

# Enhancing Well-Being Measurement

in Health Research, Clinical Care, and  
Population Health Promotion

June 14, 2021

**VA**



U.S. Department  
of Veterans Affairs

Office of Patient Centered Care and Cultural Transformation,  
U.S. Department of Veterans Affairs



National Center for  
Complementary and  
Integrative Health

National Center for Complementary and Integrative Health,  
National Institutes of Health

## Executive Summary

In collaboration with the National Institutes of Health's National Center for Complementary and Integrative Health (NCCIH), the Office of Patient Centered Care and Cultural Transformation hosted a 4-hour virtual forum on Monday, June 14, 2021, to discuss the state of well-being measurement.

Entitled "Enhancing Well-Being Measurement in Health Research, Clinical Care, and Population Health Promotion," the meeting brought together many prominent leaders in the field of well-being measurement research to discuss the state of the science and to "think and link."

The forum included a keynote address by Carol Ryff, Ph.D., Hilldale Professor of Psychology, University of Wisconsin-Madison, who developed the widely used six-factor model of psychological well-being, along with opening remarks by the acting deputy secretary of the Department of Veterans Affairs (VA), Carolyn Clancy, M.D., and the director of NCCIH, Helene Langevin, M.D. This was followed by two panel sessions with speakers from diverse backgrounds and organizations, including a panelist who provided a veteran's perspective; researchers from the VA, Wake Forest University, the University of Connecticut, and Harvard University; and a leader from the Robert Wood Johnson Foundation. The meeting concluded with three breakout sessions.

The forum was cochaired by Ben Kligler, M.D., and Dawne Vogt, Ph.D., and included a planning committee with members from both the VA and NCCIH. While 50 to 60 participants were anticipated, more than 85 individuals attended, demonstrating the growing interest in and importance of the topic of well-being measurement. The organizers feel strongly that this meeting is the first, not the last, step in ongoing discussions with the clinical, research, and veteran communities on meaningful measures of whole health and well-being.

Throughout the meeting, the discussion centered around the following themes:

### **1. Value of Increased Attention to Measurement of Well-Being in Health Research, Clinical Care, and Population Health Promotion:**

- There was consensus that the field needs to move from a more limited focus on disease and dysfunction to incorporate a well-being focus.
- It was noted that well-being can serve as a common language in which patients, clinicians, researchers, administrators, and policy makers can converse and come together to define meaningful goals, values, and measures across the spectrum of medicine.
- The VA and NCCIH are interested in expanding efforts to include a greater focus on well-being, and NCCIH recently funded a major research initiative focused on emotional well-being.
- The ability of well-being measures to capture social determinants of health was discussed, as it is well documented that social determinants of health account for the lion's share of variance in health outcomes.
- The importance of including measures of well-being in clinical trials and other intervention studies was discussed, as this allows an evaluation of whether these interventions have an impact on broader outcomes that extend beyond the clinical domain.

## **2. Diversity of Approaches to Measuring Well-Being:**

- Well-being is a complex, multifaceted, and multilayered concept. There are many different approaches to defining and measuring well-being, although the focus and terminology used to describe these measures varies.
- Concepts that fall within the category of well-being include psychological well-being (including both hedonic and eudaimonic well-being), emotional well-being, quality of life, health-related quality of life, psychosocial functioning, thriving, flourishing, happiness, satisfaction, and others.
- What all these approaches share is an emphasis on the extent to which people are doing well in life (a positive state), rather than whether they are experiencing disease and dysfunction.
- Given the breadth of approaches that can be taken to measure well-being, it is important that the focus of any given measure of well-being is clearly defined.
- Many existing models and measures of well-being can be drawn from to guide efforts to assess well-being.
- Several participants discussed the value of measuring well-being within a holistic, systems-level framework and methodological approach.
- Although the primary focus of much of the meeting was on subjective and psychological conceptions of well-being (e.g., emotional well-being), the value of considering objective indicators and multidomain approaches that consider external aspects of well-being (e.g., functioning in different life roles) was also discussed.
- Validated measures of psychological well-being, emotional well-being, flourishing, and psychosocial functioning within different life domains were described.
- A brief measure of well-being that was developed for use in the clinical setting was also described.

## **3. Relationship Among Well-Being Concepts and Between Well-Being and Health:**

- There was discussion of how different aspects of well-being relate to one another, with one presenter describing an engine-based model of well-being that incorporates inputs, processes, and outcomes of well-being.
- It is important to distinguish between well-being and other, related concepts such as wellness, quality of life, flourishing, and resilience.
- The differences between “objective” and “subjective” assessments of well-being complicate our understanding of relationships between well-being and various health outcomes.
- There were different perspectives on the relationship of well-being and health, with some participants suggesting that well-being should be considered a separate concept from health and some who consider health to be a subdomain of well-being (e.g., well-being in the health domain versus well-being in other life domains).
- There was consensus that some types of well-being (e.g., emotional well-being) could coexist with poor physical health, which could mitigate against the experience and/or limitations of “feeling sick.”



**4. Issues of Health Equity and Relevance of Well-Being Measurement for Different Populations:**

- Several participants raised the concern that well-being, as reflected in some conceptions of well-being, may not be achievable for all individuals.
- There was discussion of disparities in well-being for different racial/ethnic groups.
- There was also discussion of how the COVID-19 pandemic has impacted well-being, particularly among those who were most disadvantaged to begin with.
- Questions were raised regarding the cultural relevance of some well-being concepts (e.g., autonomy).

**5. Limitations of Existing Measurement Approaches and Strategies for Strengthening Measurement:**

- There was discussion of the importance of supplementing subjective assessments of well-being with a focus on objective indicators of well-being, as well as alternative methodologies to self-report, including both behavioral and observer reports.
- It was noted that brief measures of well-being may miss important aspects of a person's well-being that need to be considered in some clinical contexts (e.g., emergency rooms), such as an individual's social and financial well-being.
- The value of qualitative measurements of well-being was raised.
- There was discussion of changes in well-being over time (plasticity of well-being) and the importance of confirming that well-being measures are sensitive to change.
- The value of modern technology and virtual platforms to facilitate well-being measurement was discussed.
- The benefit of life-course assessments of well-being was discussed, along with the value of gathering information about the well-being of families and communities, in addition to individuals.

**6. Considerations and Strategies for Enhanced Well-Being Measurement in Clinical Care, Health Research, and Population Health Promotion:**

- There are numerous stakeholders interested in and focused on understanding well-being at the individual, clinical, and population levels. These stakeholders include researchers, clinicians, and policy makers within health care systems, associations, government entities, and public and population health agencies. Each of these stakeholders has a clear and urgent need for indices of well-being to further their mission.
- There was broad consensus that context matters—that is, knowledge about the population being studied, the research question, and/or the clinical setting should drive decisions about what well-being measures are most applicable.
- It was noted that health care providers may be resistant to assessing well-being if they do not see the practical value of doing so. Further, current training approaches for health care providers focus mainly on the diagnosis and treatment of disease, providing less attention to the value of considering the patient's broader well-being.
- It was also suggested that implementation of well-being measurement will require an iterative process, connecting the value of well-being assessment with other health care system values, provider incentives, and motivations.

- Several participants mentioned the need to consider unintended negative consequences of measuring well-being in the clinical context and the need to ensure that there is appropriate follow up with individuals who report poor well-being.
- It was noted that understanding what is needed for behavioral change will be paramount for implementation of a well-being program at the VA and elsewhere.
- One way to increase well-being measurement in research will be to include well-being measurement as a focus of requests for applications for research funding.
- To increase buy-in for the importance of measuring well-being it will be important to (1) examine how clinical use of well-being measures relates to patient satisfaction and experiences with care and system-level change, (2) demonstrate connections between well-being and other outcomes (biometrics), and (3) document a return on investment for well-being measurement in the health care system.
- At a population level, well-being measurement could be used to determine “social prescribing,” that is, to determine what types of services outside of the medical system may be useful for individuals.

#### **7. Importance of Incorporating Patient and Provider Perspectives in Measurement of Well-Being**

- There was discussion of the importance of obtaining buy-in from patients and providers for well-being measurements in the health care setting.
- It was noted that contexts, mindsets, and experiences of the user matter: patient/participant engagement is valuable and essential in deciding core components of well-being to assess.
- The need for culture change among patients and clinicians related to measuring, marketing, and promoting well-being was also discussed.

#### **8. Veteran-Specific Considerations in Well-Being Measurement**

- It was noted that military culture mitigates against the service member or his/her family acknowledging (even to him/herself) that there is a medical problem to deal with. On the other hand, military culture favors frank assessment of mission readiness and its ongoing maintenance through training and testing. For these reasons, the incorporation of well-being assessments (over the course of a military career and during the process of transition to veteran status) can leverage military culture toward successful outcomes rather than attempting to counter military culture with potentially stigmatizing questions such as, “Are you impaired? Do you have a mental disorder?”
- Related to this point, it was noted that it is important to better understand the impact of military culture, including the emphasis on being stoic and strong, on well-being measurement.
- A veteran participant pointed out that veterans appreciate the focus on their broader well-being, as they don’t want to be treated like a “a bundle of symptoms.”

## **About This Meeting**

Although health promotion efforts have historically focused on indicators of disease and dysfunction, measures of well-being provide a common language in which all parties (patients, clinicians, researchers, public health officials, policymakers, and others) can define and assess positive outcomes. The Office of Patient Centered Care & Cultural Transformation at the Department of Veterans Affairs (VA) and the National Center for Complementary and Integrative Health (NCCIH) at the National Institutes of Health convened a virtual meeting on June 14, 2021, to discuss potential strategies to improve measurement of holistic well-being outcomes in research, clinical care, and population health promotion. The meeting provided a forum in which researchers and other stakeholders could learn about different approaches to measuring well-being, as well as the relevance of measuring well-being within different organizational contexts and populations. Panel topics included:

- Why is well-being important to assess?
- What aspects of well-being are most important to assess?
- What are the different approaches for measuring well-being?

