement was unfolding, the early field of social gerontology also gave prominence to life satisfaction (Neugarten, Havighurst, & Tobin, 1961). A 30-year review (Larson, 1978) designated life satisfaction as the most frequently studied variable in gerontological studies.

Decades later, the threefold structure of life satisfaction, positive affect, and negative affect remains core in defining what constitutes subjective well-being (Lucas, Diener, & Suh, 1996). These three components thus comprise the contemporary formulation of hedonia (Ryan & Deci, 2001) (see Box 4.1 for illustrative definitions and items). For present purposes, it is important to emphasize that these operational definitions of hedonic well-being were not grounded in a priori theory about what constitutes positive functioning. Rather, they exemplified relatively straightforward and useful questions intended to probe people’s evaluations of their well-being, such as the degree to which they were satisfied with life as a whole or with specific domains of life, such as work, health, or family relationships. Similarly, questions about positive and negative affect used differing temporal frames (now, last week, past year)

Box 4.1 Components of Hedonic Well-Being

Life Satisfaction

Typically assessed by a rating of overall satisfaction with life, sometimes accompanied by domain-specific assessments (e.g., satisfaction with work, health, partner relationship, relationship with children).^{a,b} Viewed as a more enduring, long-term aspect of well-being.

Sample item: "From 0 (worst possible) to 10 (best possible), how would you rate your life overall?"

Positive Affect

Typically assessed with frequency ratings (how often in the past week, month, year) one felt cheerful, in good spirits, extremely happy, calm and peaceful, full of life).^c

Sample item: "During the past 30 days, how much of the time did you feel cheerful?"

Negative Affect

Typically assessed with frequency ratings (how often in the past week, month, year) one felt hopeless, so sad nothing could cheer you up, nervous, restless or fidgety, that everything was an effort, worthless.^c

Sample item: "During the past year, how much of the time did you feel hopeless?"

^a Sources of above positive and negative affect items are detailed in Mroczek & Kolarz (1998).

^b Another source of high-arousal positive affect (enthusiastic, attentive, proud, active) and negative affect (afraid, jittery, irritable, ashamed, upset) items is the PANAS scale (Watson, Clark, & Tellegen, 1988).

^c Response options: 1 (all of the time), 2 (most of the time), 3 (some of the time), 4 (a little of the time), 5 (none of the time).

to inquire about the frequency with which respondents experienced an array of positive or negative emotions.

Extensive research has grown up around these aspects of hedonic well-being, such as how they change with age (Charles, Reynolds, & Gatz, 2001; Diener & Suh, 1997; Mroczek & Kolarz, 1998; Shmotkin, 1990), how they vary across cultures (Suh, Diener, Oishi, & Triandis, 1998), and are linked with heredity (Lykken & Tellegen, 1996), personality (McCrae & Costa, 1994), living conditions (Veenhoven, 1991), or differential life opportunities (Graham,

2017). More recently, as distilled in a subsequent section, investigators have probed links between components of the hedonic well-being and health.

The Eudaimonic Approach

Whereas the hedonic tradition in contemporary science had little conceptual or theoretical foundation, the eudaimonic tradition emerged from numerous formulations in clinical, developmental, existential, and humanistic psychology, along with Aristotle's distant writings. For example, lifespan theorists such as Erikson (1959) and Neugarten (1973a) elaborated how people negotiate the tasks and challenges of different life periods, including whether they do so successfully or unsuccessfully. Other psychologists sought to articulate the full growth and development of the individual, formulated in terms of self-actualization (Maslow, 1968), the fully functioning person (Rogers, 1961), maturity (Allport, 1961), and individuation (Jung, 1933). Frankl's (1959) classic, *Man's Search for Meaning*, offered further insight into the importance of finding purpose in significant life challenge. Drawing on these views, Jahoda (1958) distilled criteria of positive mental health that were fundamentally positive in nature, in contrast to the absence of illness (e.g., depression, anxiety) definitions found in most mental health research and practice at the time.

Reviewing the preceding literature, Ryff (1989; Ryff & Keyes, 1995) proposed a multidimensional model of eudaimonic well-being built on points of convergence in the varying perspectives (for a philosophical engagement with this model, see Chapter 9, by Baril; for a theological perspective, see Chapter 10, by Messer, both in this volume). Six key dimensions emerged from this integration, which is fundamentally about well-being as challenged thriving. Each dimension of psychological well-being thus articulates different challenges that individuals encounter as they strive to function positively. People attempt to feel good about themselves even while being aware of their own limitations (*self-acceptance*). They also seek to develop and maintain warm and trusting interpersonal relationships (*positive relations with others*) and to shape their surrounding environments to meet personal needs and desires (*environmental mastery*). In sustaining their individuality in diverse social contexts, they also seek a sense self-determination and personal authority (*autonomy*). A vital endeavor is to find meaning in their endeavors and challenges (*purpose in life*). Last, making the most of personal

talents and capacities (*personal growth*) is central to this model of well-being and comes closest to Aristotle's conception of personal excellence as realization of one's unique talents and capacities.

Detailed definitions of the six constructs are found in Box 4.2. Importantly, these definitions served as the basis for writing self-descriptive items to operationalize each dimension. Thus, drawing on the descriptions of high and low scorers for each dimension (derived from the underlying theoretical formulations), self-report items were generated. The decision to operationalize both what it means to have or not have (high scorer vs. low scorer) added conceptual and empirical rigor to the measures, such that receiving a high score on any of the six dimensions requires respondents to strongly agree with positively worded items as well as strongly disagree with negatively worded items. Further analyses evaluated and refined the item pools (see Ryff, 1989). For example, to be retained, all items had to correlate more highly with their own scale than with another scale. Confirmatory factor analyses were also conducted to examine the multidimensional structure of the model. Findings supported the intended six-factor model (Ryff & Keyes, 1995). Detailed summaries of this theory-guided approach to eudaimonic well-being and the findings that have grown up around it are available elsewhere (e.g., Ryff, 2014, 2018; Ryff & Singer, 2008).

Given emphasis on both hedonic and eudaimonic well-being herein, a key empirical finding from the baseline assessments in the Midlife in the United States (MIDUS) national sample of US adults was that eudaimonic and hedonic well-being (operationalized as previously described) were found to be *related but distinct* aspects of what it means to be psychologically well (Keyes, Shmotkin, & Ryff, 2002). That is, the indicators were positively intercorrelated with each other, as would be expected given that all assess aspects of positive psychological functioning, but the best fitting model was one that maintained the distinction between eudaimonic and hedonic well-being. This first empirical assessment of both approaches also showed differing varieties of how the hedonia and eudaimonia come together in individual lives. Although many participants had jointly low (or high) profiles on both indicators, others showed notably higher hedonic than eudaimonic well-being, or the reverse, notably higher eudaimonia than hedonia. In addition, this initial study documented differing sociodemographic and personality correlates for the various combinations of well-being.

Box 4.2 Definitions of Theory-Guided Dimensions of Eudaimonic Well-Being

Autonomy

High scorer: Is self-determining and independent; able to resist social pressures to think and act in certain ways; regulates social pressures to think and act in certain ways; regulates behavior from within; evaluates self by personal standards.⁴

Sample item: “I have confidence in my own opinions, even if they are different from the way most other people think.”

Low scorer: Is concerned about the expectations and evaluations of others; relies on judgments of others to make important decisions; conforms to social pressures to think and act in certain ways.

Sample item: “I tend to be influenced by people with strong opinions.”

Environmental Mastery

High scorer: Has a sense of mastery and competence in managing the environment; controls complex array of external activities; makes effective use of surrounding opportunities; able to choose or create contexts suitable to personal needs and values.

Sample item: “I am quite good at managing the many responsibilities of my daily life.”

Low scorer: Has difficulty managing everyday affairs; feels unable to change or improve surrounding context; is unaware of surrounding opportunities; lacks sense of control over external world.

Sample item: “The demands of everyday life often get me down.”

Personal Growth

High scorer: Has a feeling of continued development; sees self as growing and expanding; is open to new experiences; has sense of realizing his or her potential; sees improvement in self and behavior over time; is changing in ways that reflect more self-knowledge and effectiveness.

Sample item: “For me, life has been a continuous process of learning, changing, and growth.”

Low scorer: Has a sense of personal stagnation; lacks sense of improvement or expansion over time; feels bored and uninterested with life; feels unable to develop new attitudes or behaviors.

Sample item: "When I think about it, I haven't really improved much over the years."

Positive Relations with Others

High scorer: Has warm, satisfying, trusting relationships with others; is concerned about the welfare of other others; capable of strong empathy, affection, and intimacy; understands give and take of human relationships.

Sample item: "I enjoy personal and mutual conversations with family and friends."

Low scorer: Has few close, trusting relationships with others; finds it difficult to be warm, open, and concerned about others; is isolated and frustrated in interpersonal relationships; not willing to make compromises to sustain important ties with others.

Sample item: "I have not experienced many warm and trusting relationships with others."

Purpose in Life

High scorer: Has goals in life and a sense of directedness; feels there is meaning to present and past life; holds beliefs that give life purpose; has aims and objectives for living.

Sample item: "I have a sense of direction and purpose in life."

Low scorer: Lacks a sense of meaning in life; has few goals or aims; lacks sense of direction; does not see purpose of past life; has no outlook or beliefs that give life meaning.

Sample item: "I don't have a good sense of what it is I'm trying to accomplish in life."

Self-Acceptance

High scorer: Possesses a positive attitude toward the self; acknowledges and accepts multiple aspects of self, including good and bad qualities; feels positive about past life.

Sample item: "When I look at the story of my life, I'm pleased with how things have turned out."

Low scorer: Feels dissatisfied with self; is disappointed with what has occurred in past life; is troubled about certain personal qualities; wishes to be different from what he or she is.

Sample item: "My attitude about myself is probably not as positive as most people feel about themselves."

^a Response options for all above items: 1 (strongly disagree) to 7 (strongly agree).

Sociodemographic Correlates of Hedonic and Eudaimonic Well-Being

Dimensions of hedonic and eudaimonic well-being are meaningfully contoured by sociodemographic factors; that is, age, SES, gender, and race/ethnicity play important roles in predicting *who* is happy and living a meaningful life. Summarized here are distilled findings for hedonic and eudaimonic well-being, organized separately by age, SES, gender, and race. We attend to the current state of the science of well-being and these four sociodemographic factors by examining cross-sectional and longitudinal findings drawn from nationally representative samples of adults. Notably, a large body of literature on sociodemographic factors and well-being is limited to cross-sectional data. More comprehensive longitudinal studies are emerging in the field (see Bastarache et al., 2019).

Although other social identities are important for well-being (e.g., sexual identity, culture), this summary is restricted to the aforementioned categories, which encompass a sizable literature for both hedonic and eudaimonic well-being. The section concludes with recommendations for future research on the intersectionality of sociodemographic characteristics and how they jointly contour hedonic and eudaimonic well-being profiles.

Hedonic Well-Being

Age. Movement from specific life stages (e.g., adolescence to young adulthood; midlife to old age) presents new challenges that impact well-being (Neugarten, 1973b; Ryff, 1989). For hedonic well-being, studies have shown that as individuals grow older they tend to prioritize positive emotions over negative emotions, a phenomenon referred to as the *positivity effect* (Carstensen & Mikels, 2005; Stone, Schwartz, Broderick, & Deaton, 2010). The relationship between age and positive affect may, however, be nonlinear. In a national sample of adults (aged 25–74), the cross-sectional association between age and positive affect strengthened with each 1-year increase in age (Mroczek & Kolarz, 1998). The positivity effect may also level off in older adulthood. In a cross-sectional study of a select sample of younger to older aged cohorts, middle-aged adults (mean age = 49.9) experienced greater positive affect than younger adults (mean age = 19.5), but older adults (mean age = 75.0) did not significantly differ from middle-aged adults (Ryff, 1989).

Furthermore, longitudinal studies restricted to adults older than 70 found that positive affect *declined* (see Smith, Fleeson, Geiselman et al., 1999).

Cross-sectional studies have shown that life satisfaction follows a U-shaped pattern by age wherein satisfaction tends to reach its lowest point at midlife between the ages of 30 and 60 and then peaks in older adulthood (Blanchflower & Oswald, 2008). The midlife dip in life satisfaction is posited to result from multiple role demands and life stressors, including raising adolescents while providing care for elderly parents (Aldwin & Levenson, 2001; Almeida & Horn, 2004). Alternatively, researchers have posited that the dip in life satisfaction may reflect cohort or period effects, rather than age effects.

