Toward a Science of Mental Health

Corey L. M. Keyes

Abstract

This chapter summarizes the research on the dual-continua model of mental health and mental illness. Studies supported this model and therefore the view that the presence of mental health is more than the absence of mental illness. Mental health is conceived of as a constellation of dimensions of subjective well-being, specifically hedonic and eudaemonic measures of subjective well-being. Specifically, the mental health continuum ranges from languishing, moderate, to flourishing mental health. These classifications are important for distinguishing and predicting level of functioning for individuals with and without a current mental disorder. Among individuals free of a mental disorder, flourishing individuals report the fewest missed days of work, the fewest half-day or greater work cutbacks, the healthiest psychosocial functioning, high resilience, and high intimacy, the lowest risk of cardiovascular disease, the lowest number of chronic physical diseases at all ages, the fewest health limitations of activities of daily living, and lower health-care utilization. Even among adults with a mental disorder during the past 12 months, those who are flourishing functioned better than those with moderate mental health, who in turn functioned better than those who were languishing. The findings strongly support the adoption of a more positive paradigm to treatment, prevention, and promotion of population mental health.

Keywords: flourishing, happiness, mental health, psychological well-being, subjective well-being

There have been at least three conceptions of health throughout human history worldwide—pathos, salus, and hale. The pathogenic approach is the first, most historically dominant vision, derived from the Greek word pathos, meaning suffering or an emotion-evoking sympathy. The pathogenic approach views health as the absence of disability, disease, and premature death. The second approach is the salutogenic approach, which can be found in early Greek and Roman writings and was popularized by Antonovsky (1979) and humanistic scholars. Derived from the Latin word salus, meaning health, the salutogenic approach views health as the presence of positive states of human capacities and functioning in thinking, feeling, and behavior (Strümpfer, 1995). The third approach is the complete state model, which derives from the ancient word for health as being hale, meaning whole. This approach is exemplified in the World Health Organization’s (1948) definition of overall health as a complete state, consisting of the presence of positive state of human capacities and functioning as well as the absence of disease or infirmity.

By subsuming the pathogenic and salutogenic paradigms, the whole state approach is the only paradigm that can achieve true population health in the 21st century. The model of health as a complete state will be illustrated through a review of the author’s research on mental health as a complete state. Borrowing from the World Health Organization’s (1948) definition of health, here I define mental health as not merely the absence of psychopathology, but the presence of sufficient levels of emotional, psychological, and social well-being (Keyes, 2002, 2005a, 2005b).

Mental Health as “Something Positive”

Until recently, mental health as something more than the absence of psychopathology remained undefined, unmeasured, and therefore unrecognized
at the level of governments and nongovernmental organizations. In 1999, the Surgeon General, then Dr. David Satcher, conceived of mental health as "...a state of successful performance of mental function, resulting in productive activities, fulfilling relationships with people, and the ability to adapt to change and to cope with adversity" (U.S. Public Health Service, 1999, p. 4). In 2004, the World Health Organization published an historic first report on mental health promotion, conceptualizing mental health as not merely the absence of mental illness, but the presence of "...a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community." (World Health Organization, 2004, p. 12).

These definitions affirmed the existing behavioral and social scientific vision of mental health as not merely the absence of mental illness, but the presence of something positive. Social and psychological scientists have been studying "something positive" in the domain of subjective well-being—individuals' evaluations and judgment of their own lives—for about 50 years (e.g., Gurin, Veroff, & Feld, 1960; Jahoda, 1958; see also Keyes, 2006). This research has yielded 13 specific dimensions of subjective well-being in the U.S. adult population. When factor-analyzed, studies show that the manifold scales measuring subjective well-being represent the latent structure of hedonic well-being (i.e., positive emotions toward one's life) and eudaimonic well-being (i.e., psychological well-being and social well-being) in adults (Keyes, Shmotkin, & Ryff, 2002; McGregor & Little, 1998; Ryan & Deci, 2001) and in a nationally representative sample of adolescents between the ages of 12 and 18 (Keyes, 2005c).