Three breakout sessions focused on the following topics:

- Aspects of well-being that are important to consider in health research, clinical care, and population health promotion
- Ways to promote more attention to well-being measurement in health research, clinical care, and population health promotion
- Well-being as a “common language” to promote equity across diverse populations

## **Welcoming Remarks**

### ***Ben Kligler, M.D., Executive Director, Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration***

Dr. Kligler explained that the Veterans Health Administration (VHA) in the VA has been promoting the concept of whole health for 6 to 7 years with the goal of moving the health system beyond disease management to health creation and enhancement of well-being in the life of veterans. Because the goal of whole health is integral to VA operations, it is essential to find ways to measure it for both research and clinical practice. This meeting is the first, not the last step, in ongoing discussions with the clinical, research, and veteran communities on meaningful measures of whole health and well-being.

### ***Emmeline Edwards, Ph.D., Director, Division of Extramural Research, National Center for Complementary and Integrative Health***

Dr. Edwards said that NCCIH is pleased to collaborate with the VA on this important initiative. Well-being is not a new issue to NCCIH and has been a research priority since 2018. The Center is currently funding six research networks focused on emotional well-being. This partnership with VA creates an opportunity to develop synergy in efforts, acquire new measures and methods, optimize what is developed, and scale it up. NCCIH is interested in measures for well-being in both veteran and diverse nonveteran populations.

**Dawne Vogt, Ph.D., Research Scientist and Professor of Psychiatry, National Center for PTSD, VA Boston Healthcare System and Boston University School of Medicine**

Dr. Vogt emphasized that this meeting is an opportunity to “think and link” on approaches to measuring well-being and was designed to intentionally focus on many different aspects of well-being (e.g., hedonic, eudemonic, internal, external). What all of these approaches have in common is that they consider well-being to be a positive state, more than just an absence of disease. She reminded participants that the virtual chat function provides an opportunity for them to ask questions and offer their thoughts.

### **Keynote Presentation**

#### ***Use of Well-Being Measurement To Inform Health Promotion Policy and Practice—A Research Perspective***

*Carol Ryff, Ph.D., Hilldale Professor of Psychology, University of Wisconsin-Madison*

Dr. Ryff opened by reminding participants that well-being is not a new topic even though it is new in some circles. For decades, inner subjective experience has been part of empirical studies. Critical issues going forward relate to quality control in the measurement of well-being. In Dr. Ryff’s view, there is a risk of trivializing this topic by pursuing it with thin and poorly validated measures. Another growing concern is whether well-being has become increasingly out of reach for many people in contemporary society due to widening inequality and, most recently, the COVID-19 pandemic.

Illustrating the long history of research on subjective well-being, in 1999, Diener, et al. wrote a review article summarizing the three prior decades of research on subjective well-being, dating back to 1969.<sup>1</sup> In 1969, Norman Bradburn published *The Structure of Psychological Well-Being*, which became the basis for much subsequent work on positive and negative affect.<sup>2</sup> During the 1950s through the 1970s the Social Indicators Movement at the University of Michigan emerged to survey Americans on their happiness and life satisfaction as a complement to the use of economic indicators to assess the health of the economy.<sup>3-5</sup>

Dr. Ryff became interested in the concept of well-being after reviewing surveys of happiness and life satisfaction in national surveys while also training as a lifespan developmental psychologist. She found herself reaching for something that went beyond asking about happiness and life satisfaction, important as they were. Numerous theoretical perspectives from clinical, developmental, existential, and humanistic psychology had articulated the up side of the human experience, but those ideas had little presence in the scientific realm because they lacked credible assessment tools. This was the starting point for Ryff (1989), titled “Happiness is everything or is it? Explorations on the meaning of psychological well-being.”<sup>6</sup> In it, Dr. Ryff identified points of convergence in the above perspectives, which became the components of the six dimensional model of eudaimonic well-being that she put forth. The six components included autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance.

Aristotle’s *Nicomachean Ethics* is also in the background of this model. That work began with the profound question “What is the highest of all human goods?” Aristotle believed that the answer was activity of the soul in accord with virtue. He then went on to ask, “What is the highest virtue?” This is where the word eudaimonia appears. It refers to a kind of personal excellence that is about achieving the best that is within us.

Each of the six dimensions in Ryff's model were defined in terms of a high scorer and a low scorer. These definitions come from the preceding theory and were the basis for generating self-descriptive items to operationalize each dimension. Briefly, "autonomy" is about marching to your own drummer. "Environmental mastery" is about managing one's external world. "Personal growth" is about realizing one's talents and capacities even while dealing with biological aging. "Positive relations with others" is about taking care of social ties; it is the most universally endorsed aspect of what it means to be well. "Purpose in life" is about finding meaning and direction in your life. "Self-acceptance" is about recognizing and accepting personal strengths and weaknesses.

The process of scale development and psychometric evaluation was briefly described. Extensive items were written for each of the six dimensions and then culled via various reliability (internal consistency, test-retest) and validity (face, convergent, discriminant, factorial) checks to ensure quality control in what is being measured. The resulting model of well-being has been translated into 40 languages and resulted in more than 1,200 publications.<sup>7,8</sup> Diverse topics have been studied, including psychometric properties of the model, adult development and aging, personality correlates, family life, work and volunteer engagements, health and biomarkers, and intervention and clinical studies.

Dr. Ryff believes the model has attracted extensive interest because it encompasses intellectually vital ideas and ideals that reach for essential meanings of what constitutes the best within us. In addition, it involves a high-quality process of empirical operationalization. It also has scientific relevance and versatility across wide topics. The emergence of integrative science in studies such as MIDUS (Midlife in the United States), a longitudinal study that aims to advance knowledge of factors that promote positive health and resilience across the decades of the aging process, also underscores the importance of rich assessments of mental and physical health and the pathways through which they unfold.

With regard to scientific findings, baseline data from MIDUS highlighted the relationship between hedonia and eudaimonia, which are related but distinct constructs.<sup>9</sup> Although they both relate to well-being, they differ in terms of their correlates and predictors (e.g., age, education, personality). Further, in the past decade these two aspects of well-being have been key in gene expression studies focused on the conserved transcriptional response to adversity (CTRA), wherein higher hedonia was associated with an unhealthy profile of gene expression characterized by upregulation of the proinflammatory genes and downregulation of antibody synthesis genes. Alternatively, higher eudaimonia was found to result in the opposite, healthy pattern (downregulation of proinflammatory genes and upregulation of antibody synthesis genes).<sup>10</sup> Subsequent studies have replicated these patterns and also extended them to show that increased loneliness leads to CTRA upregulation.<sup>11</sup>

Work by Corey Keyes beginning in 2007 provided new language at the time for talking about varieties of mental health in the United States.<sup>12</sup> "Flourishing" refers to high well-being and no mental distress, whereas "languishing" refers to lack of mental illness but low well-being, which was shown to create subsequent risk for depression and anxiety. Importantly, this work underscores that well-being and ill-being are not opposite ends of the bipolar continuum. Further, a 2009 report by Keyes showed that Blacks have higher rates of flourishing and lower rates of mental disorders than Whites; the advantage is even greater when controlling for perceived discrimination.<sup>13</sup> Additional research by Keyes has demonstrated that gains in well-being predicted declines in mental illness over time whereas losses in well-being predicted increased mental illness.<sup>14</sup>



Other select findings have linked eudaimonic well-being to longevity with an emphasis on purpose in life, but also to protection against disease, physiological regulation, and brain-based emotion regulation. A meta-analysis of 10 prospective studies involving 136,265 subjects, conducted by Cohen, et al. (2016) found that higher purpose in life predicts reduced risk of all-cause mortality as well as reduced cardiovascular events.<sup>15</sup> Data from the Rush Memory and Aging Project showed that purpose in life protects against Alzheimer's Disease and mild cognitive impairment, with further findings showing that higher purpose supported higher cognitive functioning, even in the face of organic brain pathology, as revealed by subsequent postmortem analyses.<sup>16,17</sup>

Using the Health and Retirement Study, Kim, et al. have published numerous studies demonstrating that purpose in life reduces risk of myocardial infarction among adults with coronary heart disease and risk of stroke.<sup>18,19</sup> Purpose in life also leads to more preventive health behaviors such as cholesterol tests and cancer screenings and decreased risk of functional decline such as grip strength and walking speed.<sup>20,21</sup> A 2020 report by Kim, et al. concluded that sense of purpose in life reduced risk of future drug misuse.<sup>22</sup>

Finally, Yemiscigil and Vlaev (2021) recently found bidirectionality between purpose in life and exercise, showing that those with a higher sense of purpose are more likely to regularly exercise and also that those who regularly exercise are more likely to report having higher purpose in life.<sup>23</sup>

Dr. Ryff noted that most studies of purpose in life have not looked at other aspects of well-being (hedonic or eudaimonic). However, the few studies that have included multiple dimensions have shown effects. For example, a study by Morozink, et al. (2010) found that eudaimonic well-being protected against inflammation among the least educated.<sup>24</sup> That is, people with less education have higher levels of interleukin 6 (IL-6), which is implicated ecologically in numerous disease outcomes. However, interaction effects showed that four dimensions of eudaimonia and positive effect protected against higher levels of IL-6 among those who are less educated.