Longitudinal findings from the MIDUS study documented that mid-life adults (aged 40–59) were similarly satisfied with life as younger adults (aged 24–39) and showed increments in life satisfaction over a 10-year span. Older adults (aged 60–75) did not show significant increments in life satisfaction (Lachman, Teshale, & Agrigoroaei, 2015). In the English Longitudinal Study of Aging, which measures well-being and health every 2 years, adults aged 50 and older initially reported declines in life satisfaction over time, but in later waves the trend reversed and life satisfaction increased over time (Shankar, Rafnsson, & Steptoe, 2015). In a comprehensive analysis of 11 population-based longitudinal studies, positive affect was best characterized by an inverted U trajectory across the lifespan, peaking at about the mid to late 50s and then declining. Relatedly, negative affect was best characterized by a U-shaped curve over the lifespan, with levels starting higher in younger adulthood, declining until the late 60s, and then increasing afterward (Bastarache et al., 2019). In summary, increments in age are associated with increments in both positive affect and life satisfaction, at least until older adulthood. More longitudinal studies spanning diverse age cohorts are needed to disentangle the effects of age from period and/or cohort effects.

Socioeconomic Status. SES represents position in the social hierarchy and, relatedly, access to material goods and resources. SES is theorized to influence individual factors, including well-being. The relationship between SES and hedonic well-being has been extensively studied in multinational, cross-sectional studies. In many countries, life satisfaction, compared to positive affect, is consistently linked with higher income (see Diener, Oishi, & Tay, 2018). Higher education is also associated with higher levels of life satisfaction (Fernández-Ballesteros, Zamarrón, & Ruíz, 2001). Boehm, Chen,

Williams, Ryff, and Kubzansky (2015) examined cross-sectional associations between education and income gradients in life satisfaction and positive affect in the MIDUS study. Satisfied individuals tended to be more highly educated and had higher incomes. Positive affect, however, was not associated with income or education. Ethnographic research also revealed that those who lack socioeconomic advantage are able to maintain high levels of positive affect (Markus, Ryff, Curhan, & Palmersheim, 2004) and high levels in specific domains of life satisfaction (Biswas-Diener, & Diener, 2001). As noted earlier, most findings on the relationship between SES and hedonic well-being are from cross-sectional data, thus requiring more longitudinal research to determine the directionality and lasting influences of SES on hedonic well-being.

Gender. The large literature on gender differences in hedonic well-being is complex and lacks a coherent conclusion. Focusing on large-scale nationally representative studies and meta-analyses, gender differences are more consistently found for life satisfaction than for positive affect, but the direction of the difference varies (Batz & Tay, 2018). Studies of younger to older age cohorts found that women reported *higher* life satisfaction than men (Blanchflower & Oswald, 2004; Inglehart, 2002; Tay, Ng, Kuykendall, & Diener, 2014). However, in cross-sectional studies restricted to adults aged 55 and older, women reported *lower* levels of life satisfaction than men (Pinquart & Sorensen, 2001). A meta-analysis of 281 multinational studies documented that women reported significantly lower levels of life satisfaction than men (Batz-Barbarich, Tay, Kuykendall, & Cheung, 2018). Zuckerman, Li, and Diener (2017) examined gender differences in a multi-item scale of positive and negative affect from the Gallup World Poll. Although gender differences were not evident for positive affect, women reported significantly higher levels of negative affect than men.

In summary, gender differences for hedonic well-being are varied and likely depend on additional individual and social factors. Other studies show that controlling for other demographic factors besides gender (e.g., age, SES, or marital status) reduces the gender difference in hedonic well-being to nonsignificance (Shmotkin, 1990; White, 1992). Most of the preceding findings are cross-sectional or time-series data (repeated, but different samples). More longitudinal studies of within-person change are needed.

Race. Racial and ethnic inequality is a major social issue in the United States. Black–White divisions in income and wealth remain entrenched and

are widening (Shapiro, Meschede, & Osoro, 2013). Furthermore, minority groups experience structural and interpersonal racism. Minority racial status is thus a social identity and sociodemographic characteristic usually conceptualized as a risk factor for mental and physical health problems (Link & Phelan, 2002). Black–White disparities in hedonic well-being have been widely documented. Drawing on 1972–1985 time-series data from the General Social Survey (GSS), Thomas and Hughes (1986) showed that Black adults were less satisfied and less happy than White adults. The findings have been replicated with more recent time-series data from the GSS and other national studies in the United States (Beatty & Tuch, 1997; Coverdill, Lopez, & Petrie, 2011; Hughes & Thomas, 1998; Iceland & Ludwig-Dehm, 2019; Yang, 2008). Even though there is some evidence that the Black–White racial gap in happiness and life satisfaction has narrowed over time (e.g., Blanchflower & Oswald, 2004; Coverdill et al., 2011), the difference still remains large according to recent analyses of GSS data (Iceland & Ludwig-Dehm, 2019).

Socioeconomic inequality is theorized to account for racial disparities in well-being (Link & Phelan, 2002). However, disparities in hedonic well-being persist even when controlling for other sociodemographic factors, such as education, income, and marital status (Barger, Donoho, & Wayment, 2009; Hughes & Thomas, 1998). Beatty and Tuch (1997) examined Black–White differences in domain-specific life satisfaction among those holding similar middle-class occupations. Middle-class Black adults expressed lower levels of life satisfaction across multiple domains (e.g., residence, family, friends, health) compared to middle-class White adults. Furthermore, controlling for education, area of residence, and social participation did not explain racial differences in domain-specific life satisfaction. However, after adjusting for discrimination, Black adults reported higher positive affect and life satisfaction than White adults (Keyes, 2009). In summary, these findings underscore that, despite improvements in civil rights for Black adults, effects of social disadvantage linger and negatively impact hedonic well-being. That said, racial disparities in hedonic well-being do not always translate to other domains of mental health: Black adults are *not* more likely than White adults to have psychiatric disorders, and in some studies Black adults have lower rates than White adults on indicators of depression, affective disorders, and substance use disorders (Keyes, 2009; Williams & Harris-Reid, 1999). These findings offer further support that indicators of ill-being are distinct from indicators of well-being.

Eudaimonic Well-Being

Age. Supporting the idea that eudaimonic well-being is multidimensional in nature, different facets of eudaimonic well-being show varying associations with age. With cross-sectional data, Ryff and Keyes (1995) found that age was positively associated with environmental mastery and autonomy but unassociated with self-acceptance, and inconsistently associated with positive relations. The most reliable evidence of age-related change pertains to purpose in life and personal growth. Cross-sectional and longitudinal studies from MIDUS and the Wisconsin Longitudinal Study (WLS) have found that among adults aged 25–75, increasing age predicts declines in purpose in life and personal growth (Ryff & Keyes, 1995; Springer, Pudrovskaya, & Hauser, 2011). Declines may reflect the “structural lag” problem, which posits that social institutions are not keeping up with the added years of life that many older adults now experience (Riley, Kahn, Foner, & Mack, 1994). As social roles diminish with age, fewer opportunities may be available for older individuals to contribute to society, thus limiting opportunities for personal growth and purposeful engagement. Nonetheless, there is notable variability in purpose in life and personal growth among older adults, with some showing considerably higher scores than their same-aged peers. Subsequent sections examine the import of such variability for health.

Socioeconomic Status. Eudaimonic well-being is patterned by indicators of SES (education, income, occupation; Marmot et al., 1998; Marmot, Ryff, Bumpass, Shipley, & Marks, 1997), with most analyses focused on education. All six dimensions of eudaimonic well-being were positively associated with education (Ryff, 2016; Ryff et al., 2015). Other work showed education to be positively associated with most aspects of eudaimonic well-being, except positive relations with others and autonomy (Curhan et al., 2014). Similar to age, the two dimensions most strongly correlated with education were personal growth and purpose in life. Findings for educational differences in eudaimonic well-being have been based primarily on cross-sectional data, thus longitudinal work is needed to tease apart the directional nature of the relationship between eudaimonia and education. Additionally, as with age, there is notable heterogeneity within SES strata (see Markus et al., 2004; Ryff, 2016), suggesting that social structural constraints on well-being are not uniform.

Gender. In contrast to hedonic well-being, studies on gender differences in eudaimonic well-being are more limited even though gender is a common

covariate in eudaimonic studies. In the 1992–1993 WLS survey wave (age ~50), the largest gender differences were found for positive relations with others and personal growth, with higher values for women compared to men (Marks, 1996). These findings were evident in another small-scale study (Ryff & Heidrich, 1997), but other dimensions of well-being did not show consistent gender differences (Ryff, 1995). In contrast, using a composite measure of eudaimonic well-being, Bookwala and Boyar (2008) found that women reported significantly lower values than men, although the effect size was small. Longitudinal findings focusing on gender and eudaimonic well-being are lacking.

Race. Studies on racial differences in eudaimonic well-being contrast with findings for hedonic well-being, showing that Black adults are lower on hedonic well-being than White adults. For eudaimonic well-being, however, Black adults reported higher levels of eudaimonic well-being across every dimension (Ryff, Keyes, & Hughes, 2003). Furthermore, experiences of discrimination suppressed the minority group advantage in eudaimonic well-being (Keyes, 2009). Selection bias was viewed as an unlikely explanation for higher eudaimonic well-being among Black compared to White adults. The minority group advantage in eudaimonic well-being may suggest that experiences of social disadvantage contribute to the building of psychological strengths, such as purpose in life and personal growth. Positive group identification (Branscombe, Schmitt, & Harvey, 1999) and religious attendance (Ellison, 1995) have been proposed as plausible pathways to promote resilience and flourishing in the face of adversity. Positive group identification may help some cope with racism and instill self-acceptance and a sense of meaning and commitment to fulfill life goals. Religious practices are prominent in the Black community (Taylor, Chatters, Jayakody, & Levin, 1996) and may be one such way that positive group identification is nurtured.

Intersectionality of Sociodemographic Correlates of Well-Being

It is increasingly evident that multiple social categories intersect with each other to shape human behavior, health, and well-being (Cole, 2009). Kimberlé Crenshaw, a legal scholar and critical race theorist, formulated the term “intersectionality” to draw attention to the meaning and consequences of multiple social group identities. For example, Black women may experience additive or multiplicative discrimination as a result of being both a

person of color and a woman, or they could experience a unique form of discrimination specific to their identity as a Black woman (Crenshaw, 1991).

The unique experiences resulting from multiple intersecting social identities may have different consequences for hedonic and eudaimonic well-being. Ryff et al. (2003) studied intersections of race and gender and their relationship with eudaimonic well-being in the baseline MIDUS sample. Minority group status was positively associated with multiple dimensions of eudaimonic well-being, but more so for African American men than for African American women. In a study focused on autonomy in the work place, Black females reported the least autonomy compared to their Black male and White female counterparts, whereas White men reported the most autonomy (Petrie & Roman, 2004). Jackson and Williams (2006) illustrated the intersections among race, gender, and SES in relation to mental and physical health. High suicide rates among higher SES Black men relative to their White counterparts were attributed to increased exposure to discriminatory stressors in the workplace and lack of advancement in occupational status despite high educational achievement. In contrast, recent Gallup data showed that, among the SES disadvantaged, Blacks reported higher life satisfaction than Whites (Graham, 2017). In summary, the intersecting forces of race, gender, and SES draw attention to the different ways in which multiple group identities shape individual well-being outcomes. Future work needs to examine how specific dimensions of hedonic and eudaimonic well-being are differentially impacted by multiple social identities.

Race, gender, and SES differences in well-being may also vary by age. According to cumulative inequality theory, health and well-being inequalities are hypothesized to widen with age (Ferraro & Shippee, 2009). Whites, men, and higher SES individuals, compared to racial minorities, women, and lower SES persons, respectively, have greater access to social capital and financial resources. These resources likely cumulate over time and thereby play a role in maintaining or promoting well-being through old age. More advantaged individuals may be more likely to show the positivity effect, experience age-related increases in hedonic well-being, and be less vulnerable to age-related declines in purpose in life and personal growth. As a result, SES, gender, and racial gaps in well-being may increase with age. In contrast to cumulative inequality theory, the *age-as-leveler hypothesis* predicts that the challenges of aging will produce less heterogeneity in well-being, thus reducing inequalities (Dupre, 2007; Yang, 2008).