Subjective well-being research yielded clusters of mental health symptoms that mirror the cluster of symptoms used in the text revision of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) to diagnose a major depressive episode (MDE). In the same way that depression requires symptoms of anhedonia, mental health consists of symptoms of hedonia such as emotional vitality and positive feelings toward one's life. In the same way that major depression consists of symptoms of malfunctioning, mental health consists of symptoms of positive functioning. Table 9.1 presents clusters of symptoms of mental health. The diagnosis of states of mental health was modeled after the DSM-III-R approach to diagnosing MDE (Keyes, 2002). Each measure of subjective well-being is considered a symptom because it represents an outward sign of an unobservable state. Latent, or directly unobservable, conditions must be inferred from symptoms. Moreover, mental health, like mental illness, is identifiable only as collections of signs and symptoms that, as a syndrome, reflect an underlying state of health or its absence.

To be diagnosed as "flourishing" in life, individuals must exhibit high levels on at least one measure of hedonic well-being and high levels on at least six measures of positive functioning. Individuals who exhibit low levels on at least one measure of hedonic well-being and low levels on at least six measures of positive functioning are diagnosed as "languishing" in life. Languishing in the absence of mental health is synonymous with saying that it is a state of being mentally unhealthy. To be languishing is to be in a state of being stuck, stagnant, or empty, and devoid of positive functioning in life. Adults who are "moderately mentally healthy" do not fit the criteria for either flourishing or languishing in life. A continuous assessment sums all measures of mental health that are coded into 10-point ranges after the Global Assessment of Functioning (GAF) approach in the DSM-III-R. For reasons reviewed by Kessler (2002) in the domain of psychopathology, I have used—and would recommend that others use—both the categorical and continuous assessment for mental health, because each approach provides valuable information and to see whether results and conclusions vary by each approach (see chap. 8).

Findings reviewed next are from several published papers that analyzed data from the MacArthur Foundation's 1995 Midlife in the United States (MIDUS) Survey. This survey was a random-digit-dialing sample of noninstitutionalized English-speaking adults between the ages of 25 and 74 living in the 48 contiguous states. The MIDUS survey used DSM-III-R (American Psychiatric Association, 1987) criteria to diagnose four mental disorders (i.e., MDE, panic, generalized anxiety, and alcohol dependence), which were operationalized by the Composite International Diagnostic Interview-Short Form (CIDI-SF) scales (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998).

The Dual-Continua Model

Confirmatory factor analysis was used to test the theory that the MIDUS measures of mental health and mental illness belong to two latent continua. Three scales served as indicators of mental health: the summed scale of emotional well-being
Table 9.1 Categorical Diagnosis of Mental Health (i.e., Flourishing)

<table>
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<tr>
<th>Diagnostic Criteria</th>
<th>Symptom Description</th>
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<td>Hedonia: requires high level on at least one symptom scale (Symptoms 1 or 2)</td>
<td>1. Regularly cheerful, in good spirits, happy, calm and peaceful, satisfied, and full of life (positive affect past 30 days)</td>
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<td>2. Feels happy or satisfied with life overall or domains of life (avowed happiness or avowed life satisfaction)*</td>
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<td>3. Holds positive attitudes toward oneself and past life and conceives and accepts varied aspects of self (self-acceptance)</td>
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<td>4. Has positive attitude toward others while acknowledging and accepting people’s differences and complexity (social acceptance)</td>
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<td>5. Shows insight into own potential, sense of development, and open to new and challenging experiences (personal growth)</td>
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<td>6. Believes that people, social groups, and society have potential and can evolve or grow positively (social actualization)</td>
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<td>7. Holds goals and beliefs that affirm sense of direction in life and feels that life has a purpose and meaning (purpose in life)</td>
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<td>8. Feels that one’s life is useful to society and the output of his or her own activities are valued by or valuable to others (social contribution)</td>
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<td>9. Exhibits capability to manage complex environment, and can choose or manage and mold environments to suit needs (environmental mastery)</td>
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<td>10. Interested in society or social life: feels society and culture are intelligible, somewhat logical, predictable, and meaningful (social coherence)</td>
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<td>11. Exhibits self-direction that is often guided by his or her own socially accepted and conventional internal standards and resists unsavory social pressures (autonomy)</td>
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<td>Positive functioning: requires high level on six or more symptom scales (Symptoms 3–13)</td>
<td>12. Has warm, satisfying, trusting personal relationships and is capable of empathy and intimacy (positive relations with others)</td>
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<td></td>
<td>13. Has a sense of belonging to a community and derives comfort and support from community (social integration)</td>
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*Life domains may include employment and marriage or close interpersonal relationship (e.g., parenting).