Other longitudinal findings from MIDUS have focused on stability in eudaimonic well-being, which show that people are stable at different levels over the lifespan, with subsequent linkages to health. For example, persistently high environmental mastery and self-acceptance leads to better lipid profiles.<sup>25</sup> Persistently high eudaimonia (all aspects) also leads to gains in subjective health and reduced chronic conditions and health symptoms.<sup>26,27</sup> Another study found that life satisfaction and eudaimonic composite led to reduced later risk of metabolic syndrome.<sup>28</sup>

A study by Heller, et al. (2013) linked reward circuitry in the brain to eudaimonic well-being and cortisol.<sup>29</sup> Work by Fava (1998) demonstrated in multiple studies that well-being is important in recovery from psychological disorders.<sup>30</sup> Moving from treatment to prevention, additional work by Ruini has shown the effectiveness of teaching well-being therapy to children, adolescents, and older adults.<sup>31,32</sup>

Dr. Ryff concluded with her final concern: namely, that due to gaping discrepancies in life opportunities and resources, experiences of well-being may not be available to many. Examples of widening socioeconomic inequality were provided, such as declining employee pay as a share of national income compared to increasing corporate profits across recent decades. Further evidence drawing on multiple studies highlights that upper middle-class Americans are doing better than everyone else on multiple indicators: they have better education and jobs; more stable marriages to successful partners; live in safe, thriving neighborhoods; and have higher income, more wealth, and healthier lifestyles.<sup>33</sup>

MIDUS research on health inequalities was also noted. Underscoring unique features of the study design, Dr. Ryff described the recruitment of two national samples of same-aged Americans, one in 1995, and the other in 2012. The Great Recession, which began in 2008, punctuated the difference between these two points in time, thereby providing a systematic comparison of a pre- and post-recession America. Over that period of time, there were gains in educational attainment at the population level. Nonetheless, life had worsened in the post-recession sample, measured in terms of income, well-being, and health.<sup>34</sup> Relatedly, Goldman, et al. (2018) found that greater psychological distress and lower well-being was concentrated among individuals with lower socioeconomic status.<sup>35</sup>

It was in the context of this ever-widening inequality that the COVID-19 pandemic unfolded in 2020. It brought unimaginable levels of death and grieving, but also rampant unemployment, lost health insurance, homelessness, food lines, and a spotlight on systemic racism. Importantly, Americans did not suffer equally: unemployment and food insecurity were higher among less wealthy segments of the population, whereas those with higher incomes were more likely to work at home during the pandemic, and regarding home schooling, their children also showed greater progress in online math learning. A recent study by Perry, et al. (2021) emphasized “pandemic precarity” with data from the state of Indiana, showing that the pandemic exposed and exacerbated pre-existing inequalities: namely, greater racial and educational disparities were found in multiple indicators of insecurity (housing, food, financial, and employment).<sup>36</sup>

Dr. Ryff summarized key points of her presentation by emphasizing that well-being is multiple things, it is multifaceted, and it matters for many aspects of health. Moreover, it can be promoted and it is modifiable. Going forward, it is critical that we have credible measurement instruments to carry this work forward. She also reiterated that widening inequality and the pandemic may be putting well-being out of reach for many Americans.

In response to a question posted in the chat session about the strength of the effects of benefits of well-being, Dr. Ryff noted that the effect sizes have been modest. Nonetheless, there is widespread evidence that well-being is significantly linked to multiple health outcomes.

Dr. Ryff was asked whether there might be cultural differences in the six dimensions. She responded that autonomy is likely the most Westernized dimension in her model. She also noted evidence from the MIDUS/MIDJA (Midlife in Japan) comparison, showing that it is uniquely Western to elevate positive psychological experiences and denigrate negative experiences as indicative of failure. In contrast, in Japan the balance between positive and negative experience is more prominent, and importantly, negative affect has not been found to predict elevated biological risks, as previously shown with U.S. samples. A key point is that inner, subjective experience is important to study in multiple cultural contexts.

With regard to disparities in attaining well-being, Dr. Ryff encouraged the research community to not turn away from this area of research because of political polarization or policy concerns. The aim should be to develop evidence about deprivations and disparities in an effort to diminish disparities and improve well-being. It is important to document the health consequences of the absence of well-being and in public health education and public policy to provide the societal structures and personal skills needed to help people cultivate their own well-being.

### ***Comments in Chat***

“There are common threads of research from members of the International Society of Quality-of-Life Studies (ISQOLS) (Applied Res in Qual Life) and International Society of Quality-of-Life Research (ISOQOL), but different areas of emphasis. For example, several studies were noted by Dr. Ryff predicting mortality from well-being measures. ISOQOL members also have studies predicting mortality that tend to look at health-related quality of life (physical, mental, and social health). The latter studies tend to show that mortality is better predicted by physical function than by mental health measures (which often overlap or are similar to well-being measures). It would be useful if the well-being studies that predict mortality also include patient-reports about general health (including physical function).”

“The Centers for Disease Control and Prevention (CDC) are working on bringing attention to emotional well-being as a public health issue. CDC is looking at emotional well-being as multilevel with core characteristics at the individual and at community/societal levels.”

“There are also the positive benefits of wellbeing within the population such as improved productivity, improved innovations, better networks, etc...”

### **Leadership Perspectives on the Importance of Measuring Well-Being**

#### ***Helene Langevin, M.D., Director, National Center for Complementary and Integrative Health***

NCCIH is very invested in focusing on whole person health as an overall theme for its new strategic plan.<sup>37</sup> Understanding and being able to measure well-being is important to building the framework of whole person health. Dr. Langevin said this workshop is a first step toward a more systematic way of thinking about well-being. She noted that objective assessments, for example, economic or financial status, differ from more subjective assessments such as self-perception, which are needed for defining emotional or physical well-being. However, there are many different ways that the subjective perception of well-being is portrayed in terms of happiness or quality of life or satisfaction, or even health itself. Therefore, arriving at a better consensus definition and measurement of well-being is paramount. We need to look at the multiple factors that promote either health or disease and scientifically consider the whole person as a complex system in which health and disease are part of a bidirectional continuum.

NCCIH views whole person health in relation to the multiple factors that promote either health or disease, considering the whole person as a complex system in which health and disease are part of a bidirectional continuum. By looking at the entire health/disease spectrum in a bidirectional way, we can expand our understanding of integrative health to include the return to an improved state of health, in addition to disease prevention. By looking at connections across biological, behavioral, social, and environmental domains, we can better understand how co-occurring conditions can arise from common, interrelated factors. This understanding can help individuals as well as families, communities, and whole populations improve their health in all of these domains.

An important question is the following: If health and well-being are indeed related and if well-being is related to how an individual perceives and assesses the various domains of their life and health, how can this self-assessment influence or be influenced by health promoting behaviors? Is it possible that this sort of assessment or self-assessment of well-being could either facilitate or play into whether an individual will engage in health promoting behaviors?

As an example at the individual level of viewing the whole person, if one was feeling physically strong and relaxed or emotionally feeling equanimity or contentment, this might improve sleep or autonomic or emotional regulation. This may in turn make one more likely to be motivated to improve nutritional choices or to exercise, which then could feed back on physical well-being feeling. This then might empower one to tackle some of the daily tasks that could improve psychological and emotional well-being. If an individual sense of well-being could contribute to whole person health by promoting health-enhancing behaviors, there could be a bidirectional and positively reinforcing relationship between the two.

***Carolyn Clancy, M.D., Acting Deputy Secretary of Veterans Affairs***

Dr. Clancy noted that the past 16 months of the COVID-19 pandemic underscore the urgency of whole person care in a way that many did not previously appreciate except for the pioneers in this space. For some, the sheer stress and isolation sustained during the lockdown affected mind, body, and spirit. For leadership at the VA, it provided a glimpse into what many veterans experience daily in nonpandemic times—that is, depression, loneliness, post-traumatic stress disorder (PTSD), and chronic pain. Perhaps at no time in the modern history of the mindfulness movement and connection has well-being played a bigger role than today.

Dr. Clancy added that she comes from a background of health outcomes measurement at the Agency for Healthcare Research and Quality. The issues in this workshop are exactly what that field tried to avoid—that is, it tried to draw a line about what was attributable to health care, not accounting for all of the other factors that affect well-being. These other factors became central to coping with the pandemic, for example, how much space do you have in your house? Can you actually socially distance from your colleagues? Do you need child care? These are not the usual concerns of a medical center, but they are essential to whole person health. As physician Sir William Osler said more than 100 years ago, “The good physician treats the disease; the great physician treats the patient who has the disease.” This approach is transforming the VA health program.

Now the challenge is how do we view well-being in the post-COVID-19 world? What can we learn from the last 16 months about what enhanced well-being and what did not? What past practices should be abandoned? What was found to be essential that was lost during the pandemic, such as access to acupuncture therapy? How well did video appointments serve veteran needs; did they actually help by reducing the stress of getting to one of the VA’s physical facilities? What can we learn about the greater reliance on family and caregivers during this time?

In moving forward, Dr. Clancy emphasized that developing the right measures of well-being needs to be done using large existing datasets that include health behaviors and health and well-being indices. Such efforts should encourage input from patients, veterans, and their families to understand the extent to which such measures are meaningful and point to strategies that enable them to feel comfortable managing their own problems and promoting their own well-being.

**Panel 1: Why is it important to assess well-being in health promotion efforts and what aspects of well-being are important to consider in these efforts?**

***A Veteran’s Perspective***

*Rodger Kingston, veteran in the VA Boston Healthcare System*

Rodger Kingston, a Marine Corps veteran, is a documentary photographer who has used the VA Boston Healthcare System for the past 20 years. He described events in 2016 when experiencing two strokes requiring a stent and two surgeries. Mr. Kingston was told he had to lose weight if he wanted to survive. He credits the VA Boston Healthcare System with providing him with a whole person approach to losing more than 50 pounds, weight loss he has maintained. When he first entered the VA health care system he felt like “a bundle of symptoms being treated by a doctor.” Now he reports that he feels like he is being treated as a person and a partner in his own health care. He also noted the importance of the VA encouraging veterans to ask for help rather than wait for someone to “fix them.”

In response to a question posted in the chat, Mr. Kingston likened the VA community of veterans with what communities have experienced during the COVID-19 pandemic; that is, people with a universal shared experience. During the pandemic he has photographically documented what has been happening in his neighborhood, town, and surrounding areas. Doing so has allowed him to turn a negative experience into a positive one, changing something universally terrifying into an adventure.

### ***The Engine of Well-Being***

*Eranda Jayawickreme, Ph.D., M.A., Associate Professor of Psychology, Wake Forest University*

Researchers mean many things when they talk about well-being. Different well-being assessments measure positive and negative affect, life satisfaction, meaning, and purpose. Multiple theoretical approaches have been proposed, such as Ryff’s Psychological Well-Being Model, Seligman’s PERMA Model (Positive Emotion; Engagement; Positive Relationships; Meaning; and Accomplishments/Achievements), Deci and Ryan’s Self-Determination Model, and Layard’s focus on life satisfaction as the core of well-being. These are all based on theories that relate to each other but nevertheless have clear distinctions. These approaches may prioritize cognitive assessments, measures of life satisfaction and core psychological needs, reports of how happy one feels, or even assessments of creativity and openness. In sum, said Dr. Jayawickreme, it is not always clear what researchers mean by the term “well-being.”

The Engine Model, developed by Dr. Jayawickreme and Dr. Martin Seligman, advanced a metatheoretical framework for clarifying potential relationships between different constructs and theories surrounding well-being.<sup>38</sup> It distinguishes between inputs, which are internal (characteristics that are stable within people) and external resources that contribute to well-being; processes, which are the internal states that influence our actions or influence how we behave in the world; and outcomes, that is, the types of behaviors that are characteristic of someone who is living well. According to the Engine Model, well-being attainment is dependent on the extent to which individuals have access to well-being pathways, which include both resources and conditions outside the individual (e.g., money), and resources and conditions within the individual (e.g., values, beliefs, knowledge bases).