Some evidence suggests that well-being differences by gender change with age. Two large national studies of age and gender differences in positive affect found that younger women tended to be happier than younger men, but the gender difference reversed in older age, such that older women were significantly less happy than older men (Easterlin, 2003; Inglehart, 2002). This shift resulted from women's larger declines in happiness in response to worsening health and men's larger increases in happiness post-retirement compared to women. According to happiness ratings in the GSS, White men over the age of 50 were the happiest of all age, gender, and racial groups, whereas Black women of the same age were the least happy (Yang, 2008). This research needs to be extended to other dimensions of hedonic and eudaimonic well-being and to longitudinal surveys.

Summary

The existing literature on sociodemographic correlates of well-being offers empirical support for the distinction between hedonic and eudaimonic concepts. That prior work includes both cross-sectional and longitudinal findings is valuable. The former document differences that may be attributable aging processes or variation across cohorts, both of which are informative. The latter documents cross-time dynamics, often revealing that putative antecedents and consequents are both changing in time. That is, longitudinal inquiry is not always definitive about the causal directionality of influences.

Nonetheless, these prior studies show that increasing age predicts increments in hedonic well-being but decrements in some dimensions of eudaimonic well-being, particularly purpose in life and personal growth. Other dimensions of eudaimonic well-being remain relatively stable with age, such as positive relations with others, autonomy, and self-acceptance. These findings align with prior work showing that age trajectories in well-being depend on the dimension examined and on the period of the life course considered (Lachman, Lewkowicz, Marcus, & Peng, 1994; Staudinger & Bluck, 2001).

For SES, income and education are most strongly positively associated with life satisfaction, but inconsistently associated with positive affect. Education is most strongly positively associated with purpose in life and personal growth but less robustly associated with positive relations with others

and autonomy. These findings suggest that certain dimensions of hedonic and eudaimonic well-being are more sensitive to socioeconomic forces than others. Gender differences in hedonic and eudaimonic well-being are varied and are sensitive to sampling and methodological differences. Although minority group status is theorized to be detrimental to health and well-being, the literature shows that racial differences are nuanced and vary by hedonic and eudaimonic well-being. Despite the existence of a Black–White “happiness gap,” Black adults evidence *higher* levels of eudaimonic well-being than do White adults. These patterns bring to light subgroup differences in vulnerability and resilience, which may depend on intersecting group identities. Future research needs to attend to the interplay between multiple sociodemographic predictors and their combined influences on well-being. The next section examines the linkages between hedonic and eudaimonic well-being and health.

Linking Well-Being to Health

A growing literature documents how hedonic and eudaimonic well-being predict health outcomes. In this section, evidence that well-being is associated with improved physical health and may offset health risks attendant to socioeconomic disadvantage is reviewed. Separately for hedonic and eudaimonic well-being, evidence first focuses on links between well-being and self-reported health, followed by evidence linking well-being to objective measures of health, including functional capacities, morbidity, mortality, and biological measures. Most studies utilize well-being as an antecedent variable, but some include well-being as a moderator of sociodemographic gradients in health. Moderation analyses capitalize on the heterogeneity in well-being within sociodemographic subgroups, as described in the previous section. The final section discusses studies that include both hedonic and eudaimonic well-being in the same analytic models. Although rarely done, these studies are necessary to discern if their psychological distinctiveness translates to differential health outcomes. We note that Trudel-Fitzgerald et al. (Chapter 5, in this volume) likewise review literature linking specific dimensions of well-being (e.g., purpose in life, life satisfaction, positive affect) to mortality, specifically focusing on longitudinal studies that adjust for sociodemographic factors, medical status, and health behaviors.

Hedonic Evidence

Self-Reported Health. Hedonic well-being has been prospectively linked to better self-rated health (Benyamini, Idler, Leventhal, & Leventhal, 2000; Segerstrom, 2014), fewer chronic conditions (Friedman & Ryff, 2012), fewer cold symptoms among volunteers exposed to the cold virus (Cohen, Doyle, Turner, Alper, & Skoner, 2003), and less pain among patients with rheumatoid arthritis and fibromyalgia (Zautra, Johnson, & Davis, 2005). In the Health and Retirement Study (HRS), a nationally representative sample of older adults, those with high life satisfaction had fewer doctor visits over a 4-year period than did those with low life satisfaction, net of covariates (Kim, Park, Sun, Smith, & Peterson, 2014). A recent systematic review and meta-analysis found that trait positive affect was associated with better sleep outcomes in healthy populations, although most studies provided relatively weak evidence or contained a high risk of bias (Ong, Kim, Young, & Steptoe, 2017).

Other evidence supports the reciprocal relationship between hedonic well-being and health such that individuals with major illnesses report lower levels of positive affect and life satisfaction than healthy controls (e.g., Çeliker & Borman, 2001; Elkins, Pollina, Scheffer, & Krupp, 1999; Knox, Svensson, Waller, & Theorell, 1988). Gana and colleagues (2016) tested competing models of whether positive affect predicted functional health or whether health predicted changes in positive affect in a longitudinal study of older adults (aged 62–101). Good functional health was associated with higher positive affect over time, but positive affect did not predict changes in health, thus highlighting the utility of examining cross-time dynamics between hedonic well-being and health status. In the UK Million Women Study, poor self-rated health prospectively predicted unhappiness, and happiness was not associated with mortality over a 10-year follow-up, net of covariates. However, happiness predicted lower mortality when self-rated health was not included as a covariate (Liu et al., 2016), suggesting that overlap between happiness and self-rated health is relevant in interpreting these findings. There are concerns regarding the potential overlap among indicators of hedonic well-being and subjective health. For example, some adjectives used to assess hedonic well-being may themselves reflect health, such as *energetic* and *vigorous* (Cohen & Pressman, 2006). Such concerns underscore the need to link hedonic well-being with objective health outcomes.

Morbidity. Positive affect, life satisfaction, and happiness prospectively predict numerous disease outcomes, including fewer clinical colds (Cohen et al., 2003), lower hospital readmission rates (Middleton & Byrd, 1996), lower body mass index (BMI) among adolescents (Saloumi & Plourde, 2010), lower risk of stroke (Ostir, Markides, Peek, & Goodwin, 2001), and lower risk of incident coronary heart disease and hypertension (Boehm, Peterson, Kivimaki, & Kubzansky, 2011; Davidson, Mostofsky, & Whang, 2010; Shirai et al., 2009; Trudel-Fitzgerald, Boehm, Kivimaki, & Kubzansky, 2014; Yanek et al., 2013). These salubrious effects remained significant after controlling for baseline disease status. As reviewed in Boehm and Kubzansky (2012) and Steptoe (2019), effect sizes are clinically significant, although not all studies have yielded significant results, and there is variability in the quality of hedonic well-being assessments. For instance, some studies utilize measures of depression to assess hedonic well-being despite widespread recognition that positive and negative affect are distinct constructs. Furthermore, the health-protective role of hedonic well-being is stronger among initially healthy adults than in patient populations (Boehm & Kubzansky, 2012).

Mortality. Positive affect and life satisfaction have widely been shown to protect against mortality risk (Boehm & Kubzansky, 2012; Chida & Steptoe, 2008; Diener & Chan, 2011; Lamers, Bolier, Westerhof, Smit, & Bohlmeijer, 2012; Pressman & Cohen, 2005; Steptoe, Dockray, & Wardle, 2009; Steptoe & Wardle, 2011, 2012; Xu & Roberts, 2010). Hedonic well-being also reduces the risk of multiple causes of death, including all-cause mortality, cardiovascular mortality, and mortality caused by renal failure or HIV (Chida & Steptoe, 2008; Pressman & Cohen, 2005). A recent meta-analysis of population-based studies found that adults reporting more happiness had lower all-cause mortality independent of confounding factors (Martín-María et al., 2017). Positive affect also predicted lower mortality among patients with ischemic heart disease, with the relationship mediated by patients' engagement in exercise (Hoogwegt et al., 2013). In extant reviews of hedonic well-being and mortality, findings were stronger in healthy compared to disease populations and in middle-aged and older adults (over the age of 55). These studies have led to growing interest in relationships between hedonic well-being and biological mechanisms of disease, as described in the next section.

Biological Health. Measures of multiple physiological systems, including the cardiovascular, neuroendocrine, immune, and metabolic systems, have been linked to hedonic well-being in cross-sectional (Bacon et al., 2004; Bhattacharyya, Whitehead, Rakhit, & Steptoe, 2008; Prather, Marsland,

Muldoon, & Manuck, 2007; Stellar et al., 2015; Steptoe, O'Donnell, Badrick, Kumari, & Marmot, 2008; Tsenkova, Love, Singer, & Ryff, 2008; Yoo, Miyamoto, Rigotti, & Ryff, 2017; Yoo, Miyamoto, & Ryff, 2016) and longitudinal studies (Boehm, Chen, Williams, Ryff, & Kubzansky, 2016; Boylan & Ryff, 2015; Matthews, Zhu, Tucker, & Whooley, 2006). Not all support better functioning, with null effects reported as well (Friedman, Hayney, Love, Singer, & Ryff, 2007; Paschalides et al., 2004; Ryff et al., 2006).

Hedonic well-being may buffer the effects of stress on biological risk. Among healthy adults, those with high trait positive affect showed faster wound healing after an acute psychological stressor, with no effects found in the no-stress condition (Robles, Brooks, & Pressman, 2009). Similarly, positive affect was associated with lower C-reactive protein (CRP), but only among individuals reporting high perceived stress (Blevins, Sagui, & Bennett, 2017). Some evidence suggests that the health-protective effects of hedonic well-being is stronger among older women (Korkeila, Kaprio, Rissanen, Koshenvuo, & Sörensen, 1998; Steptoe, Demakakos, de Oliveira, & Wardle, 2012). Finally, positive affect predicted reduced risk of diabetes among individuals with a family history of diabetes but not among those with no family history (Tsenkova, Karlamangla, & Ryff, 2016). Overall patterns indicate that positive affect, life satisfaction, happiness, and other aspects of hedonic well-being are associated with better health across many domains, including self-reported outcomes, disease incidence and severity, mortality, and biological risk factors.

Eudaimonic Evidence

Self-Reported Health. As with hedonic well-being, measures of eudaimonic well-being have been associated with subjective health in both cross-sectional and longitudinal studies (Keyes, 2005; Keyes & Grzywacz, 2005). Evidence also supports bidirectional relationships between subjective health and eudaimonic well-being (Heidrich & Ryff, 1993a, 1993b). Chang, Hong, and Charles (2018) used cross-lagged path models to show bidirectional relationships between purpose in life and self-rated health across the three waves (i.e., nearly 30 years) of MIDUS. Profiles of eudaimonic well-being in MIDUS also reveal notable stability over a 9- to 10-year period—some were persistently high in their levels of eudaimonic well-being across time, while others were persistently low. These differing profiles predicted cross-time

changes in health: those with persistently high well-being showed gains in subjective health along with better profiles in chronic conditions, health symptoms, and functional health over time compared to those with persistently low well-being (Ryff et al., 2015). Healthcare utilization may be a relevant pathway through which eudaimonic well-being is related to health outcomes. For example, those with higher levels of purposeful engagement were more likely to engage in preventive health behaviors, such as cholesterol tests and cancer screenings (Kim, Strecher, & Ryff, 2014); have lower healthcare utilization and expenditures (Musich, Wang, Kraemer, Hawkins, & Wicker, 2018); and they also show better objective functional capacities (i.e., grip strength, walking speed; Kim, Kawachi, Chen, & Kubzansky, 2017).

Further evidence supports eudaimonic well-being as a protective influence on health changes associated with aging. Friedman and Ryff (2012) showed that purpose in life and positive relations with others buffered against adverse physiological consequences of later life comorbidity (multiple chronic conditions). A related study found that among older women who reported higher levels of eudaimonic well-being (all dimensions except autonomy), lower levels of disrupted sleep (a common problem of aging) were evident (Phelan, Love, Ryff, Brown, & Heidrich, 2010).

Morbidity Outcomes. Numerous studies have linked diagnosed disease or disability statuses to eudaimonic well-being, with particular attention paid to purpose in life. In the Rush Memory and Aging Project, higher purpose in life at baseline was associated with reduced incidence of Alzheimer's disease and mild cognitive impairment 7 years later (Boyle, Buchman, & Bennett, 2010) as well as lower odds of subsequent hospitalization for ambulatory care-sensitive conditions (e.g., asthma, diabetes, hypertension; Wilson et al., 2018). In the HRS, high purpose in life was linked with reduced risk of stroke (Kim, Sun, Park, & Peterson, 2013) and myocardial infarction among those with coronary heart disease (Kim, Sun, Park, Kubzansky, & Peterson, 2013). Though studies adjust for multiple covariates, disentangling the direction of effects between well-being and disease status is challenging, especially in cross-sectional research. Indicators of poor health or the presence of disease have also been associated with compromises in eudaimonic well-being (Andrew, Fisk, & Rockwood, 2012; Costanzo, Ryff, & Singer, 2009; Guidi, Rafanelli, Roncuzzi, Sirri, & Fava, 2013; Kashubeck-West & Meyer, 2008; Pusswald et al., 2012; Schleicher et al., 2005). As such, longitudinal research is needed to test possible bidirectional relationships and also model mediating pathways.