(i.e., single item of satisfaction + scale of positive affect), the summed scale of psychological well-being (i.e., six scales summed together), and the summed scale of social well-being (i.e., the fives scales summed together). Four summary measures served as indicators of mental illness, with each being operationalized as the number of symptoms of the following mental disorders: generalized anxiety, panic disorder, MDE, and alcohol dependence. Two competing theories—the single-factor and the two-factor model—were tested. The single-factor model hypothesizes that the measures of mental health and mental illness reflect a single—a latent—factor, support for which would indicate that the absence of mental illness implies the presence of mental health. The two-factor model hypothesizes that the measures of mental illness represent the latent factor of mental health that is distinct from, but correlated with, the latent factor of mental illness that is represented by the measures of mental illness. The data strongly supported the two-factor model, which was a nearly perfect fitting model to the MIDUS data (Keyes, 2005a).

The latent factor of mental illness correlated −0.53 with the latent factor of mental health. As predicted, there is a modest association between mental health and mental illness; level of mental health tends to increase as level of mental illness decreases. The modest correlation suggests that the latent constructs of mental health and mental illness are distinctive. This distinctiveness raises the empirical question of the risk of an episode of mental illness as level of mental health decrease. Languishing adults report the highest prevalence of any of the four mental disorders as well as the highest prevalence of reporting two or more mental disorders during the past year. In contrast, flourishing individuals report the lowest prevalence of any of the four 12-month mental disorders or their comorbidity. Compared with languishing or flourishing, moderately mentally healthy adults were at intermediate risk of any of the mental disorders or two
or more mental disorders during the past year. Thus, the 12-month risk of MDE, for example, is over 5 times greater for languishing than flourishing adults.

Support for the two-factor model provides the strongest scientific evidence to date in support of the complete health approach to mental health. That is, the evidence indicates that the absence of mental illness does not imply the presence of mental health, and the absence of mental health does not imply the presence of mental illness. Thus, neither the pathogenic (i.e., focus on the negative) nor salutogenic (i.e., focus on the positive) approaches alone accurately describe the mental health of a population. Rather, mental health is a complete state that is best studied through the combined assessments of mental health with mental illness. Complete mental health is a state in which individuals are free of mental illness and they are flourishing. Of course, flourishing may sometimes occur with an episode of mental illness, and moderate mental health and languishing can both occur with and without a mental illness.¹

Mental Health as Flourishing Is Salutary

Research has supported the hypothesis that anything less than complete mental health results in increased impairment and disability (Keyes, 2002, 2004, 2005a, 2005b). For example, adults diagnosed as completely mentally healthy functioned superior to all others in terms of reporting the fewest workdays missed, fewest workdays cut back by one-half, the lowest rate of cardiovascular disease (CVD), the lowest level of health limitations of activities of daily living, the fewest chronic physical diseases and conditions, the lowest health-care utilization, and the highest levels of psychosocial functioning. In terms of psychosocial functioning, this meant that completely mentally healthy adults report the lowest level of perceived helplessness (e.g., low perceived control in life), the highest level of self-reported resilience (e.g., that they try to learn from adversities), and the highest level of intimacy (e.g., that they have very close relationships with family and friends). In terms of all of these measures, completely mentally healthy adults functioned better than adults with moderate mental health, who in turn functioned better than adults who were languishing.

Just over 20% of adults in the MIDUS study had an episode of at least one of the four mental disorders. Adults with a mental illness who had either moderate level of mental health or were flourishing reported fewer workdays missed, fewer workdays' cutback, and fewer health limitations of daily living than languishing adults. Thus, languishing individuals who also had one or more mental disorders functioned worse than all others on every criterion. Adults with a mental illness who also had either moderate mental health or flourishing functioned no worse than adults who were languishing and did not have a mental disorder. Thus, mental illness that is combined with languishing is more dysfunctional than the situation when a mental illness occurs in the context of moderate mental health or flourishing. Put differently, level of mental health within the population that has had an episode of mental illness distinguishes level of functioning.