Drs. Jayawickreme and Seligman started layering existing constructs of well-being into these three different areas, inputs, processes, and outcomes. In the social indicators literature, there was a similar effort to try to organize different measures of quality of life. For decades, well-being researchers advocated for a similar model, so that one can think in a more holistic manner about theory-driven models for specific well-being outcomes. One of the main advantages of the Engine Model is that it helps organize different constructs, at least in psychology, in terms of whether the inputs, processes, or outcomes considered well-being.

The Wellbeing Collaborative is a multidisciplinary, multi-institutional effort based at Wake Forest University to promote students' lifelong well-being. The Collaborative has developed a well-being assessment based on the Engine Model that evaluates whether Wake Forest University students are doing well in college and identifies key inputs and processes in the pre-college and college environments. These can then be acted on through programming to promote student well-being.

The process involves assessment of combined key outcomes that are associated with well-being: optimism, meaning, belonging, and college-specific activities, behaviors, and beliefs that many universities are interested in promoting. Optimism, meaning, and belonging predict subjective well-being, whereas specific activities do not directly predict well-being to the same degree. However, if one considers the culture-specific activities as processes that contribute to optimism, meaning, and belonging, they do predict well-being outcomes. So, for example, having a sense of purpose and seeking purpose in the college experience, having passion and perseverance in activities, having friends, and engaging in activities with friends or in academics seem to promote belonging. Looking at all aspects of the Model can predict well-being and address key processes and inputs or environmental factors that impact well-being.

Dr. Jayawickreme additionally emphasized that well-being requires equity. His assessments found that student scores decrease as the number of minoritized identities (e.g., LGBTQ, racial, ethnic) of a student increase. There is a clear relationship between multiple identities and feeling like a minority and low levels of subjective well-being. However, environmental predictors associated with a campus can explain the relationship between possessing multiple marginalized identities and belonging. This suggests that when promoting well-being, one should consider both environmental inputs and processes when predicting well-being outcomes.

In response to a request in the chat to say more about "capabilities," Dr. Jayawickreme replied that the Nobel Prize-winning economist Amartya Sen noted that they are culturally specific, that is, they comprise what societies and governments identify through policies as competencies that ensure everyone can grow to be fully actualized. In sum, people must come together and decide on what activities are important to flourishing and what resources are needed to do so. In response to another question about the challenges of promoting policies related to well-being in the current political environment, Dr. Jayawickreme replied that framing it as a construct around improving health and well-being and even equity is a less charged approach. It is important to educate policymakers about the evidence behind this concept; that is, it has a robust research foundation on which to stand.

### **Well-Being: Using Measures To Spur Actions To Improve Health Equity**

*Alonzo Plough, Ph.D., M.A., M.P.H., Vice President Research-Evaluation-Learning and Chief Science Officer, Robert Wood Johnson Foundation*

Dr. Plough described well-being activities at the Robert Wood Johnson Foundation (RWJF), which has had focused programs under the strategy of building a culture of health since 2014, aiming to connect the notion of whole health at a personal level with an understanding of the community determinants of health and well-being. The Foundation has integrated well-being and well-being metrics into its domestic and global efforts. Working with the Organisation for Economic Co-operation and Development and the World Health Organization, the Foundation is focused on how well-being measures are routinely incorporated into governmental population health data systems, which does not occur in the United States. Thus, RWJF is aiming for better integration of these approaches and these metrics domestically.



In terms of disparities, the Foundation is assessing the importance of a preventive and health equity orientation as it moves from measuring disparities to actually trying to understand how to improve health equity. As such, a mix of subjective and objective well-being measures are critically important. Dr. Plough described community organizations and citywide efforts in Santa Monica, California and Columbus, Ohio that are already using such measures to assess intersections between community health systems and government to create a well-being and health ethos. RWJF is focused on tying extremely robust work on well-being at an individual level to the needed connection of well-being at a population and community level.

At the national level, the Centers for Disease Control and Prevention, through the *Healthy People 2030* initiative, has developed overall health and well-being measures—broad, outcome measures intended to assess the *Healthy People 2030* vision of a society in which all people can achieve their full potential for health and well-being across the lifespan.<sup>39</sup> There is growing recognition of the power and the potential of well-being measures and indicators. Dr. Plough noted that if the United States used the kind of population-based well-being metrics that other countries have deployed (e.g., New Zealand), it might have picked up on the culture of despair and the opioid epidemic. RWJF has studied 30 “Sentinel Communities” around the country over the last 5 years as these communities and their health systems are developing their own well-being approaches and incorporating a well-being narrative as they move toward action around health equity challenges.

At the same time, the Foundation is funding studies to identify the gaps between well-being measures and deeper considerations of equity. Going forward, the stress and trauma related to the long-term impact of COVID-19 will be a research priority for RWJF. It is focused on measurement of community allostatic load and development of well-being metrics to help us better understand systemic racism and decreasing well-being as a risk factor for COVID-19.

The challenge is in developing well-being metrics that spur a change in the conditions that allow for health affirming behaviors. It is important to understand, particularly in the populations RWJF is most concerned about, that without those changes in the conditions that limit behaviors, for example, access to healthy food, parks, recreation, and housing, well-being just will not occur. People cannot be asked to make choices that they do not have.

Dr. Plough said that RWJF is developing guidance for community well-being data to provide the same kind of rigor to a population-based approach that others have developed in the individual well-being approach. It is engaging a variety of stakeholders around a continuum of knowledge-building about well-being and equity using a system change approach and collaborative science. It is working with leaders in data systems as well as smaller companies on how to capture health and well-being information that is salient for improving community conditions. A future report will focus on transforming public health data, that is, information that helps us understand that public health, is not simply just governmental public health. Another upcoming report will focus on better ways of understanding and improving health, particularly through the lens of COVID-19, including recognizing the pandemic of COVID-19 and endemic of structural racism. Further, the Foundation offers several tools and metrics of interest to this workshop, all available on its website.

In sum, Dr. Plough emphasized the need to concentrate efforts on what it takes to routinize and connect the right kind of well-being data within and across our health care, public health, and population data systems so that we can then develop policies and practices that improve well-being outcomes.

**Discussant**

*Harold Kudler, M.D., Associate Consulting Professor, Duke University, and former Chief Consultant for Mental Health in VHA*

Dr. Kudler began his comments by noting that when he began his career as a physician in the VA system, he held the view that, as a doctor, patients came to him if they were sick, and his work would focus on the sickness. When the patient was no longer sick, his work was done. During his 4-year tenure in the VA Central Office in 2017, he met with then U.S. Surgeon General Vivek Murthy, who described his vision of moving the U.S. health system from a disease and pathology perspective to a wellness focus. Dr. Murthy said his view grew out of his experience growing up with two parents who were physicians and learning about health and illness—how people became well and what distinguished people who were well from those who were not.

This perspective resonated with Dr. Kudler's role in the VHA's Mental Health program, which was identifying and treating mental health problems in a new generation of combat veterans. Suicide prevention was the number one clinical priority for the VA. Military culture mitigates against reporting or acting on medical problems, especially mental health issues, making it difficult to identify problems in living including mental disorders that might predispose to suicide. Service members feel shame in not taking part in the mission and "letting everyone down," and may not report problems they might be experiencing. This perspective stays with veterans long after they have left active duty, and can still be observed in World War II veterans. This makes it difficult for veterans to meet with health care providers to report the problems they are having personally, with their families, and at work. Merely telling these individuals that it is acceptable to talk about their problems was not working for the VA and attempts to reduce stigma met with limited success.

Dr. Kudler's experience while volunteering to work with a group of American, Canadian, and Australian military leaders to improve transition to veteran status strengthened his appreciation about the value of speaking in terms of well-being with new veterans and with veterans throughout the rest of their health journey, not only in terms of physical and mental well-being, but also educational, vocational, financial, housing, family, and spiritual well-being. In fact, these other elements of well-being are often easier to talk about for many people than are mental health problems. Moreover, these conversations often lead back to frank and constructive discussions about mental health and mutually agreed upon plans to deal with such problems.

The development of Dr. Vogt's Well-Being Inventory provides a practical, validated means for measuring well-being. Dr. Kudler proposed that it could be used at baseline during military service, again prior to separation from military service, and then periodically going forward through the transition to the VA system and beyond. This continuum of focus on well-being could be seamlessly woven into VA's new Solid Start program. Although veterans might not be willing to talk about their symptoms of PTSD or depression, they might be willing to discuss how they are doing financially, in a job search, in a transition to college, or with their family. These are ways to engage with people in conversations about their health, not only so their provider can better understand them, but also so they can come to think about themselves in new ways. The value of these new perspectives can also create a powerful, upstream suicide prevention strategy because when people are slipping in these measures of well-being, they are slipping in life.

This is simply an extension of population-health principles upon which the VA was invented, said Dr. Kudler. From the beginning, those who developed the VA system understood that it needed to be more than just another set of hospitals. That is why the VA has focused on rehabilitation, vocational training, education, housing benefits, and benefits for spouses and children. The VA was originally envisioned to support the well-being of a whole person and his or her family and their community. Clinicians and other health systems often bemoan the fact that they cannot rally this level of intervention for their patients. The real genius of the VA is that veterans themselves played an important role in its invention based on their inherent understanding of the importance of well-being after military service. Over subsequent decades, the medical model has slowly eclipsed that original population-based model. This workshop is an effort to renew those original VA principles with an added emphasis on measurement to improve practice. Well-being has the potential to serve as a common language through which patients, clinicians, researchers, medical administrators, and policymakers can come together to define meaningful goals, values, and measures across the spectrum of care.

### ***Discussion in Chat***

Chat entries discussed the difference between health-related quality of life and well-being. Typically, quality of life refers to someone's functioning in everyday life, whereas well-being is a state of mind. However, quality of life can be nested within the concept of well-being. Nonetheless health-related quality of life might not predict well-being; for example, one can have poor health but positive well-being. One commenter asked why can't health be viewed as the functioning of the individual physically, mentally, socially, and maybe even spiritually? Then well-being could be viewed as a same-level (something other than health) or higher-order concept (well-being includes health). One commenter noted that in the basic Maori model, "health" includes physical, psychological, spiritual, and family dimensions.