Mortality Outcomes. Two longitudinal community samples of older adults without dementia (Rush Memory and Aging Project, Minority Aging Research Study) showed that high purpose in life predicted reduced rates of mortality over 7 years (Boyle, Barnes, Buchman, & Bennett, 2009). Findings from MIDUS (Hill & Turiano, 2014) replicated and extended these prior findings by showing greater survival 14 years later among those with higher purpose in life at baseline after adjusting for numerous covariates. This work underscored that longevity benefits were not conditional on respondents' age but applied across the adult years. A meta-analysis of 10 prospective studies involving more than 136,000 participants reported significant associations between purpose in life and reduced all-cause mortality and reduced cardiovascular events (R. Cohen, Bavishi, & Rozanski, 2016). The protective effects remained significant in adjusted models. These results are notable given that older adults are at heightened risk of losing their sense of purpose in life. Studies pursuing associations between eudaimonic well-being and biology offer insights into mechanisms that may underlie these protective effects on morbidity and mortality.

Biological Health. Initial studies examined whether eudaimonic well-being predicted reduced biological risk factors in small community samples. Those with higher well-being (particularly for personal growth, positive relations with others, and purpose in life) had better neuroendocrine regulation, better inflammatory profiles, lower cardiovascular risk factors, and better sleep profiles (Friedman et al., 2005; Hayney et al., 2003; Lindfors & Lundberg, 2002; Ryff et al., 2006; Ryff, Singer, and Love, 2004; Singer, Friedman, Seeman, Fava, & Ryff, 2005). Over the past two decades, biological assessments have been added to several national surveys that also included measures of well-being. In these studies, purpose in life has been associated with better glycemic regulation (lower HbA1c) (Boylan, Tsenkova, Miyamoto, & Ryff, 2017; Hafez et al., 2018) and lower allostatic load, a composite of biomarkers representing multisystem biological dysregulation (Zilioli, Slatcher, Ong, & Gruenewald, 2015), while personal growth was associated with lower risk of metabolic syndrome (Boylan & Ryff, 2015). Cross-time profiles of well-being were also associated with lipid profiles such that those with persistently high environmental mastery and self-acceptance had higher HDL cholesterol and lower triglycerides as compared to individuals with persistently low well-being (Radler, Rigotti, & Ryff, 2017). Not all studies have found significant associations between eudaimonic well-being and biological risk factors (see Feldman & Steptoe, 2003; Sloan et al., 2017).

Eudaimonic well-being may also moderate health effects patterned by socioeconomic disadvantage. Multiple studies have shown evidence of mitigating between SES and health, including self-rated health (Ryff et al., 2015), chronic conditions (O'Brien, 2012), inflammatory markers (Elliot & Chapman, 2016; Morozink, Friedman, Coe, & Ryff, 2010), diurnal cortisol (Zilioli, Imami, & Slatcher, 2015), HbA1c (Tsenkova, Love, Singer, & Ryff, 2007), and cardiovascular recovery following an acute stressor (Boylan, Jennings, & Matthews, 2016). The general pattern is that lower SES is more weakly associated with poor health outcomes for those with high eudaimonic well-being. Instead, lower SES individuals with high well-being show health outcomes that are more comparable to their higher SES counterparts, suggesting that well-being may counteract some risks attendant to socioeconomic disadvantage. Given that developing and maintaining high hedonic and eudaimonic well-being may be less common or more difficult in lower SES contexts, it is important to interrogate within-group variability to understand the multitude of ways in which lower SES individuals with high well-being come to exhibit better physical health.

In summary, linkages between eudaimonic well-being and health are extensive. Epidemiological studies document the protective influence of well-being (especially purpose in life) on disease outcomes as well as length of life, while other studies show that those diagnosed with disease or disability often have compromised well-being. Numerous studies show that higher well-being predicts better biological regulation measured in terms of stress hormones, inflammatory markers, and cardiovascular risk factors, although more longitudinal research is needed. Importantly, hedonic and eudaimonic well-being are rarely examined in the same study.

Studies Incorporating Both Eudaimonic and Hedonic Well-Being

Incorporating measures of both hedonic and eudaimonic well-being in the same statistical models is necessary to compare relative effect sizes and determine independence of effects as they relate to health. Despite evidence of psychometric independence between eudaimonic and hedonic well-being assessments, it is unknown whether such distinctiveness translates at the level of the brain, peripheral biology, or morbidity and mortality outcomes.

Overall, the studies that have investigated both types of well-being generally show that relationships between well-being dimensions and health are independent and relatively equivalent in effect size. That is, when measures of well-being are included as covariates, the association between the focal well-being dimension and health is not attenuated (Friedman & Ryff, 2012; Morozink et al., 2010; Steptoe et al., 2012; Tsenkova et al., 2007). Two studies using MIDUS data have demonstrated that, relative to eudaimonic well-being, hedonic well-being dimensions more strongly predict insomnia (Hamilton et al., 2007) and metabolic syndrome (Boylan & Ryff, 2015) when measures are included in the same models. However, cross-sectional findings from the Gallup World Poll suggest that eudaimonic well-being, assessed with an ad hoc seven-item measure of positive psychosocial experiences, is a stronger predictor of subjective health than is hedonic well-being, measured with two items reflecting enjoyment and the frequency of smiling and laughing (Joshani & Jovanović, 2018). Additional evidence from studies of gene expression (i.e., modifications to genes that change the likelihood that a gene is transcribed) support the distinction between hedonic and eudaimonic well-being, both assessed with high-quality measures. Specifically, eudaimonic well-being predicted down-regulation of the conserved transcriptional response to adversity (CTRA; Cole, 2013), marked by higher expression of pro-inflammatory genes and lower expression of antibody synthesis genes across multiple studies (Cole et al., 2015; Fredrickson et al., 2013, 2015). Furthermore, eudaimonic well-being interventions have likewise shown down-regulation of pro-inflammatory genes and up-regulation of antibody synthesis genes (Nelson-Coffey, Fritz, Lyubomirsky, & Cole, 2017; Seeman, Merkin, Goldwater, & Cole, 2019). Hedonic well-being was associated with up-regulation of the CTRA, marked by pro-inflammatory genes and down-regulation of antibody synthesis genes in one study (Fredrickson et al., 2013) and uncorrelated with the CTRA in another (Fredrickson et al., 2015).

More research that integrates hedonic and eudaimonic well-being with assessments of health is needed. Whether life contentment or life engagement (or both) are health-protective may ultimately depend on the health outcome of interest and possible subgroups defined by age, gender, race, and/or SES. The overall conclusion from this section is that both hedonic and eudaimonic well-being are associated with better health profiles across many health domains, including self-reported outcomes, incidence, disease incidence and severity, mortality, and biological risk factors. Tracking these

associations longitudinally to determine which varieties of well-being are most consequential for physical health, as well as the pathways underlying such salubrious relationships, is key for future work. How relationships between varieties of well-being and health are situated in broader social, cultural, and historical contexts is covered in the final section below.

Historical Change, Well-Being, and Health: An Integrative Approach

The previous sections highlighted sociodemographic factors and well-being along with studies of well-being and diverse health outcomes. The relationships among sociodemographic factors, well-being and health may vary over time and thus requires an integration with other fields as well. Cultural, social, economic, and political trends (i.e., historical change) can alter personal life circumstances and influence well-being (see Diener et al., 2018, for review). This section highlights key historical changes that have occurred in the past few decades and discusses their implications for linkages of well-being with health.

In the United States, positive social changes beginning in the 1960s, including greater gender equality, improvements in the social welfare system, and the civil rights movement, were thought to improve the well-being of historically marginalized sociodemographic groups, including women, lower SES populations, and minorities (Yang, 2008). There is evidence, however, that ratings of life satisfaction and happiness among marginalized groups have not significantly improved nor converged with the advantaged (Hughes & Thomas, 1998; Iceland & Ludwig-Dehm, 2019; Yang, 2008). Other historical changes in the United States may undermine the well-being and health of the disadvantaged relative to the advantaged. There has been a dramatic increase in income and wealth inequality over the past few decades (Piketty & Saez, 2014). The American dream, defined by continued improvement of the younger generation's standard of living relative to their parents' generation, has diminished. Only 50% of children born in the 1980s achieved a higher income than their parents, compared to 90% for children born in the 1940s (Chetty et al., 2017).

The Great Recession of 2007–2009 was also a formative historical event that resulted in a period of extreme socioeconomic adversities (e.g., job loss, financial loss, housing loss). Furthermore, people exposed to greater job,

financial, and housing hardship during the Great Recession were at increased risk for symptoms of depression, generalized anxiety, panic attacks, or problems associated with substance use (Forbes & Krueger, 2019) and had higher allostatic load (Patel, 2019). Less advantaged groups (low SES and minorities) experienced more adversities and had more difficulty recovering from the Great Recession than their more advantaged counterparts (Carnevale, Jayasundera, & Gulish, 2016; Hoynes, Miller, & Schaller, 2012). Historical trends in socioeconomic inequality may therefore have downstream influences on well-being and health.

The growing socioeconomic divide, exacerbated by the Great Recession, could lead to declines in well-being, particularly among marginalized groups. Cross-time and longitudinal surveys of MIDUS participants from 1990s to early 2010s documented increasing economic distress for those at the bottom of the SES hierarchy compared to those at the top (Glei, Goldman, & Weinstein, 2018, 2019). Over the same period, average levels of hedonic and eudaimonic well-being declined (Kirsch, Love, Radler, & Ryff, 2019). Furthermore, declines in well-being were more pronounced for the SES disadvantaged relative to the advantaged (Goldman, Glei, & Weinstein, 2018). However, some aspects of eudaimonic well-being, such as purpose in life, did not change, suggesting that certain indicators of well-being may be more sensitive to economic shocks than others. Additional research needs to attend to historical changes in well-being, possibly intersecting with social identities defined by race, age, and gender.

Historical changes in well-being could be implicated in historical trends in health and health disparities. From 2001 to 2014, the life expectancy gap between the richest 1% and poorest 1% has widened (Chetty et al., 2016). Mortality rates for educationally disadvantaged, middle-aged Whites have increased over the past three decades. Increases in mortality were primarily driven by “deaths of despair,” that is, deaths caused by suicide, drug overdose, and alcohol poisoning (Case & Deaton, 2015, 2017) and by cardiovascular disease mortality (Case & Deaton, 2017). A separate literature has shown that times with greater socioeconomic inequality correspond to less happiness, particularly among individuals with lower income (Oishi, Kesebir, & Diener, 2011) and those facing financial scarcity (Sommet, Morselli, & Spini, 2018). Such widening disparities in well-being could contribute to widening disparities in physical health. Alternatively, historical trends in well-being and health could be a symptom of other social changes, such as declines in the social safety net, and may not be causally related. Furthermore, many

studies on historical changes in socioeconomic inequality and well-being are limited to single-item indicators of happiness, anxiety, or social trust (i.e., Buttrick & Oishi, 2017). More time-series and longitudinal studies of theory-driven, multi-item indicators of hedonic and eudaimonic well-being are thus necessary to test historical changes in the associations between well-being and physical health.

Conclusion and Future Directions

The goal of this chapter is to build a cumulative science of well-being that attends to the past as it examines the present and anticipates the future. In the first section, we examined the conceptual and philosophical histories of hedonic and eudaimonic well-being, the two most prominent approaches in extant science. We showed that both perspectives are traceable to the ancient Greeks, although their presence in current empirical work shows notable differences between them. Hedonic indicators first entered population-based assessments in the 1960s and were largely without theoretical foundations. The focus rather was on relatively straightforward questions about life satisfaction, happiness, and positive affect. Eudaimonia, in contrast, drew extensively on formulations in clinical, developmental, existential, and humanistic psychology, along with Aristotle's distant writings, to identify multiple dimensions of what it means to be well (autonomy, environmental mastery, personal growth, positive relationships with others, purpose in life, self-acceptance). Detailed definitions of these components of hedonic and eudaimonic well-being were provided; they constitute the foundation from which empirical assessments tools were generated, which lead to decades of scientific research.