The complete mental health diagnostic states have been shown to be independent risk factors for CVD (Keyes, 2004). In this paper, I focus on the combination of the categorical diagnosis of mental health with MDE, because the latter has been shown to be a risk factor for heart and arterial diseases. The unadjusted prevalence of any CVD was 8% among completely mentally healthy adults, compared with 12% of adults with moderate mental health, 12% of adults who were languishing, and 13% of adults with "pure" depression (i.e., had MDE but also fit the criteria for moderate mental health or flourishing). Among adults who were languishing and had an episode of major depression, the prevalence of any CVD was 19%. In multivariate analyses completely mentally healthy adults had the lowest risk of a CVD. In fact, adults who fit the criteria for anything less than complete mental health had level of relative risk for CVD that were comparable to the relative risk associated with diabetes, smoking cigarettes, and lack of physical exercise.

A recent paper (Keyes, 2005b) investigated the association of the complete mental health diagnose with chronic physical conditions associated with age. The MIDUS survey included self-reported assessment of 27 chronic physical health conditions adapted from the Medical Outcomes Study. The complete mental health diagnosis was associated with 85% of the chronic physical conditions measured in the MIDUS survey (the Keyes 2005b paper focused only on MID as the form of mental illness). The prevalence of chronic physical conditions was highest among adult

¹ In papers published to date (Keyes, 2002, 2004, 2005a, 2005b), individuals with a mental illness who were moderately mentally healthy or flourishing were collapsed into one group, because few flourishing individuals report an episode of mental illness and pooling these groups did not affect the results.
who are languishing and had an episode of major depression, and lowest among completely mentally healthy adults. The prevalence of chronic physical conditions was slightly higher among moderately mentally healthy adults than completely mentally healthy adults, whereas languishing adults reported even more chronic conditions than adults with moderate mental health.

Overall, adults with major depression and languishing had an average of 4.5 chronic conditions. Adults with depression but also had moderate mental health or flourishing had an average of 3.1 chronic conditions, which was the same as adults who were languishing but without any mental illness. Moderately mentally healthy adults without any mental illness had an average of 2.1 chronic conditions, compared with adults with complete mental health who had an average of 1.5 chronic conditions. Multivariate regression analyses confirmed that, when compared against completely mental healthy adults, chronic physical conditions increased as the level of mental health decreased. It is noteworthy that mental health status was a significant predictor of chronic physical conditions even after adjustment for the usual sociodemographic variables as well as body mass index, diabetes status, smoking status, and level of physical exercise.

Multivariate analyses also revealed statistically significant interactions of age with two of the complete mental health diagnostic states. While chronic physical conditions increased with age, there were two interaction effects: languishing by age and languishing with an episode of major depression by age. Young languishing adults have an average of one more chronic condition than young flourishing adults; midlife languishing adults report an average of about 1.7 more conditions than flourishing midlife adults; and languishing older adults have an average of 2.6 more chronic conditions than flourishing older adults. Similarly, young languishing adults with MDE report an average of 2.6 more chronic conditions than flourishing young adults; midlife languishing adults with MDE have an average of 3.5 more conditions than flourishing midlife adults; and languishing older adults who also had MDE have an average of 4.2 more chronic conditions than flourishing older adults. In short, languishing with, and languishing without, a mental illness is associated with increased chronic physical disease with age.

Results from this study suggest two important findings. First, adults who were completely mentally healthy had the lowest number of chronic physical conditions at all ages. Second, the youngest adults who were languishing had the same number of chronic physical conditions as older flourishing adults. Younger languishing adults who also had MDE had 1.5 more chronic conditions than older flourishing adults. In other words, the absence of mental health—whether it is languishing or languishing combined with a mental illness—appears to compound the risk of chronic physical disease with age.