### **Panel 2: What measures can be used to assess well-being in health research, clinical care, and population health promotion?**

#### ***Flourishing Index and the Global Flourishing Study***

*Tyler VanderWeele, Ph.D., John L. Loeb and Frances Lehman Loeb Professor of Epidemiology, Harvard University*

Dr. VanderWeele opened with the recognition that our institutions and academic disciplines often aspire to grand visions of human flourishing. For example:

- The World Health Organization (1948): Health is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"
- In economics: Maximization of expected utility, considering all aspects of an agent's preferences
- In positive psychology (Penn): "the scientific study of the strengths that enable individuals and communities to thrive"

In practice, discussions and studies are often restricted to specific disease states, simple measures of positive affect (feeling happy), or income. The Oxford English Dictionary defines flourishing as "grow or develop in a healthy or vigorous way." The working definition used at the Harvard Human Flourishing program is "Flourishing (or complete human well-being) is a state in which all aspects of a person's life are good."

The discipline that has come closest to this definition is positive psychology, which has produced many good conceptualizations and measures of psychological well-being. But because this has arisen out of the psychology literature, Dr. VanderWeele said, absent from many of these conceptualizations is any notion of physical health. If we are bedridden, we are not healthy or flourishing. Also absent from many of these measures and conceptualizations is any notion of virtue or character.

Dr. VanderWeele asked, is it possible to measure flourishing and could we ever achieve consensus as it will vary across persons and cultural and philosophical and religious traditions? And while it is the case that there will be variation in the understanding of flourishing or human well-being across traditions, Dr. VanderWeele argued that five domains should be included: happiness and life satisfaction, physical and mental health, meaning and purpose, character and virtue, and close social relationships.<sup>42</sup> These domains do not exhaust flourishing but are arguably a part of it, and any reasonable conception would include them. In addition, each of these domains satisfies the two criteria of being nearly universally desired and an end in itself. As such these criteria might be useful in shaping consensus on what to measure.

If one were developing a short index, one could use two questions chosen in each domain based on what is already regularly in use in the well-being literature and has received some validation. More recently proposed questions are in the character domain for which there are many comprehensive assessments.

Measurement of flourishing could include

- Life satisfaction - How satisfied are you with life as a whole these days? (0–10)
- Affective happiness - In general, how happy or unhappy do you usually feel? (0–10)
- Physical health - In general, how would you rate your physical health? (0–10)
- Mental health - How would you rate your overall mental health? (0–10)
- Worthwhile activities - Overall, to what extent do you feel the things you do in your life are worthwhile? (0–10)
- Purpose in life - I understand my purpose in life (0–10)
- Seeking to do good - I always act to promote good in all circumstances, even in difficult and challenging situations (0–10)
- Delayed gratification - I am always able to give up some happiness now for greater happiness later (0–10)
- Content with relationships - I am content with my friendships and relationships (0–10)
- Satisfying relationships - My relationships are as satisfying as I would like them to be (0–10)

Dr. VanderWeele noted that these are not the perfect measures for all circumstances, especially if time or space is limited. They can be used to measure flourishing at a given point in time or longitudinally and are grounded in empirical work. In a setting where the goal is to get broad coverage with few items, it is a reasonable selection of questions. Dr. VanderWeele and colleagues typically look at each of these five domains separately but will also sometimes calculate the average across them. These subjective items can be supplemented with additional questions that are more objective, for example, financial and material stability drawn from the financial well-being literature (noting that financial resources are means not ends but could indicate flourishing over time).

Dr. VanderWeele and colleagues are engaged in a number of data collection efforts using these measures in the workplace (office, factory, flight attendants); in clinical, university, secondary school,

and community settings; and in conjunction with the Nurses' Health Study. Some patterns have emerged, although cross-cultural comparisons deserve careful consideration: financial well-being is often ranked lowest; social connection is often ranked more highly in other countries; and most dimensions increase with age. All scores have decreased during the pandemic.

Thus far the measures have been used in clinical settings only as a part of mental health care, not routine annual check-up. Some further reflections on its potential use in medicine can be found in VanderWeele, et al. (2019).<sup>43</sup> A global flourishing study is in development with data collection from Gallup, which will consist of 300,000 individuals from 22 geographically and culturally diverse countries, constituting two-thirds of the world's population. It will involve nationally representative sampling and annual data collection on well-being, along with demographic, psychological, social, political, economic, religious, and community variables, every year, for the next 5 years, to better understand the determinants of well-being worldwide. The data from the Global Flourishing Study will be made fully open access and publicly available so as to benefit academics and nonacademics alike, all over the world, who want to understand the critical role of positive psychology and other factors in shaping human well-being.<sup>44</sup>

In response to a question in the chat, Dr. VanderWeele clarified that the countries in the Global Flourishing Study were determined in part: (1) to ensure broad diverse cultural, geographical, and religious coverage; (2) to reach a large proportion of the world's population (large countries were given some priority); and (3) based on feasibility/cost of data collection.

### ***Psychosocial Functioning of Veterans and Other Populations***

*Dawne Vogt, Ph.D., Research Scientist and Professor of Psychiatry, VA Boston Healthcare System and Boston University School Medicine*

In contrast to approaches to measuring well-being with a focus on how people are feeling or their internal states, Dr. Vogt's work centers on how people are doing in different aspects of their day-to-day lives, or their psychosocial functioning, with an emphasis on what is going right rather than wrong. It applies a tripartite framework that postulates, if you want to understand how people are doing in life, you need to know three basic things about them.<sup>45</sup>

First, you need to understand something about their objective life circumstances, for example, whether they are employed and have social connections in their life. Second, you need to know something about their role functioning or how they are functioning in different life roles. Third, you need to know something about their subjective experience of their lives or their satisfaction with life.

Dr. Vogt's Well-Being Inventory applies this tripartite framework to four key life domains: vocation, finances, health, and social relationships. It includes a set of 30 validated measures that can be selected based on setting and context.<sup>46</sup> This framework is unique in that it treats health as a component of well-being, intended to recognize that people can simultaneously have poor health and good well-being in other domains. Conversely one can have poor well-being in some domains but good health.

This approach goes beyond assessing the presence of disease to consider objective and subjective criteria of everyday functioning. It focuses on the presence of positive functioning rather than functional impairment, using a multidimensional approach to identify areas of strength and weakness, recognizing that people may experience good well-being in some areas while they simultaneously experience poor well-being in other areas. A primary goal is its focus on practical aspects of how people are doing in their

lives that could inform the provision of support services. This is especially meaningful in the veterans community, for example, helping someone searching for a job or switching jobs to get career counseling or job skills training.

Dr. Vogt and colleagues are launching a project to evaluate the benefit of feeding back results based on this tool to veterans to see if it is an effective strategy for raising their awareness of areas of reduced well-being and promote their willingness to seek of support (e.g., financial support, couples counseling). The target population is veterans within a few years of leaving service with the goal to interrupt trajectories that lead to chronic maladjustment, which becomes more difficult to treat and worsens over time.

A well-being signs tool has also been developed for use in the clinical context, intended to assess everyday life functioning. It also applies to the tripartite framework, but in contrast to the well-being inventory, which assesses well-being in different life domains, this tool includes three indicators of how people are doing in their most important roles and activities: satisfaction, status/role involvement, and role functioning. This tool focuses on subjective and objective aspects of everyday life functioning consistent with the call for more attention to these kinds of functional outcomes in health care.<sup>47</sup> The tool is intentionally brief, recognizing the need for an instrument that can easily be used in the clinical context to assess everyday life functioning. It also aims to be aligned with the goal of a VA whole health program. It is likely to provide a more direct measure of health care impact than more downstream well-being measures, that is, measuring something that health care could reasonably be expected to impact in a more immediate way. Ultimately, the goal is to change the conversation between providers and patients. The tool will eventually be in the medical record system so the VA can ask clinicians to start using it and learn from the results.

In response to a question about the usefulness of Cantril's Ladder of Life Scale, Dr. Vogt said that while it can be useful, it is hard to know what criteria a person is using when they place themselves on the ladder. In sum, it lacks nuance and can have different meaning depending on context and culture.

### ***Conceptualizing and Assessing Emotional Well-Being***

*Crystal Park, Ph.D., Professor of Psychology, University of Connecticut*

Dr. Park runs the Spirituality, Meaning, and Health Lab at the University of Connecticut and is part of the network of networks NCCIH is funding to advance emotional well-being research. The goal is to create a network of researchers, clinicians, and other stakeholders working together to advance the science. Dr. Park is a co-principal investigator in the Network to Advance the Study of Mechanisms Underlying Mind-Body Interventions and Measurement of Emotional Well-Being (M3EWB).

M3EWB will identify the precursors and mind-body interventions that promote emotional well-being. Emotional well-being may be a mediator that relates to health promotion and other aspects of physical and mental health, which then might loop back to healthier behaviors and lifestyles in either a positive or negative spiral. A first step is to develop a taxonomy of components of emotional well-being that adds clarity and theoretical grounding. Dr. Park and colleagues do not want to make that taxonomy too broad, otherwise it can make actionable targets more difficult to identify. This process involves a systematic review of existing measures and identification of new measures needed to fill the gaps. Based on this work, a toolkit of emotional well-being measures will be developed, relying on self-report, imaging, or physiological or behavioral measures.



A third step that M3EWB will take is identifying mechanisms through which mind-body interventions improve EWB to inform theory and practice. Dr. Park and colleagues are using the definition of emotional well-being provided in the NIH funding announcement, that is, an overall positive state of emotions, life satisfaction, sense of meaning, and the ability to pursue self-defined goals.

Although there are many existing measures of well-being, fewer exist for emotional well-being. (Dr. Park advised participants to look at Harvard's Repository of Positive Psychological Well-Being Scales.) Further, emotional well-being models typically do not define the term, but rather provide a list of items without providing a conceptual framework or theoretical grounding. Some good measures do exist and whatever measures are selected must be robust but brief, especially in the clinical context, where one might not need to know everything about the particular person being seen.

The M3EWB network aims to provide a toolkit of gold standard measures to the research community. The measures will be psychometrically sound; span self-report, behavioral, physiological, and imaging domains; matched to specific concepts; and appropriate for age, culture, and context. Further the toolkit will be updated frequently with supporting current theory and crowdsourcing.