The second section provided a descriptive look at how the two broad types of well-being are distributed in the general population, focusing on age, SES, gender, and race/ethnicity. These sociodemographic factors situate human lives within broader social structural contexts and thereby afford valuable windows by which to understand variation in reported levels of well-being. Drawing on both cross-sectional and longitudinal evidence, hedonic and eudaimonic well-being were found to vary in their associations with sociodemographic factors. Regarding age, hedonic well-being was shown in some studies to increase with age, although eudaimonic well-being, especially purpose in life and personal growth, was shown to decline.

Both types of well-being were positively linked with higher SES, although stronger patterns were evident for some dimensions (e.g., purpose in life, personal growth) than others. Gender differences in hedonic well-being show varied patterns that likely intersect with other social factors. Some investigations showed women to have higher profiles than men on two aspects of eudaimonia: positive relations with others and personal growth. Racial disparities in hedonic well-being have shown lower reports of life satisfaction and happiness among Blacks compared to Whites, but such patterns were reversed after adjusting for perceived discrimination. Black adults have also reported higher levels of eudaimonic well-being (all dimensions) compared to Whites. Of increasing interest is the intersectionality among these sociodemographic factors. Examples of the combined effects of age, race, gender, and SES in shaping well-being outcomes were noted. Some draw attention to changes in gender differences that may unfold with age as well as to the cumulative impact with age of inequalities tied to gender, race, and SES status.

Our third section examined links between hedonic and eudaimonic well-being with self-rated health, morbidity, mortality, and biological health outcomes. Reciprocal relationships between well-being and subjective health were evident for both hedonic and eudaimonic well-being. Longitudinal evidence supports protective effects of higher life satisfaction as well as purpose in life and positive relations with others on multiple health outcomes (doctor visits, chronic conditions). Multiple prospective studies show that hedonic and eudaimonic well-being, specifically positive affect, life satisfaction, and purpose in life, reduce risk for all-cause and cardiovascular-specific mortality, independent of confounding factors. Multiple prospective studies have also shown that higher purpose in life reduces risk of cognitive impairment, Alzheimer's disease, stroke, and myocardial infarction, net of confounds. Considerable research has linked both hedonic and eudaimonic well-being to better physiological functioning across cardiovascular, neuroendocrine, immune, and metabolic systems. Similarly, evidence shows that eudaimonic well-being buffers against the adverse effects of low SES status on inflammatory markers and diurnal cortisol.

Going forward, there is a clear need for studies that incorporate both hedonic and eudaimonic measures so that their independent and relative effect sizes can be examined. The little work that has been done underscores effects that are, in fact, independent and relatively equivalent in effect size, a pattern that also pertains to growing research linking well-being to

brain-based measures and gene expression involved in inflammatory and antibody processes. Bridging our first two sections, future work, especially longitudinal designs, is needed to illuminate how health and well-being linkages may vary depending on sociodemographic factors (age, gender, SES, race/ethnicity).

Our fourth section underscored that the literature on well-being and health has unfolded on a changing historical stage influenced by cultural, social, economic, and political trends. Here we gave attention to dramatic increases in income and wealth inequality over recent decades. How hardships of the Great Recession, which continue to linger for some, are linked with reports of well-being as well depression and anxiety was noted. Of concern is what these macro-level economic changes will mean for the well-being of future cohorts of adults, particularly those in disadvantaged segments of society. These are important questions going forward.

In conclusion, growing interest in human well-being, political and scientific, calls for a deeper understanding of how sociodemographic and contextual factors influence people's inner sense of how their lives are going and the associated health implications. Future research requires theoretically informed studies that draw on the corpus of scientific evidence described herein to explicate hypothesized antecedents and consequents as well as mediating and moderating influences. Such comprehensive science on what it means to be well, for whom opportunities of wellness are available, and what health consequences well-being may have is critical to inform public policy as well as guide future research. We emphasize that unique contexts, such as widening social inequalities, racial disparities in health, and different sociocultural contexts, may uniquely affect distinct dimensions of hedonic and eudaimonic well-being. The literature reviewed in this chapter thus provides a foundation on which next generations of research can build.

About the Authors

Carol D. Ryff is Director of the Institute on Aging and Hilldale Professor of Psychology at the University of Wisconsin-Madison. She studies psychological well-being—how it varies by sociodemographic factors and how it matters for health, including diverse disease outcomes, length of life, physiological regulation, and neural circuitry. She is Principal Investigator of the Midlife in the United States (MIDUS) longitudinal study and its sister study in Japan, Midlife in Japan (MIDJA). An integrative theme across these

studies is resilience—the capacity to maintain or regain well-being and health in the face of adversity.

Jennifer Morozink Boylan is Assistant Professor of Health and Behavioral Sciences at the University of Colorado Denver. She received her PhD in biological psychology from the University of Wisconsin-Madison and completed postdoctoral fellowships in the Health Disparities Research Scholars Program at the University of Wisconsin-Madison School of Medicine and Public Health and in the Cardiovascular Behavioral Medicine Program at the University of Pittsburgh. Her program of research centers on conceptualizing positive psychological characteristics and their potential influence on physical health, situating psychological risk and protective factors within broader social contexts (e.g., SES, race, and culture), and examining biological mechanisms underlying how the social environment affects disease pathophysiology.

Julie A. Kirsch is a postdoctoral fellow at the University of Wisconsin-Madison Center for Tobacco Research and Intervention. She studies the intersections among inequality, health, and well-being and psychosocial pathways to mitigating the consequences of socio-economic adversity. Her research reflects integrative work that spans psychological and health sciences.

Author Note

This work was supported by the John D. and Catherine T. MacArthur Foundation Research Network and National Institute on Aging (P01-AG020166, U19-AG051426), with additional support provided by the John Templeton Foundation and the Lee Kum Sheung Center for Health and Happiness. The views expressed in this chapter represent the perspectives of the authors and do not reflect the opinions or endorsement of any organization. We have no known conflict of interest to disclose. Correspondence concerning this chapter should be directed to Carol D. Ryff, Institute on Aging, 2245 Medical Science Center, University of Madison, WI 53706 (cryff@wisc.edu).

References

- Aldwin, C. M., & Levenson, M. R. (2001). Stress, coping, and health at mid-life: A developmental perspective. In M. E. Lachman (Ed.), *The handbook of midlife development* (pp. 188–214). New York: John Wiley & Sons.
- Allport, G. W. (1961). *Pattern and growth in personality*. New York: Holt, Rinehart, & Winston.
- Almeida, D. M., & Horn, M. C. (2004). Is daily life more stressful during middle adulthood? In O. G. Brim, C. R., Ryff & R. C. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife* (pp. 425–451). Chicago, IL: University of Chicago Press.

- Andrew, M. K., Fisk, J. D., & Rockwood, K. (2012). Psychological well-being in relation to frailty: A frailty identity crisis? *International Psychogeriatrics*, 24(8), 1347–1353.
- Andrews, F. M., & Withey, S. B. (1976). *Social indicators of well-being: America's perception of life quality*. New York: Plenum Press.
- Aristotle. (1925). *The Nicomachean ethics* (D. Ross, Trans.). New York: Oxford University Press.
- Bacon, S. L., Watkins, L. L., Babyak, M., Sherwood, A., Hayano, J., Hinderliter, A. L., . . . Blumenthal, J. A. (2004). Effects of daily stress on autonomic cardiac control in patients with coronary artery disease. *American Journal of Cardiology*, 93(10), 1292–1294.
- Barger, S. D., Donoho, C. J., & Wayment, H. A. (2009). The relative contributions of race/ethnicity, socioeconomic status, health, and social relationships to life satisfaction in the United States. *Quality of Life Research*, 18(2), 179–189.
- Barnes, J. (1986). Hellenistic philosophy and science. In J. Boardman, J. Griffin, & O. Oswyn (Eds.), *The Oxford history of the classical world* (pp. 365–385). Oxford: Oxford University Press.
- Bastarache, E. D., Graham, E. K., Estabrook, R., Ong, A., Piccinin, A., Hofer, S., Spiro, A. III., & Mroczek, D. K. (2019). Trajectories of positive and negative affect: A coordinated analysis of 11 longitudinal samples. *Innovation in Aging*, 3, S696–S696.
- Batz, C., & Tay, L. (2018). Gender differences in subjective well-being. *Handbook of Well-Being*, 1–15. <https://www.nobascholar.com/chapters/30/download.pdf>
- Batz-Barbarich, C., Tay, L., Kuykendall, L., & Cheung, H. K. (2018). A meta-analysis of gender differences in subjective well-being: Estimating effect sizes and associations with gender inequality. *Psychological Science*, 29(9), 1491–1503.
- Beatty, P., & Tuch, S. A. (1997). Race and life satisfaction in the middle class. *Sociological Spectrum*, 17(1), 71–90.
- Benyamini, Y., Idler, E. L., Leventhal, H., & Leventhal, E. A. (2000). Positive affect and function as influences on self-assessments of health: Expanding our view beyond illness and disability. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 55(2), P107–16.
- Bhattacharyya, M. R., Whitehead, D. L., Rakhit, R., & Steptoe, A. (2008). Depressed mood, positive affect, and heart rate variability in patients with suspected coronary artery disease. *Psychosomatic Medicine*, 70(9), 1020–1027.
- Biswas-Diener, R., & Diener, E. (2001). Making the best of a bad situation: Satisfaction in the slums of Calcutta. *Social Indicators Research*, 55, 329–352.
- Blanchflower, D. G., & Oswald, A. J. (2004). Well-being over time in Britain and the USA. *Journal of Public Economics*, 88(7–8), 1359–1386.
- Blanchflower, D. G., & Oswald, A. J. (2008). Is well-being U-shaped over the life cycle? *Social Science and Medicine*, 66(8), 1733–1749.
- Blevins, C. L., Sagui, S. J., & Bennett, J. M. (2017). Inflammation and positive affect: Examining the stress-buffering hypothesis with data from the National Longitudinal Study of Adolescent to Adult Health. *Brain, Behavior, and Immunity*, 61, 21–26.
- Boehm, J. K., Chen, Y., Williams, D. R., Ryff, C., & Kubzansky, L. D. (2015). Unequally distributed psychological assets: Are there social disparities in optimism, life satisfaction, and positive affect? *PLoS ONE*, 10(2), 1–17.

- Boehm, J. K., Chen, Y., Williams, D. R., Ryff, C. D., & Kubzansky, L. D. (2016). Subjective well-being and cardiometabolic health: An 8–11 year study of midlife adults. *Journal of Psychosomatic Research, 85*, 1–8.
- Boehm, J. K., & Kubzansky, L. D. (2012). The heart's content: The association between positive psychological well-being and cardiovascular health. *Psychological Bulletin, 138*(4), 655–691.
- Boehm, J. K., Peterson, C., Kivimaki, M., & Kubzansky, L. (2011). A prospective study of positive psychological well-being and coronary heart disease. *Health Psychology, 30*(3), 259–267.
- Bookwala, J., & Boyar, J. (2008). Gender, excessive body weight, and psychological well-being in adulthood. *Psychology of Women Quarterly, 32*(2), 188–195.
- Boylan, J. M., Jennings, J. R., & Matthews, K. A. (2016). Childhood socioeconomic status and cardiovascular reactivity and recovery among black and white men: Mitigating effects of psychological resources. *Health Psychology, 35*(9), 957–966.
- Boylan, J. M., & Ryff, C. D. (2015). Psychological well-being and metabolic syndrome: Findings from the Midlife in the United States national sample. *Psychosomatic Medicine, 77*(5), 548–558.
- Boylan, J. M., Tsenkova, V. K., Miyamoto, Y., & Ryff, C. D. (2017). Psychological resources and glucoregulation in Japanese adults: Findings from MIDJA. *Health Psychology, 36*(5), 449–457.
- Boyle, P. A., Barnes, L. L., Buchman, A. S., & Bennett, D. A. (2009). Purpose in life is associated with mortality among community-dwelling older persons. *Psychosomatic Medicine, 71*(5), 574–579.
- Boyle, P. A., Buchman, A. S., & Bennett, D. A. (2010). Purpose in life is associated with a reduced risk of incident disability among community-dwelling older persons. *The American Journal of Geriatric Psychiatry, 18*(12), 1093–1102.
- Bradburn, N. M. (1969). *The structure of psychological well-being*. Chicago: Aldine.
- Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African-Americans: Implications for group identification and well being. *Journal of Personality and Social Psychology, 77*(1), 135–149.
- Buttrick, N. R., & Oishi, S. (2017). The psychological consequences of income inequality. *Social and Personality Psychology Compass, 11*(3), 1–12.
- Campbell, A., Converse, P. E., & Rodgers, W. L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions*. New York: Russell Sage Foundation.
- Cantril, H. (1965). *The pattern of human concerns*. New Brunswick, NJ: Rutgers University Press.
- Carnevale, A. P., Jayasundera, T., & Gulish, A. (2016). America's divided recovery: College haves and have-nots. cew.georgetown.edu/dividedrecovery
- Carstensen, L. L., & Mikels, J. A. (2005). At the intersection of emotion and cognition. *Current Directions in Psychological Science, 14*(3), 117–121.
- Case, A., & Deaton, A. (2015). Rising morbidity and mortality in midlife among white non-Hispanic Americans in the 21st century. *Proceedings of the National Academy of Sciences, 112*(49), 15078–15083.
- Case, A., & Deaton, A. (2017). Mortality and morbidity in the 21st century HHS Public Access. *Brookings Papers on Economic Activity, Spring 201*, 397–476.