In turn, Keyes and Grzywacz (2005) have found health-care utilization to be lowest among adults who are flourishing. Rates of overnight hospitalizations over the past year, outpatient medical visits over the past year, and number of prescription drugs were lowest among adults who were flourishing and physically healthy, followed by adults who were either flourishing but had physical illness conditions or adults who were not flourishing but were physically healthy. In short, complete mental health—that is, flourishing and the absence of mental illness—should be central to any national debate about health-care coverage and costs. Rather than focusing all discussions around health-care delivery and insurance, our nation must increase and protect the number of individuals who are healthy, driving down the need for health care.

**Prevalence: Too Little Flourishing**

The evidence just reviewed suggests that flourishing, a central component of complete mental health, is a desirable condition that any community, corporation, or government would want to protect or promote in its citizens. How much of the adult population is mentally healthy?

Figure 9.1 presents the point prevalence estimates previously reported in Keyes (2005a) with one exception. Figure 9.1 reports the prevalence of the relatively rare but important group of adults who, despite flourishing, reported at least one or more mental disorders. Only 17% of adults who were free of a mental illness during the past year fit the criteria for flourishing in life. Most of the adult population, that is, 51%, did not have an episode of mental illness but were only moderately mentally healthy. Worse yet, 10% of adults are mentally un-healthy, as they are languishing and did not fit the criteria for any of the four mental disorders—and languishing adults averaged 1 symptom of mental illness, suggesting that languishers may not be a subsyndromal form of mental illness. In addition, 23% of adults fit the criteria for one or more of the four mental disorders measured in the MIDUS survey. Of that 23%, 7% had a mental illness and fit the criteria for languishing, meaning individuals had an episode of mental illness along with the absence of mental health.
(i.e., languishing). Of the 23% with a mental illness, 14.5% had moderate mental health and 1.5% were flourishing.

The goal of any approach to a population’s mental health should be (a) the reduction of mental illness and (b) the promotion of rates of complete mental health. Whereas it would be ideal if 60%, for example, of the population were flourishing and free of mental illness, barely 2 in every 10 adults are truly mentally healthy. Too many adults experience an episode of mental illness in a year, and too few adults are flourishing. Such findings suggest a need for national investments in the promotion of mental health as flourishing. The size of the adult population with moderate mental health, and its proximity to being completely mentally healthy, indicates a cost-effective leverage point for increasing national mental health. Evidence reviewed earlier suggests that reducing the size of the moderate mental health group by increasing its mental health could substantially reduce direct (e.g., health-care usage) and indirect (e.g., workdays missed) costs.

Conclusions

Measures of mental illness and measure of mental health form two distinct continua in the U.S. population. Measures of disability, chronic physical illness, psychosocial functioning, and health-care utilization reveal that anything less than flourishing is associated with increased impairment and burden to self and society. Only a small proportion of individuals free of a common mental disorder are mentally healthy, that is, “flourishing.” Thus, the absence of mental illness is not the presence of mental health; flourishing individuals function markedly better than all others, but only a fifth of the U.S. adult population is flourishing (Keyes, 2002, 2003, 2004, 2005a, 2005b).

The paradigm of mental health research and services in the United States must change in this century from pathogenic to the complete states approach. This paradigm seeks to understand the causes of mental illness and the causes of mental health (i.e., flourishing) to create and implement effective treatments, prevention, and promotion efforts in the population. To achieve a mentally healthier nation, we must simultaneously reduce the number of cases of mental illness and increase the number of individuals who are flourishing. Toward that end, Congress and policy makers should lobby to amend the “Healthy People” objectives to increase the rates of flourishing rather than only decrease the rates of specific disease conditions. In turn, branches within the National Institutes of Health should be expanded to include “salutogenic” laboratories for basic and applied science. Centers for Disease Control and Prevention can focus its state-wide surveillance of health conditions to include not only mental illness and distress but also the presence and absence of mental health. Counseling and clinical psychology programs would also need to increase faculty and training in “salutogenic” approaches to therapy.

Three Questions for Future Research

1. Does positive mental health cause mental illness? That is, do improvements in positive mental health decrease, while declines in positive mental health increase, the risk of mental illness?

2. What variables predict changes in positive mental health? That is, what is the epidemiology of flourishing?
3. Do patients with mental illness under treatment respond better to different forms of therapy depending on their level of positive mental health? That is, does a patient’s positive mental health play a role in treatment response and risk of relapse after completion of therapy?

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