### ***Discussant***

*Richard Davidson, Ph.D., William James and Vilas Professor of Psychology and Psychiatry, University of Wisconsin–Madison and founder and director of the Center for Healthy Minds*

Dr. Davidson had five observations based on the panel presentations.

First, citing Jerome Kagan's 1988 article in the *American Psychologist*, he said that the meaning of a construct is fundamentally defined by how it is measured.<sup>46</sup> Kagan was particularly concerned with measuring various emotional constructs, for example, fear. Fear is experienced differently by someone waiting for a diagnosis from an oncologist than by a rodent exposed to a stimulus that has been paired with shock. The point is that the word was being used in wildly different contexts and was being interpreted and measured in quite different ways.

Second, the panelists provided a diverse set of examples of the predictors and correlates of self-report measures of well-being, reflecting its different dimensions. While these measures are important, they are also incomplete. We know that in many other domains there are often disparities between what a person reports about themselves and what others may report about them. Perhaps these same self-report measures of well-being can be given to significant others or other people in their lives who know them well. This will impose additional burdens and might not be appropriate for all types of studies, but there may be situations where that information gleaned from different types of informants could be significant. As an illustration, studies of childhood adversity and brain imaging outcomes as adults have shown the difference between self-reports of adversity versus brain imaging outcomes in which the self-report measures did not predict the objective measures provided by imaging. There is a vast literature on the disparities between self-reports and more objective measures, for example, in depression. It is not that the self-report measures are less important or informative, rather it is that they are differently important and informative and need to be supplemented with other types of measures.

The third issue relates to the plasticity of well-being. Neuroscience research suggests that the circuits that are important for the dimensions of well-being exhibit plasticity and can be changed through experience and training and that different forms of learning are necessary. Declarative learning is conceptual learning. Procedural learning is acquired through practice, that is, it is skill-based learning,

and involves completely different neural circuits compared to declarative learning. As an example, we can educate people about the value of kindness but that will not necessarily instill kindness. In order to become a kind person, we need to practice kindness. This is an example of procedural learning that operates through different neural systems.

A fourth concern is that there are dimensions that may be important for well-being that are not currently featured in any of the common popular models of well-being, for example, awareness or attention. Mindfulness-based interventions can promote both awareness and attention.

A final consideration is the possibility of developing passive measures of well-being, for example, using smartphones and other devices to collect various channels of information that are highly relevant in looking at the parameters of well-being. This possibility could enable us to scale measures in ways that we have not been able to do until now.

### ***Comments in Chat***

“Mark D. Sullivan’s “The Patient as Agent of Health Care” dives deeply into many of the domains/issues raised today: health as perceived by patient - capacity for action rather than narrower HRQOL, health despite disease, and implications for patient-centered health policy.”

“It is really important to move from research to practical application. We need to develop measures that are accessible in general health care (family physicians who are leading on social prescriptions in the UK) and also for organisations that are interested in the well-being of staff.”

“While all well-being measures should have good face validity and psychometric properties, the choice of the most appropriate well-being measure(s) will be guided by the purpose for which it is being used. Research examining the correlation between the different measures will be useful for determining if they fundamentally measure the same underlying constructs or if they are really measure something different.”

“One way to view this is a ‘derby’ among competing metric schemes. Another (better) way would be to see if there could be a consortium or team of skilled researchers and ask them to coalesce on a small set of metrics fit for specific intended uses - “intended” by the VA. If the cooperative spirit were in place, they could probably produce a shared view with great wisdom.”

“Appreciate the comments on nuance and what is lost in a brief measure. There is perhaps an over-reliance on “screens” to create a diagnosis, for instance without consideration of other factors that are needed to understand the experience of the whole person. Brief measures are enormously useful but need to be interpreted correctly which can be challenging in a busy clinical setting. Foundational understanding and training are crucial in measurement.”

“In this era of long-awaited, deep concern for equity, it will be important to understand and mitigate any embedded problems of inequity, marginalization of subgroups, or structural racism in the current and past approaches to defining and measuring wellbeing. ‘Equity in wellbeing definition and measurement’ ought to be a theme - and a design requirement.”

“We cannot have well-being without addressing these issues of inequity and looking at communal well-being by addressing the othering and social injustices in our institutions. Our samples and measures must be examined and refined in terms of representation and culture.”

“I wonder whether the ‘plasticity of WB’ doesn't help explain how many thrive in the face of adversity. Deployment and wartime experiences are not uniformly negative, for example. Many grow and thrive following these adverse experiences.”

“Classic papers by Glenn Elder and Elizabeth Clipp document that combat experience can have both positive and negative effects on what they call ‘life trajectory.’ It would be very interesting to apply measures of well-being to their work (which was based on data drawn from a comprehensive survey of personal characteristics which their cohort (in the WW II generation) completed pre-war as students at Stanford. They were then followed longitudinally for decades.”

### **Breakout Sessions**

#### **Topic 1: What aspects of well-being are most important to assess in health research, clinical care, and population health promotion?**

*Facilitator, Eric Elbogen, Ph.D., Research Investigator, VHA Homeless Programs Office, National Center on Homelessness Among Veterans*

Many of the concepts raised during the workshop, for example, flourishing, psychosocial dimensions, emotional well-being, mastery, highlight the need for measurements appropriate to different settings, and raise the question of whether they should differ by setting. There are different constructs to consider when choosing tools, for example, whether they will be used during a clinical conversation, the cultural context in which this information is being gathered, and the cultural competence of the person administering the tool.

One participant described an aspect of the cyber domain of collecting data. North Carolina is instituting something called NCCARE360, which could be a powerful screener to identify veterans at risk in terms of well-being. Veterans will be able to complete a questionnaire online and a computer will automatically connect them to support services if indicated based on their response. Participants noted that brief questions can be used as a gating mechanism for any type of measurement tool.

This conversation raised the issue of whether measures are specifically developed with the intent to track an individual over time or whether they are intended to be population measures. Discussants felt that tools would be useful at the individual level to track well-being over time and then guide resource recommendations or inform clinical management. Life trajectory research could be brought into this conversation in useful ways because that field uses some simple measures of well-being and has shown that scores vary across time. With better statistical methods one could do modeling of trajectories of individuals or cohorts. It should not be surprising that there are changes in well-being over the lifespan, given Dr. Davidson's points about the plasticity of well-being. Measures of populations over time can also be meaningful as they might reveal the factors in a culture or society that affect well-being of individuals.

Other discussions centered on whether health should be placed inside of well-being and what aspects of well-being are more important for health research. One participant noted that there is a bidirectional relationship between health and well-being, as discussed by Dr. Langevin. We know from studies of the

mind-body relationship that emotional well-being and emotional suffering are correlated with health with small effects. But these are important to identify so that they can inform changes to structural policy and social and individual interventions. One participant argued against placing physical health under or inside the construct of well-being because of individually uncontrollable factors such as social determinants of health and genetics. Another participant said that health is an aspect of well-being, but the focus is too often on physical health. Focusing entirely on physical health misses what is most important in the human experience.

Two large constructs currently exist: physical health and physical well-being, and emotional life and perceived well-being. There can be dissociations between these two broad constructs. For example, research on a sample of Black and White girls who are now in their 50s found that even though Black girls as children had consistently better family cohesiveness and esteem, they experienced worse physical health in adulthood. Another example is service members who are committed to their physical well-being and physical fitness in order to meet the mission but neglect their emotional well-being.

Discussants suggested that perhaps there should be clarity between health and well-being and between emotional and physical domains. How each is measured differs in terms of objectivity and subjectivity. More agreement is needed on how these terms are used, the lens through which they are being viewed, and the context in which they are being considered. Finally, even though tools might be valid, in pragmatic settings it is more important to know whether they are valuable, feasible, and comprehensible.

## **Topic 2: How can we promote more attention to well-being measurement in health research, clinical care, and population health promotion?**

*Facilitator: Barbara Bokhour, Ph.D., Co-Director, Center for Healthcare Organization and Implementation Research, Veterans Health Administration Whole Health Evaluation Lead*

Dr. Bokhour welcomed the participants and asked them to briefly introduce themselves. She then opened the discussion by asking participants for their ideas on how to get well-being measurement incorporated into clinical care.

Members of the group suggested that:

- Incorporating well-being measurement into clinical care may need to be an iterative process because resistance is likely. It may be best to start small, perhaps with one or a few questions, and then expand the use of well-being measurement if patients find it helpful.
- Connecting well-being measurement to other things that the health care system already values would be useful.
- Showing that there is an economic benefit to well-being measurement would be a good incentive.
- Ongoing initiatives in the Department of Veterans Affairs (VA) could be leveraged. The VA has much expertise in implementation science and has an ongoing initiative to implement measurement-based care in mental health. Well-being measurement could fit in.
- The benefits of well-being metrics need to be explained to the patient, the health care provider, and the organization. Different explanations may be needed for providers in specialty areas than for primary care providers.

- Inadvertent consequences of well-being measurement need to be considered. For example, if well-being is treated as a new vital sign, could that lead to overprescribing of medication?
- There could be negative consequences if questions about well-being are asked poorly or if the health care provider does not address the patient's responses. The VA's experience with the Personal Health Inventory is informative. If it is not performed well, the inventory can be very upsetting to the patient.
- Including well-being tests as secondary outcomes in clinical trials may demonstrate their value and thereby lead to their broader use in clinical contexts.

Dr. Matt Fossey, Director of the Veterans and Families Institute at Anglia Ruskin University in the United Kingdom (UK), explained that the UK is looking at social prescribing in primary care. Having a measure of well-being or a way of understanding well-being is important for social prescribing.

Dr. Bokhour asked the group for their thoughts on the implications of well-being measurements for research.

Dr. Fossey explained that in the UK, a mental well-being scale is used routinely, but it is narrow and confined to health-related well-being. The use of well-being scales like Dr. Vogt's Well-Being Inventory may help charities or other service organizations make decisions on whether the services that are being provided are delivering value for the money spent.