- Çeliker, R., & Borman, P. (2001). Fibromyalgia versus rheumatoid arthritis: A comparison of psychological disturbance and life satisfaction. *Journal of Musculoskeletal Pain*, 9(1), 35–45.
- Chang, S., Hong, J., & Charles, S. (2018). Purpose in life and self-rated health across adulthood: The importance of the bidirectional relationship. *Innovation in Aging*, 2, 309.
- Charles, S. T., Reynolds, C., & Gatz, M. (2001). Age-related differences and changes in positive and negative affect over 23 years. *Journal of Personality and Social Psychology*, 80, 136–151.
- Chetty, R., Grusky, D., Hell, M., Hendren, N., Manduca, R., & Narang, J. (2017). The fading American dream: Trends in absolute income mobility since 1940. *Science*, 356(April), 398–406.
- Chetty, R., Stepner, M., Abraham, S., Lin, S., Scuderi, B., Turner, N., . . . Cutler, D. (2016). The association between income and life expectancy in the United States, 2001–2014. *Journal of the American Medical Association*, 315(16), 1750–1766.
- Chida, Y., & Steptoe, A. (2008). Positive psychological well-being and mortality: A quantitative review of prospective observational studies. *Psychosomatic Medicine*, 70(7), 741–756.
- Cohen, R., Bavishi, C., & Rozanski, A. (2016). Purpose in life and its relationship to all-cause mortality and cardiovascular events: A meta-analysis. *Psychosomatic Medicine*, 78, 122.
- Cohen, S., Doyle, W. J., Turner, R. B., Alper, C. M., & Skoner, D. P. (2003). Emotional style and susceptibility to the common cold. *Psychosomatic Medicine*, 65(4), 652–657.
- Cohen, S., & Pressman, S. D. (2006). Positive affect and health. *Current Directions in Psychological Science*, 15(3), 122.
- Cole, E. R. (2009). Intersectionality and research in psychology. *American Psychologist*, 64(3), 170–180.
- Cole, S. W. (2013). Social regulation of human gene expression: Mechanisms and implications for public health. *American Journal of Public Health*, 103. Suppl 1:S84–S92.
- Cole, S. W., Levine, M. E., Arevalo, J. M. G., Ma, J., Weir, D. R., & Crimmins, E. M. (2015). Loneliness, eudaimonia, and the human conserved transcriptional response to adversity. *Psychoneuroendocrinology*, 62, 11–17.
- Costanzo, E. S., Ryff, C. D., & Singer, B. H. (2009). Psychosocial adjustment among cancer survivors: Findings from a national survey of health and well-being. *Health Psychology*, 28(2), 147–156.
- Coverdill, J. E., Lopez, C. A., & Petrie, M. A. (2011). Race, ethnicity and the quality of life in America, 1972–2008. *Social Forces*, 89(3), 783–805.
- Crenshaw, K. (1991). Mapping the margins: Intersectionality, identity politics, and violence against women of color. *Stanford Law Review*, 43(6), 1241.
- Curhan, K. B., Levine, C. S., Markus, H. R., Kitayama, S., Park, J., Karasawa, M., . . . Ryff, C. D. (2014). Subjective and objective hierarchies and their relations to psychological well-being: A US/Japan comparison. *Social Psychological and Personality Science*, 5(8), 855–864.
- Davidson, K. W., Mostofsky, E., & Whang, W. (2010). Don't worry, be happy: Positive affect and reduced 10-year incident coronary heart disease: The Canadian Nova Scotia Health Survey. *European Heart Journal*, 31(9), 1065–1070.

- Diener, E., & Chan, M. Y. (2011). Happy people live longer: Subjective well-being contributes to health and longevity. *Applied Psychology: Health and Well-Being*, 3(1), 1–43.
- Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, 2(4), 253–260.
- Diener, E., Smith, E., & Fujita, F. (1995). The personality structure of affect. *Journal of Personality and Social Psychology*, 69, 130–141.
- Diener, E., & Suh, E. (1997). Measuring quality of life: Economic, social, and subjective indicators. *Social Indicators Research*, 40, 189–216.
- Dupre, M. E. (2007). Educational differences in age-related patterns of disease: Reconsidering the cumulative disadvantage and age-as-leveler hypotheses. *Journal of Health and Social Behavior*, 48, 1–15.
- Easterlin, R. A. (2003). Explaining happiness. *Proceedings of the National Academy of Sciences*, 100(19), 11176–11183.
- Elkins, L. E., Pollina, D. A., Scheffer, S. R., & Krupp, L. B. (1999). Psychological states and neuropsychological performances in chronic Lyme disease. *Applied Neuropsychology*, 6(1), 19–26.
- Elliot, A. J., & Chapman, B. P. (2016). Socioeconomic status, psychological resources, and inflammatory markers: Results from the MIDUS study. *Health Psychology*, 35(11), 1205–1213.
- Ellison, C. G. (1995). Race, religious involvement and depressive symptomatology in a southeastern US Community. *Social Science and Medicine*, 40(11), 1561–1572.
- Erikson, E. (1959). Identity and the life cycle. *Psychological Issues*, 1, 1–171.
- Feldman, P. J., & Steptoe, A. (2003). Psychosocial and socioeconomic factors associated with glycated hemoglobin in nondiabetic middle-aged men and women. *Health Psychology*, 22(4), 398–405.
- Fernández-Ballesteros, R., Zamarrón, M. D., & Ruíz, M. A. (2001). The contribution of socio-demographic and psychosocial factors to life satisfaction. *Ageing and Society*, 21(1), 25–43.
- Ferraro, K. F., & Shippee, T. P. (2009). Aging and cumulative inequality: How does inequality get under the skin? *Gerontologist*, 49(3), 333–343.
- Forbes, M. K., & Krueger, R. F. (2019). The great recession and mental health in the United States. *Clinical Psychological Science*, 7(5), 900–913.
- Frankl, V. (1959). *Man's search for meaning*. Boston, MA: Beacon Press.
- Fredrickson, B. L., Grewen, K. M., Algae, S. B., Firestine, A. M., Arevalo, J. M. G., Ma, J., & Cole, S. W. (2015). *Psychological well-being and the human conserved transcriptional response to adversity*. *PLoS ONE*, 10(3), e0121839.
- Fredrickson, B. L., Grewen, K. M., Coffey, K. A., Algae, S. B., Firestine, A. M., Arevalo, J. M. G., . . . Cole, S. W. (2013). A functional genomic perspective on human well-being. *Proceedings of the National Academy of Sciences of the United States of America*, 110(33), 13684–13689.
- Friedman, E. M., Hayney, M., Love, G. D., Singer, B. H., & Ryff, C. D. (2007). Plasma interleukin-6 and soluble IL-6 receptors are associated with psychological well-being in aging women. *Health Psychology*, 26(3), 305–313.
- Friedman, E. M., Hayney, M. S., Love, G. D., Urry, H. L., Rosenkranz, M. A., Davidson, R. J., . . . Ryff, C. D. (2005). Social relationships, sleep quality, and interleukin-6 in aging women. *Proceedings of the National Academy of Sciences*, 102(51), 18757–18762.

- Friedman, E. M., & Ryff, C. D. (2012). Living well with medical comorbidities: A biopsychosocial perspective. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 1–10.
- Gana, K., Saada, Y., Broc, G., Quintard, B., Amieva, H., & Dartigues, J.-F. (2016). As long as you've got your health: Longitudinal relationships between positive affect and functional health in old age. *Social Science & Medicine*, 150, 231–238.
- Glei, D. A., Goldman, N., & Weinstein, M. (2018). Perception has its own reality: Subjective versus objective measures of economic distress. *Population and Development Review*, 44(4), 695–722.
- Glei, D. A., Goldman, N., & Weinstein, M. (2019). A growing socioeconomic divide: Effects of the Great Recession on perceived economic distress in the United States. *PLoS ONE*, 14(4), 1–25.
- Goldman, N., Glei, D. A., & Weinstein, M. (2018). Declining mental health among disadvantaged Americans. *Proceedings of the National Academy of Sciences*, 115(28), 7290–7295.
- Goodman, F., Disabato, D., Kashdan, T., & Kauffman, S. (2017). Measuring well-being: A comparison of subjective well-being and PERMA. *Journal of Positive Psychology*, 13, 321–332.
- Graham, C. (2017). *Happiness for all? Unequal lives and hopes in pursuit of the American Dream*. Princeton, NJ: Princeton University Press.
- Greenfield, E. A., Vaillant, G. E., & Marks, N. F. (2009). Do formal religious participation and spiritual perceptions have independent linkages with diverse dimensions of psychological well-being? *Journal of Health and Social Behavior*, 50, 196–212.
- Gurin, G., Veroff, J., & Feld, S. (1960). *Americans view their mental health*. New York: Basic Books.
- Guidi, J., Rafanelli, C., Roncuzzi, R., Sirri, L., & Fava, G. A. (2013). Assessing psychological factors affecting medical conditions: Comparison between different proposals. *General Hospital Psychiatry*, 35(2), 141–146.
- Hafez, D., Heisler, M., Choi, H., Ankuda, C. K., Winkelman, T., & Kullgren, J. T. (2018). Association between purpose in life and glucose control among older adults. *Annals of Behavioral Medicine*, 52(4), 309–318.
- Hamilton, N. A., Gallagher, M. W., Preacher, K. J., Stevens, N., Nelson, C. A., Karlson, C., & McCurdy, D. (2007). Insomnia and well-being. *Journal of Consulting and Clinical Psychology*, 75(6), 939–946.
- Hayney, M. S., Love, G. D., Buck, J. M., Ryff, C. D., Singer, B., & Muller, D. (2003). The association between psychosocial factors and vaccine-induced cytokine production. *Vaccine*, 21(19–20), 2428–2432.
- Heidrich, S. M., & Ryff, C. D. (1993a). Physical and mental health in later life: The self-system as mediator. *Psychology and Aging*, 8, 327–338.
- Heidrich, S. M., & Ryff, C. D. (1993b). The role of social comparisons processes in the psychological adaptation of elderly adults. *Journal of Gerontology*, 48(3), P127–P136.
- Hill, P. L., & Turiano, N. A. (2014). Purpose in life as a predictor of mortality across adulthood. *Psychological Science*, 25, 1482–1486.
- Hoogwegt, M. T., Versteeg, H., Hansen, T. B., Thygesen, L. C., Pedersen, S. S., & Zwisler, A.-D. (2013). Exercise mediates the association between positive affect and 5-year mortality in patients with ischemic heart disease. *Circulation. Cardiovascular Quality and Outcomes*, 6(5), 559–566.

- Hoynes, H., Miller, D. L., & Schaller, J. (2012). Who suffers during recessions? *Journal of Economic Perspectives*, 26(3), 27–48.
- Hughes, M., & Thomas, M. S. (1998). The continuing significance of race revisited: A study of race, class, and quality of life in America, 1972 to 1996. *American Sociological Review*, 63(6), 785–795.
- Huta, V., & Waterman, A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, 15, 1425–1456.
- Iceland, J., & Ludwig-Dehm, S. (2019). Black-white differences in happiness, 1972–2014. *Social Science Research*, 77(October 2018), 16–29.
- Inglehart, R. (2002). Gender, aging, and subjective well-being. *International Journal of Comparative Sociology*, 43(3–5), 391–408.
- Jahoda, M. (1958). *Current concepts of positive mental health*. New York: Basic Books.
- Jackson, P. B., & Williams, D. R. (2006). The Intersection of Race, Gender, and SES: Health Pradoxes. In A. J. Schulz & L. Mullings (Eds.), *Gender, race, class, & health: Intersectional approaches* (pp. 131–162). Jossey-Bass/Wiley.
- Joshanloo, M., & Jovanović, V. (2018). Subjective health in relation to hedonic and eudaimonic wellbeing: Evidence from the Gallup World Poll. *Journal of Health Psychology*, 135910531882010.
- Jung, C. G. (1933). *Modern man in search of a soul*. (W. S. Dell & C. F. Baynes, Trans.). New York: Harcourt, Brace, & World.
- Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being? The foundations of hedonic psychology*. New York: Russell Sage Foundation.
- Kashubeck-West, S., & Meyer, J. (2008). The well-being of women who are late deafened. *Journal of Counseling Psychology*, 55(4), 463–472.
- Keyes, C. L. M. (2005). Mental illness and/or mental health? Investigating axioms of the complete state model of health. *Journal of Consulting and Clinical Psychology*, 73(3), 539–548.
- Keyes, C. L. M. (2009). The black-white paradox in health: Flourishing in the face of social inequality and discrimination. *Journal of Personality*, 77(6), 1677–1706.
- Keyes, C. L. M., & Grzywacz, J. G. (2005). Health as a complete state: The added value in work performance and healthcare costs. *Journal of Occupational and Environmental Medicine*, 47(5), 523–532.
- Keyes, C. L. M., Shmotkin, D., & Ryff, C. D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology*, 81, 1007–1022.
- Kim, E. S., Kawachi, I., Chen, Y., & Kubzansky, L. D. (2017). Association between purpose in life and objective measures of physical function in older adults. *JAMA Psychiatry*, 74(10), 1039.
- Kim, E. S., Park, N., Sun, J. K., Smith, J., & Peterson, C. (2014). Life satisfaction and frequency of doctor visits. *Psychosomatic Medicine*, 76(1), 86–93.
- Kim, E. S., Strecher, V. J., & Ryff, C. D. (2014). Purpose in life and use of preventive health care services. *Proceedings of the National Academy of Sciences of the United States of America*, 111(46), 16331–16336.

- Kim, E. S., Sun, J. K., Park, N., Kubzansky, L. D., & Peterson, C. (2013). Purpose in life and reduced risk of myocardial infarction among older US adults with coronary heart disease: A two-year follow-up. *Journal of Behavioral Medicine, 36*(2), 124–133.
- Kim, E. S., Sun, J. K., Park, N., & Peterson, C. (2013). Purpose in life and reduced incidence of stroke in older adults: “The Health and Retirement Study.” *Journal of Psychosomatic Research, 74*(5), 427–432.
- Kirsch, J. A., Love, G. D., Radler, B. T., & Ryff, C. D. (2019). Scientific imperatives vis-à-vis growing inequality in America. *American Psychologist, 74*(7), 764.
- Knox, S., Svensson, J., Waller, D., & Theorell, T. (1988). Emotional coping and the psychophysiological substrates of elevated blood pressure. *Behavioral Medicine, 14*(2), 52–58.
- Koenig, H. G., King, D. E., & Carson, V. B. (2012). *Handbook of religion and health* (2nd ed.). Oxford: Oxford University Press.
- Korkeila, M., Kaprio, J., Rissanen, A., Koshenvuo, M., & Sörensen, T. I. (1998). Predictors of major weight gain in adult Finns: Stress, life satisfaction and personality traits. *International Journal of Obesity & Related Metabolic Disorders, 22*(10), 949–957.
- Lachman, M. E., Lewkowicz, C., Marcus, A., & Peng, Y. (1994). Images of midlife development among young, middle-aged, and older adults. *Journal of Adult Development, 1*(4), 201–211.
- Lachman, M. E., Teshale, S., & Agrigoroaei, S. (2015). Midlife as a pivotal period in the life course: Balancing growth and decline at the crossroads of youth and old age. *International Journal of Behavioral Development, 39*(1), 20–31.
- Laertius, D. (1925). Socrates, with predecessors and followers: Aristippus. In *Lives of the Eminent Philosophers* (Translated by R. D. Hicks). Cambridge, MA: Loeb Classical Library.
- Lamers, S. M. A., Bolier, L., Westerhof, G. J., Smit, F., & Bohlmeijer, E. T. (2012). The impact of emotional well-being on long-term recovery and survival in physical illness: A meta-analysis. *Journal of Behavioral Medicine, 35*(5), 538–547.
- Land, K. C. (1975). Social indicator models: An overview. In K. C. Land & S. Spilerman (Eds.), *Social indicator models* (pp. 5–35). New York: Russell Sage Foundation.
- Larson, R. (1978). Thirty years of research on subjective well-being of older Americans. *Journal of Gerontology, 33*, 109–125.
- Lindfors, P., & Lundberg, U. (2002). Is low cortisol release an indicator of positive health? *Stress and Health, 18*(4), 153–160.
- Link, B. G., & Phelan, J. C. (2002). McKeown and the idea that social conditions are fundamental causes of disease. *American Journal of Public Health, 92*(5), 730–732.
- Liu, B., Floud, S., Pirie, K., Green, J., Peto, R., Beral, V., & Million Women Study Collaborators. (2016). Does happiness itself directly affect mortality? The prospective UK Million Women Study. *Lancet, 387*(10021), 874–881.
- Lucas, R. E., Diener, E., & Suh, E. (1996). Discriminant validity of well-being measures. *Journal of Personality and Social Psychology, 71*, 616–628.
- Lykken, D., & Tellegen, A. (1996). Happiness is a stochastic phenomenon. *Psychological Science, 7*, 186–189.
- Marks, N. F. (1996). Flying solo at midlife: Gender, marital status, and psychological well-being. *Journal of Marriage and Family, 58*(4), 917–932.
- Marks, N. F., & Lambert, J. D. (1998). Marital status continuity and change among young and midlife adults. *Journal of Family Issues, 19*, 652–686.

- Markus, H. R., Ryff, C. D., Curhan, K. B., & Palmersheim, K. A. (2004). In their own words: Well-being a midlife among high school-educated and college-educated adults. In R. Brim, O. G. Ryff, & C. D. Kessler (Eds.), *How healthy are we? A national study of well-being at midlife* (Vol. 2004, pp. 273–319). Chicago, IL: University of Chicago Press.
- Marmot, M. G., Fuhrer, R., Ettner, S. L., Marks, N. F., Bumpass, L. L., & Ryff, C. D. (1998). Contribution of psychosocial factors to socioeconomic differences in health. *Milbank Quarterly*, 76(3), 403–448, 305.
- Marmot, M., Ryff, C. D., Bumpass, L. L., Shipley, M., & Marks, N. F. (1997). Social inequalities in health: Next questions and converging evidence. *Social Science & Medicine*, 44(6), 901–910.
- Martín-María, N., Miret, M., Caballero, F. F., Rico-Urbe, L. A., Steptoe, A., Chatterji, S., & Ayuso-Mateos, J. L. (2017). The impact of subjective well-being on mortality. *Psychosomatic Medicine*, 79(5), 565–575.
- Maslow, A. H. (1968). *Toward a psychology of being* (2nd ed.). New York: Van Nostrand.
- Matthews, K. A., Zhu, S., Tucker, D. C., & Whooley, M. A. (2006). Blood pressure reactivity to psychological stress and coronary calcification in the Coronary Artery Risk Development in Young Adults Study. *Hypertension*, 47(3), 391–395.
- McCrae, R. R., & Costa, P. (1994). The stability of personality: Observations and evaluations. *Current Directions in Psychological Science*, 3, 173–175.
- Middleton, R. A., & Byrd, E. K. (1996). Psychosocial factors and hospital readmission status of older persons with cardiovascular disease. *Journal of Applied Rehabilitation Counseling*, 27(4), 3–10.
- Morozink, J. A., Friedman, E. M., Coe, C. L., & Ryff, C. D. (2010). Socioeconomic and psychosocial predictors of interleukin-6 in the MIDUS national sample. *Health Psychology*, 29(6), 626–635.
- Mroczek, D. K., & Kolarz, C. M. (1998). The effect of age on positive and negative affect. *Journal of Personality and Social Psychology*, 75(5), 1333–1349.
- Musich, S., Wang, S. S., Kraemer, S., Hawkins, K., & Wicker, E. (2018). Purpose in life and positive health outcomes among older adults. *Population Health Management*, 21(2), 139–147.
- Nelson-Coffey, S. K., Fritz, M. M., Lyubomirsky, S., & Cole, S. W. (2017). Kindness in the blood: A randomized controlled trial of the gene regulatory impact of prosocial behavior. *Psychoneuroendocrinology*, 81, 8–13.
- Neugarten, B. L. (1973a). Patterns of aging: Past, present, and future. *Social Service Review*, 47(4), 571–580.
- Neugarten, B. L. (1973b). Personality change in late life: A developmental perspective. In C. Eisdorfer & M. P. Lawton (Eds.), *The psychology of adult development and aging* (pp. 311–335). Washington, DC: American Psychological Association.
- Neugarten, B. L., Havighurst, R., & Tobin, S. (1961). The measurement of life satisfaction. *Journal of Gerontology*, 16, 134–143.
- O'Brien, K. M. (2012). Healthy, wealthy, wise? Psychosocial factors influencing the socioeconomic status-health gradient. *Journal of Health Psychology*, 17(8), 1142–1151.
- Oishi, S., Kesebir, S., & Diener, E. (2011). Income inequality and happiness. *Psychological Science*, 22(9), 1095–1100.
- Ong, A. D., Kim, S., Young, S., & Steptoe, A. (2017). Positive affect and sleep: A systematic review. *Sleep Medicine Reviews*, 35, 21–32.

- Ostir, G. V., Markides, K. S., Peek, M. K., & Goodwin, J. S. (2001). The association between emotional well-being and the incidence of stroke in older adults. *Psychosomatic Medicine*, 63(2), 210–215.
- Paschalides, C., Wearden, A. J., Dunkerley, R., Bundy, C., Davies, R., & Dickens, C. M. (2004). The associations of anxiety, depression and personal illness representations with glycaemic control and health-related quality of life in patients with type 2 diabetes mellitus. *Journal of Psychosomatic Research*, 57(6), 557–564.
- Patel, P. C. (2019). The Great Recession and allostatic load in the United States. *International Journal of Stress Management*, 26, 411–417.
- Pavot, W., Diener, E., & Fujita, F. (1990). Extraversion and happiness. *Personality and Individual Differences*, 11, 1299–1306.
- Petrie, M., & Roman, P. M. (2004). Race and gender differences in workplace autonomy: A research note. *Sociological Inquiry*, 74(4), 590–603.
- Phelan, C. H., Love, G. D., Ryff, C. D., Brown, R. L., & Heidrich, S. M. (2010). Psychosocial predictors of changing sleep patterns in aging women: A multiple pathway approach. *Psychology and Aging*, 25(4), 858–866.
- Piketty, T., & Saez, E. (2014). Income inequality in Europe and the United States. *Science*, 344(6186), 838–843.
- Pinquart, M., & Sorensen, S. (2001). Gender differences in self-concept and psychological well-being in old age. *Journal of Gerontology: Psychological Sciences*, 56B(4), 195–213.
- Prather, A. A., Marsland, A. L., Muldoon, M. F., & Manuck, S. B. (2007). Positive affective style covaries with stimulated IL-6 and IL-10 production in a middle-aged community sample. *Brain, Behavior, and Immunity*, 21(8), 1033–1037.
- Pressman, S. D., & Cohen, S. (2005). Does positive affect influence health? *Psychological Bulletin*, 131(6), 925–971.
- Pussswald, G., Fleck, M., Lehrner, J., Haubenberger, D., Weber, G., & Auff, E. (2012). The “Sense of Coherence” and the coping capacity of patients with Parkinson disease. *International Psychogeriatrics*, 24(12), 1972–1979.
- Radler, B. T., Rigotti, A., & Ryff, C. D. (2017). Persistently high psychological well-being predicts better HDL cholesterol and triglyceride levels: Findings from the midlife in the US (MIDUS) longitudinal study. *Lipids in Health and Disease*, 17(1), 1.
- Riley, M. W., Kahn, R. L., Foner, A., & Mack, K. A. (Eds.). (1994). *Age and structural lag: Societies failure to provide meaningful opportunities in work, family, and leisure*. John Wiley & Sons.
- Robles, T. F., Brooks, K. P., & Pressman, S. D. (2009). Trait positive affect buffers the effects of acute stress on skin barrier recovery. *Health Psychology*, 28(3), 373–378.
- Rogers, C. R. (1961). *On becoming a person*. Boston: Houghton Mifflin.
- Ryan, R. M., & Deci, E. L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology*, 52, 141–166.
- Ryff, C. D. (1989). Happiness is everything, or is it?: Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1068–1081.
- Ryff, C. D. (1995). Psychological well-being in adult life. *Current Directions in Psychological Science*, 4(4), 99–104.
- Ryff, C. D. (2014). Psychological well-being revisited: Advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*, 83, 10–28.

- Ryff, C. D. (2016). Eudaimonic well-being education: Probing the connections. In D. W. Harward (Ed.), *Well-being and higher education: A strategy for change and the realization of education's greater purposes* (pp. 37–48). Washington, DC: Association of American Colleges and Universities.
- Ryff, C. D. (2018). Well-being with soul: Science in pursuit of human potential. *Perspectives in Psychological Science, 13*, 242–248.
- Ryff, C. D., & Heidrich, S. M. (1997). Experience and well-being: Explorations on domains of life and how they matter. *International Journal of Behavioral Development, 20*(2), 193–206.
- Ryff, C. D., & Keyes, C. L. M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology, 69*(4), 719–727.
- Ryff, C. D., Keyes, C. L. M., & Hughes, D. L. (2003). Status inequalities, perceived discrimination, and eudaimonic well-being: Do the challenges of minority life hone purpose and growth? *Journal of Health and Social Behavior, 44*(3), 275.
- Ryff, C. D., Love, G. D., Urry, H. L., Muller, D., Rosenkranz, M. A., Friedman, E. M., . . . Singer, B. (2006). Psychological well-being and ill-being: Do they have distinct or mirrored biological correlates? *Psychotherapy and Psychosomatics, 75*(2), 85–95.
- Ryff, C. D., Miyamoto, Y., Boylan, J. M., Coe, C. L., Karasawa, M., Kawakami, N., . . . Kitayama, S. (2015). Culture, inequality, and health: Evidence from the MIDUS and MIDJA comparison. *Culture and Brain, 3*(1), 1–20.
- Ryff, C. D., & Singer, B. H. (2008). Know thyself and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies, 9*, 13–39.
- Ryff, C. D., Singer, B. H., & Love, G. D. (2004). Positive health: Connecting well-being with biology. *Philosophical Transactions: Biological Sciences, 359*(1449), 1383–1394.
- Saloumi, C., & Plourde, H. (2010). Differences in psychological correlates of excess weight between adolescents and young adults in Canada. *Psychology, Health and Medicine, 15*(3), 314–325.
- Schleicher, H., Alonso, C., Shirtcliff, E. A., Muller, D., Loevinger, B. L., & Coe, C. L. (2005). In the face of pain: The relationship between psychological well-being and disability in women with fibromyalgia. *Psychotherapy and Psychosomatics, 74*(4), 231–239.
- Schmutte, P., & Ryff, C. D. (1997). Personality and well-being? Reexamining methods and meaning. *Journal of Personality and Social Psychology, 73*, 549–559.
- Seeman, T., Merkin, S. S., Goldwater, D., & Cole, S. W. (2019). Intergenerational mentoring, eudaimonic well-being and gene regulation in older adults: A pilot study. *Psychoneuroendocrinology, 111*, 104468.
- Segerstrom, S. C. (2014). Affect and self-rated health: A dynamic approach with older adults. *Health Psychology, 33*(7), 720.
- Shankar, A., Rafnsson, S. B., & Steptoe, A. (2015). Longitudinal associations between social connections and subjective wellbeing in the English Longitudinal Study of Ageing. *Psychology and Health, 30*(6), 686–698.
- Shapiro, T., Meschede, T., & Osoro, S. (2013). The roots of the widening racial wealth gap: Explaining the black white economic divide. *Institute on Assets and Social Policy, 48*(202), 238. <https://heller.brandeis.edu/iasp/pdfs/racial-wealth-equity/racial-wealth-gap/roots-widening-racial-wealth-gap.pdf>
- Shirai, K., Iso, H., Ohira, T., Ikeda, A., Noda, H., Honjo, K., . . . Japan Public Health Center-Based Study Group. (2009). Perceived level of life enjoyment and risks of cardiovascular disease incidence and mortality. *Circulation, 120*(11), 956–963.

- Shmotkin, D. O. V. (1990). Subjective well-being as a function of age and gender: A multivariate look for differentiated trends. *Social Indicators Research*, 23, 201–230.
- Singer, B., Friedman, E., Seeman, T., Fava, G. A., & Ryff, C. D. (2005). Protective environments and health status: Cross-talk between human and animal studies. *Neurobiology of Aging*, 26(Suppl 1), 113–118.
- Sloan, R. P., Schwarz, E., McKinley, P. S., Weinstein, M., Love, G., Ryff, C., . . . Seeman, T. (2017). Vagally-mediated heart rate variability and indices of well-being: Results of a nationally representative study. *Health Psychology*, 36(1), 73–81.
- Smith, F., Fleeson, W., Geiselmann, B., Settersten, R. A. Jr., & Kunzmann, U. (1999). Sources of well-being in very old age. In P. B. Baltes & K. U. Mayer (Eds.), *The Berlin Aging Study: Aging from 70 to 100* (pp. 450–471). New York: Cambridge University Press.
- Sommet, N., Morselli, D., & Spini, D. (2018). Income inequality affects the psychological health of only the people facing scarcity. *Psychological Science*, 29(12), 1911–1921.
- Springer, K. W., Pudrovska, T., & Hauser, R. M. (2011). Does psychological well-being change with age? Longitudinal tests of age variations and further exploration of the multidimensionality of Ryff's model of psychological well-being. *Social Science Research*, 40(1), 392–398.
- Staudinger, U. M., & Bluck, S. (2001). A view on midlife development from life-span theory. In M. E. Lachman (Ed.), *Handbook of midlife development* (pp. 3–39). New York: Wiley.
- Stellar, J. E., John-Henderson, N., Anderson, C. L., Gordon, A. M., McNeil, G. D., & Keltner, D. (2015). Positive affect and markers of inflammation: Discrete positive emotions predict lower levels of inflammatory cytokines. *Emotion*, 15(2), 129–133.
- Stephoe, A. (2019). Happiness and health. *Annual Review of Public Health*, 40(1), 339–359.
- Stephoe, A., Demakakos, P., de Oliveira, C., & Wardle, J. (2012). Distinctive biological correlates of positive psychological well-being in older men and women. *Psychosomatic Medicine*, 74(5), 501–508.
- Stephoe, A., Dockray, S., & Wardle, J. (2009). Positive affect and psychobiological processes relevant to health. *Journal of Personality*, 77(6), 1747–1776.
- Stephoe, A., O'Donnell, K., Badrick, E., Kumari, M., & Marmot, M. (2008). Neuroendocrine and inflammatory factors associated with positive affect in healthy men and women: The Whitehall II study. *American Journal of Epidemiology*, 167(1), 96–102.
- Stephoe, A., & Wardle, J. (2011). Positive affect measured using ecological momentary assessment and survival in older men and women. *Proceedings of the National Academy of Sciences of the United States of America*, 108(45), 18244–18248.
- Stephoe, A., & Wardle, J. (2012). Enjoying life and living longer. *Archives of Internal Medicine*, 172(3), 273–275.
- Stone, A. A., Schwartz, J. E., Broderick, J. E., & Deaton, A. (2010). A snapshot of the age distribution of psychological well-being in the United States. *Proceedings of the National Academy of Sciences*, 107(22), 9985–9990.
- Suh, E., Diener, E., Oishi, S., & Triandis, H. D. (1998). The shifting basis of life satisfaction judgments across cultures: Emotions versus norms. *Journal of Personality and Social Psychology*, 74, 482–493.
- Su, R., Tay, L., & Diener, E. (2014). The development and validation of the Comprehensive Inventory of Thriving (CIT) and the Brief Inventory of Thriving (BIT). *Applied Psychology: Health and Well-Being*, 6(3), 251–279.

- Tay, L., Ng, V., Kuykendall, L., & Diener, E. (2014). Demographic factors and worker well-being: An empirical review using representative data from the United States and across the world. *Research in Occupational Stress and Well Being*, 12(September), 235–283.
- Taylor, R. J., Chatters, L. M., Jayakody, R., & Levin, J. S. (1996). Black and white differences in religious participation: A multisample comparison. *Journal for the Scientific Study of Religion*, 35(4), 403–410.
- Thomas, M. E., & Hughes, M. (1986). The continuing significance of race: A study of race, class, and quality of life in America, 1972–1985. *American Sociological Association*, 51(6), 830–841.
- Trudel-Fitzgerald, C., Boehm, J. K., Kivimaki, M., & Kubzansky, L. D. (2014). Taking the tension out of hypertension: A prospective study of psychological well being and hypertension. *Journal of Hypertension*, 32(6), 1222–1228.
- Tsenkova, V. K., Karlamangla, A. S., & Ryff, C. D. (2016). Parental history of diabetes, positive affect, and diabetes risk in adults: Findings from MIDUS. *Annals of Behavioral Medicine*, 50(6), 836–843.
- Tsenkova, V. K., Love, G. D., Singer, B. H., & Ryff, C. D. (2007). Socioeconomic status and psychological well-being predict cross-time change in glycosylated hemoglobin in older women without diabetes. *Psychosomatic Medicine*, 69(8), 777–784.
- Tsenkova, V. K., Love, G. D., Singer, B. H., & Ryff, C. D. (2008). Coping and positive affect predict longitudinal change in glycosylated hemoglobin. *Health Psychology*, 27, S163–S171.
- VanderWeele, T. J. (2017). On the promotion of human flourishing. *Proceedings of the National Academy of Sciences*, 114(31), 8148–8156.
- Veenhoven, R. (1991). Is happiness relative? *Social Indicators Research*, 24, 1–34.
- Vittersø, J. (2013). Happiness, inspiration, and the fully functioning person: Separating hedonic and eudaimonic well-being in the workplace. *Journal of Positive Psychology*, 7, 387–398.
- Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology*, 64, 678–691.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, 54, 1063–1070.
- White, J. M. (1992). Marital Status and Well-Being in Canada. *Journal of Family Issues*, 13(3), 390–409.
- Williams, D. R., & Harris-Reid, M. (1999). Race and mental health: Emerging patterns and promising approaches. In A. V. Horwitz & T. L. Scheid (Eds.), *A handbook for the study of mental health: Social contexts, theories, and systems* (pp. 295–314). Cambridge University Press.
- Wilson, R. S., Capuano, A. W., James, B. D., Amofa, P., Arvanitakis, Z., Shah, R., . . . Boyle, P. A. (2018). Purpose in life and hospitalization for ambulatory care-sensitive conditions in old age. *American Journal of Geriatric Psychiatry*, 26(3), 364–374.
- Xu, J., & Roberts, R. E. (2010). The power of positive emotions: It's a matter of life or death—Subjective well-being and longevity over 28 years in a general population. *Health Psychology*, 29(1), 9–19.
- Yanek, L. R., Kral, B. G., Moy, T. F., Vaidya, D., Lazo, M., Becker, L. C., & Becker, D. M. (2013). Effect of positive well-being on incidence of symptomatic coronary artery disease. *American Journal of Cardiology*, 112(8), 1120–1125.

- Yang, Y. (2008). Social inequalities in happiness in the United States, 1972 to 2004: An age-period cohort analysis. *American Sociological Review*, 73, 204–226.
- Yoo, J., Miyamoto, Y., Rigotti, A., & Ryff, C. D. (2017). Linking positive affect to blood lipids: A cultural perspective. *Psychological Science*, 28(10), 1468–1477.
- Yoo, J., Miyamoto, Y., & Ryff, C. D. (2016). Positive affect, social connectedness, and healthy biomarkers in Japan and the US. *Emotion*, 16(8), 1137–1146.
- Zautra, A. J., Johnson, L. M., & Davis, M. C. (2005). Positive affect as a source of resilience for women in chronic pain. *Journal of Consulting and Clinical Psychology*, 73(2), 212–220.
- Zilioli, S., Imami, L., & Slatcher, R. B. (2015). Life satisfaction moderates the impact of socioeconomic status on diurnal cortisol slope. *Psychoneuroendocrinology*, 60, 91–95.
- Zilioli, S., Slatcher, R. B., Ong, A. D., & Gruenewald, T. L. (2015). Purpose in life predicts allostatic load ten years later. *Journal of Psychosomatic Research*, 79(5), 451–457.
- Zuckerman, M., Li, C., & Diener, E. F. (2017). Societal conditions and the gender difference in well-being: Testing a three-stage model. *Personality and Social Psychology Bulletin*, 43(3), 329–336.