Other points included the following:

- As with the whole health approach, research is needed to evaluate the value of well-being measurement and activities in terms of outcomes, including biometrics such as hemoglobin A1C and body mass index. Demonstrating that outcomes are improved with well-being activities would show return on investment (ROI). The VA is well equipped to perform such research.
- Demonstrating ROI is important for both clinicians and facility directors. Research that would demonstrate improved satisfaction with care if well-being measures are actually used—not just recorded in patients' charts—is needed.
- Although some clinicians may be enthusiastic about including well-being measures in their work, others are likely to resist, just as some clinicians are resisting whole health. Figuring out how to make well-being measures work in the current clinical environment is important.
- Although well-being services may influence clinical or disease outcomes, these may not be the most important outcomes. Well-being itself may be the top priority. As mentioned earlier in this meeting, a person can have good well-being despite poor health.
- The concept of risk adjustment needs to be considered in the context of well-being.
- The online check-ins before medical appointments that became common during the COVID-19 pandemic could provide a convenient opportunity for patients to answer questions about well-being.
- Well-being measures are more likely to be included in research if the funding opportunity announcement specifically asks that they be part of the protocol.
- Investigating the sensitivity to change of well-being measures is important. If an expected change in an outcome measure is not observed, it is important to be able to distinguish a true lack of change from lack of sensitivity of the measure.

- If patients want well-being measures, that would be an impetus for providing them. In the case of whole health, there has been a groundswell of interest among veterans, to the point where those who do not have access to those services are asking why not. However, patients' views may depend on what their providers do with the well-being information that they receive from the patients.

**Topic 3: Are there unique considerations in measuring the well-being of diverse populations, and if so, what are they?**

*Facilitator: Ernest Moy, M.D., M.P.H., Executive Director, Office of Health Equity, Veterans Health Administration*

Dr. Moy introduced himself and commented that the topic of well-being was not his area of expertise. He works in the Office of Health Equity, which examines VA metrics across different populations. He acknowledged that measures of well-being may have different meaning for different groups. He asked how measures of well-being could be made meaningful for diverse populations and for researchers interpreting those measures.

Group members had the following reflections:

- Rather than assuming knowledge about the factors that affect well-being, researchers should ask study participants what affects them.
- Context and past experiences need to be considered when measuring well-being, because preferences and perspectives change over time. Examples of contextual influence include:
  - The COVID-19 pandemic has changed people's perspectives about the factors that affect their well-being.
  - In the MIDUS study, investigators found that socioeconomic status was a modifying factor for self-reported conceptions of well-being. Individuals of higher socioeconomic status placed more value on aspects such as striving, doing, and getting ahead. Participants who had less education and lower incomes placed more value on interdependent connections to others in their communities.
  - Refugees who have experienced deprivation for long periods change their perspectives on aspects of well-being as their environment and societal status change.
  - Some people who have struggled with adversity for long periods, such as victims of concentration camps, demonstrate resilience and strength and may perceive their well-being more positively.
  - People with disabilities may have a different understanding of experiences of well-being.
  - Investigations involving people with opioid use disorders or other mental health issues have demonstrated that the amount and quality of information participants share changes significantly from early to later encounters. People in disadvantaged populations may not feel comfortable sharing information, even about seemingly mundane topics. As people feel less stigmatized, they become more willing to share information about themselves.
  - An investigator's demographic characteristics can influence a participant's responses during an interview. For example, a health care provider, a peer, or a person of nonsimilar gender could each evoke a different response from a participant.



- Some core aspects of well-being may be common across cultures, but the words study participants use to describe those aspects will differ across cultures. Therefore, qualitative measures are needed.
- Mixed-method approaches that use a combination of qualitative and quantitative measures are beneficial because they can be rigorous but also include individual perspectives.
- Qualitative interviews can reveal influential factors researchers have not considered. For example, in the MIDUS study, interviews with participants demonstrated that having a sense of humor was a significant factor that affected well-being.
- Factors that affect well-being may be unique to each individual; comparing them across populations may not be possible.
- Data collection should not be limited to short, in-clinic assessments. Long, self-administered questionnaires completed at home collect more data and may even provide therapeutic self-reflection for participants. If more data are collected, areas of disparity are more likely to be revealed.
- Modern technology and virtual platforms have made at-home assessments and questionnaires easier, which may lead to improved clinical encounters and communication with patients.
- To increase the diversity of data collected, every primary care encounter, including well visits, should include questions about well-being.
- In addition to measuring positive factors of well-being, investigators should measure negative factors, such as stress exposures, hypertension levels, and levels of perceived discrimination.
- Some constructs, such as autonomy or marriage, do not work well as measures across populations, because different populations value those constructs differently. For example, in the MIDUS study, single, middle-aged women in the United States valued autonomy highly, but women of that age in other cultures may place higher value on being married.

### **Closing Remarks**

Drs. Kligler and Vogt thanked participants and the organizing committee. The VA and NCCIH will continue to engage with the planning committee on next steps. There was no expectation that this meeting will result in consensus, but it met its goals of being informative and thought provoking. A meeting will likely be planned in the coming year to take this conversation a few steps further in terms of looking at specific measures and how they can be applied in different settings, what might be defined as standard of care, and what might be working standards for using these tools.

## Post-Meeting Observations

Several participants submitted their perspectives after the conclusion of the meeting, which are summarized below.

- Well-being and the natural environment should be considered using something other than proxy measures (e.g., General Anxiety Disorder7 [GAD7], Patient Health Questionnaire-4 and 9 [PHQ4, PHQ9]).
- How can the importance of non-human relationships (i.e., pets) to well-being be captured?
- Cross-cultural sensitivity is needed both with regard to our concept of well-being but also with regard to how it is measured. Better methods are needed to conceive and measure well-being across diverse subpopulations and cultures.
- Can measurement tools intended for research be adapted for use in the more pragmatic clinical setting?
- General productivity is one aspect of well-being that can be assessed using more objective measures, for example, housing, employment, relationships, finances, physical environment, life skills, and the cultural/social environment. Such measures could also be used to describe the relationship between disparities and well-being and to measure the impact of interventions designed to improve well-being within disadvantaged populations validly.
- With regard to conceptualization, the three main presenters view well-being from a subjective and primarily psychological viewpoint. Interestingly, the Government presenters seemed to resonate better with a multidomain framework using both subjective and objective measures. Toward the end, there seemed to some consensus that a multidomain well-being perspective is more desirable for general use. Establishing validity and reliability is important for subjective measures of well-being.
- The growing emphasis on whole person health reflects the belief that making meaningful improvements in health care and health behaviors requires a true paradigm shift in thinking about what is meant by health and well-being and the role of health care systems and other sectors of society in making the population feel healthier, happier, and fulfilled. This cannot be achieved by tinkering with a fundamentally dysfunctional system.
- Although development of a single valid and reliable measure of well-being would be ideal, it is not practical. The most appropriate measure will be context dependent, so a variety of measures are needed to suit the different contexts. Fortunately, a number of valid, reliable, and sensible measures have been developed and tested. It will be helpful for researchers to compare how different measures correlate with one another. High correlations among conceptually different measures may suggest that despite their differences, there is a core essence among them that transcends context. It might be useful to create a list of real-world ways (contexts) in which measures of well-being could be used to provide a sense of the range of measures that could be considered. Such a list could then be winnowed down to a handful of measures, making things simpler.
- VA's work on a few brief open-ended questions that attempt to assess what may be most important to patients is an excellent strategy for delving deeper into individual experiences and perceptions to potentially address the underlying causes of disease that are not commonly surfaced in health care encounters.
- Funding is needed to promote development, refinement, and comparison among measures of well-being as well as research that uses already validated measures of well-being as outcome

measures in studies. It is likely that enough is already known to move forward with research in this field without waiting for the ultimate measure(s) to be identified.

- More discussion is needed on how measures of well-being and related concepts can or should affect how we think about the goal(s) of health care. Currently, health care interventions are largely focused on the identification, treatment, and prevention of physical disease and to some extent mental disease. This approach is fundamentally reductionist and ignores other social, emotional, economic, and discriminatory factors that collectively have large effects on who seeks health care and the effectiveness of that health care. Studies are needed to contrast the traditional biomedical approach with one that focuses on surfacing and addressing underlying problems before they develop into physical disease.

### **Acknowledgments**

#### ***Planning Committee***

Ben Kligler, M.D. (Co-Chair), Executive Director, Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration

Dawne Vogt, Ph.D., (Co-Chair), Research Scientist and Professor, National Center for PTSD, VA Boston and Boston University School of Medicine

Barbara Bokhour, Ph.D., Co-Director of Center for Healthcare Organization and Implementation Research, Veterans Health Administration Whole Health Evaluation Lead

Emmeline Edwards, Ph.D., Director, Division of Extramural Research, National Center for Complementary and Integrative Health

Eric Elbogen, Ph.D., Research Investigator, Veterans Health Administration Homeless Programs Office, National Center on Homelessness Among Veterans

Harold Kudler, M.D., Duke University, Former Chief Consultant for Mental Health, Veterans Health Administration

Stephen Marcus, Ph.D., Scientific Program Manager, Health Services Research and Development, Office of Research and Development, Veterans Health Administration

Merav Sabri, Ph.D., Program Director, Basic and Mechanistic Research Branch, Division of Extramural Research, National Center for Complementary and Integrative Health

Tamara Schult, Ph.D., M.P.H., Health System Specialist, Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration

## References

1. Diener E, Suh EM, Lucas RE, et al. Subjective well-being: Three decades of progress. *Psychological Bulletin*. 1999;125(2):276-302.
2. Bradburn N. The Structure of Psychological Well-Being. Chicago, IL: Aldine Publishing Company; 1969.
3. Andrews F. Social Indicators of Well-Being: Americans Perception of Life Quality. New York, NY: Plenum Press; 1976.
4. Veroff J, Douvan E, Kulka R. The Inner American: A Self-Portrait from 1957 to 1976. New York, NY: Basic Books; 1981.
5. Campbell A. The Sense of Well-Being in America: Recent Patterns and Trends. New York, NY: McGraw-Hill; 1981.
6. Ryff CD. Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*. 1989;57:1069-1081.
7. Ryff CD. Psychological well-being revisited: advances in the science and practice of eudaimonia. *Psychotherapy and Psychosomatics*. 2014;83(1):10-28.
8. Ryff CD. Well-being with soul: science in pursuit of human potential. *Perspectives in Psychological Science*. 2018;13(2):242-248.
9. Keyes CLM, Shmotkin D, Ryff CD. Optimizing well-being: the empirical encounter of two traditions. *Journal of Personality and Social Psychology*. 2002;82(6):1007-1022.
10. Fredrickson BL, Grewen KM, Coffey KA, et al. A functional genomic perspective on human well-being. *Proceedings of the National Academy of Sciences*. 2013;110(33):13684-13689.
11. Cole SW, Levine ME, Arevalo JM, et al. Loneliness, eudaimonia, and the human conserved transcriptional response to adversity. *Psychoneuroendocrinology*. 2015;62:11-17.
12. Keyes CLM. Promoting and protecting mental health as flourishing: a complementary strategy for improving national mental health. *American Psychologist*. 2007;62(2):95-108.
13. Keyes CLM. The Black–White paradox in health: flourishing in the face of social inequality and discrimination. *Journal of Personality*. 2009;77(6):1677-1706.
14. Keyes CLM, Dhingra SS, Simoes EJ. Change in level of positive mental health as a predictor of future risk of mental illness. *American Journal of Public Health*. 2010;100(12):2366-2371.
15. Cohen R, Bavishi C, Rozanski A. Purpose in life and its relationship to all-cause mortality and cardiovascular events: a meta-analysis. *Psychosomatic Medicine*. 2016;78(2):122-133.
16. Boyle PA, Buchman AS, Barnes LL, et al. Effect of a purpose in life on risk of incident Alzheimer disease and mild cognitive impairment in community-dwelling older persons. *Archives of General Psychiatry*. 2010;67(3):304-310.
17. Boyle PA, Buchman AS, Wilson RS, et al. Effect of purpose in life on the relation between Alzheimer disease pathologic changes on cognitive function in advanced age. *Archives of General Psychiatry*. 2012;69(5):499-505.
18. Kim ES, Sun JK, Park N, et al. Purpose in life and reduced risk of myocardial infarction among older U.S. adults with coronary heart disease: a two-year follow-up. *Journal of Behavioral Medicine*. 2013;36(2):124-133.
19. Kim ES, Sun JK, Park N, Peterson C. Purpose in life and reduced incidence of stroke in older adults: 'The Health and Retirement Study'. *Journal of Psychosomatic Research*. 2013;74(5):427-432.
20. Kim ES, Strecher VJ, Ryff CD. Purpose in life and use of preventive health care services. *Proceedings of the National Academy of Sciences of the United States of America*. 2014;;111(46):16331-16336.
21. Kim ES, Kawachi I, Chen Y, et al. Association between purpose in life and objective measures of physical function in older adults. *JAMA Psychiatry*. 2017;74(10):1039-1045.
22. Kim ES, Ryff C, Hassett A, et al. Sense of purpose in life and likelihood of future illicit drug use or prescription medication misuse. *Psychosomatic Medicine*. 2020;82(7):715-721.

23. Yemiscigil A, Vlaev I. The bidirectional relationship between sense of purpose in life and physical activity: a longitudinal study. *Journal of Behavioral Medicine.* April 23, 2021. Epub ahead of print.
24. Morozink JA, Friedman EM, Coe CL, et al. Socioeconomic and psychosocial predictors of interleukin-6 in the MIDUS national sample. *Health Psychology.* 2010;29(6):626-635.
25. Radler BT, Rigotti A, Ryff CD. Persistently high psychological well-being predicts better HDL cholesterol and triglyceride levels: findings from the midlife in the U.S. (MIDUS) longitudinal study. *Lipids in Health and Disease.* 2018;17(1):1.
26. Ryff CD, Radler BT, Friedman EM. Persistent psychological well-being predicts improved self-rated health over 9–10 years: longitudinal evidence from MIDUS. *Health Psychology Open.* 2015;2(2):2055102915601582.
27. Yoo J, Ryff CD. Longitudinal profiles of psychological well-being and health: findings from Japan. *Frontiers in Psychology.* 2019;10:2746.
28. Boylan JM, Ryff CD. Psychological well-being and metabolic syndrome: findings from the midlife in the United States national sample. *Psychosomatic Medicine.* 2015;77(5):548-558.
29. Heller AS, van Reekum CM, Schaefer SM, et al. Sustained striatal activity predicts eudaimonic well-being and cortisol output. *Psychological Science.* 2013;24(11):2191-2200.
30. Fava GA, Rafanelli C, Cazzaro M, et al. Well-being therapy. a novel psychotherapeutic approach for residual symptoms of affective disorders. *Psychological Medicine.* 1998;28(2):475-80.
31. Ruini C, Belaise C, Brombin C, et al. Well-being therapy in school settings: a pilot study. *Psychotherapy and Psychosomatics.* 2006;75(6):331-336.
32. Ruini C, Ottolini F, Tomba E, et al. School intervention for promoting psychological well-being in adolescence. *Journal of Behavioral Therapy and Experimental Psychiatry.* 2009;40(4):522-532.
33. Reeves R. *Dream Hoarders: How the American Upper Middle Class Is Leaving Everyone Else in the Dust, Why That Is a Problem, and What to Do About It.* Washington D.C.: Brookings Institution; 2017.
34. Kirsch JA, Love GD, Radler BT, et al. Scientific imperatives vis-à-vis growing inequality in America. *American Psychologist.* 2019;74(7):764-777.
35. Goldman N, Gleit DA, Weinstein M. Declining mental health among disadvantaged Americans. *Proceedings of the National Academy of Sciences of the United States of America.* 2018;115(28):7290-7295.
36. Perry BL, Aronson B, Pescosolido BA. Pandemic precarity: COVID-19 is exposing and exacerbating inequalities in the American heartland. *Proceedings of the National Academy of Sciences of the United States of America.* 2021;23;118(8):e2020685118.
37. National Center for Complementary and Integrative Health. *NCCIH Strategic Plan FY 2021–2025: Mapping the Pathway to Research on Whole Person Health.* National Center for Complementary and Integrative Health website. Accessed at <https://nccih.nih.gov/about/nccih-strategic-plan-2021-2025> on June 14, 2021.
38. Jayawickreme E, Forgeard MJC, Seligman MEP. The engine of well-being. *Review of General Psychology.* 2012;16(4):327-342.
39. Centers for Disease Control and Prevention website. Well-Being Concepts. Accessed at <https://www.cdc.gov/hrqol/wellbeing> on June 14, 2021.
40. Plough A. *Well-Being: Expanding the Definition of Progress.* Robert Wood Johnson Foundation: Oxford; 2020.
41. Harvard University website. The Human Flourishing Program. Accessed at: <https://hfh.fas.harvard.edu> on June 14, 2021.
42. VanderWeele TJ. On the promotion of human flourishing. *Proceedings of the National Academy of Sciences of the United States of America.* 2017;114(31):8148-8156.
43. VanderWeele TJ, McNeely E, Koh HK. Reimagining health–flourishing. *JAMA.* 2019;321(17):1667-1668.

44. VanderWeele TJ. The Global Flourishing Study. *Psychology Today Blog*. May 1, 2020.
45. Gladis, MM, Gosch, EA, Dishuk, NM, & Crits-Christoph, P. Quality of Life: Expanding the Scope of Clinical Significance. *Journal of Consulting and Clinical Psychology*. 1999;67(3), 320-331.
46. Vogt, D, Taverna EC, Nillni YI, et al. Development and validation of a tool to assess military veterans' status, functioning, and satisfaction with key aspects of their lives. *Applied Psychology and Health Well-Being*. 2019;11(2): 328-349.
47. Lilienfeld, SO. What is "evidence" in psychotherapies? *World Psychiatry*. 2019; 18(3), 245-246.
46. Kagan J. Temperamental contributions to social behavior. *American Psychologist*. 1989;44(4):668-674.

## Appendix

### ENHANCING WELL-BEING MEASUREMENT IN HEALTH RESEARCH, CLINICAL CARE, AND POPULATION HEALTH PROMOTION

June 14, 2021  
1:00pm-5:00pm EST

Zoom link:

<https://www.zoomgov.com/j/1609739841>

#### Meeting Agenda

- a. Introductions, Key Leaders, and Keynote (1:00pm – 2:15 pm)
  - **Welcoming Remarks:** Dr. Ben Kligler, MD, Executive Director, Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration (VHA); Dr. Emmeline Edwards, PhD, Director, Division of Extramural Research, National Center for Complementary and Integrative Health (NCCIH); and Dr. Dawne Vogt, PhD, Research Scientist and Professor of Psychiatry, National Center for PTSD, VA Boston Healthcare System and Boston University School of Medicine
  - **Use of Well-Being Measurement to Inform Health Promotion Policy and Practice - A Research Perspective:** Dr. Carol Ryff, PhD, Hilldale Professor of Psychology, University of Wisconsin-Madison
  - **Leadership Perspectives on the Importance of Measuring Well-Being:** Carolyn Clancy, MD, Acting Deputy Secretary of Veterans Affairs, and Helene Langevin, MD, Director, National Center for Complementary and Integrative Health (NCCIH)
  
- b. Panels and Discussion (2:15pm – 4:15 pm)
  - **Panel #1: Why is it important to assess well-being in health promotion efforts and what aspects of well-being are important to consider in these efforts?** This panel will include Rodger Kingston, a Veteran from VA Boston Healthcare System; Eranda Jayawickreme, PhD, MA, Associate Professor of Psychology, Wake Forest University; and Alonzo Plough, PhD, MA, MPH, VP, Research-Evaluation-Learning and Chief Science Officer, Robert Wood Johnson Foundation, along with discussant Harold Küdler, MD, Associate Consulting Professor, Duke University and former Chief Consultant for Mental Health in VHA.
  - **Panel #2: What measures can be used to assess well-being in health research, clinical care, and population health promotion?** This panel will include Tyler Vanderweele, PhD, John L. Loeb and Frances Lehman Loeb Professor of Epidemiology, Harvard University; Dawne Vogt, PhD, Research Scientist and Professor of Psychiatry, VA Boston Healthcare System and Boston University School of Medicine; and Crystal Park, PhD, Professor of Psychology, University of Connecticut, along with discussant Richard Davidson, PhD, William James and Vilas Professor of Psychology and Psychiatry, University of Wisconsin–Madison and Founder and Director of the Center for Healthy Minds.
  
- c. Breakout Sessions (4:15 pm – 4:50pm)

- **Topic 1:** What aspects of well-being are most important to assess in health research, clinical care, and population health promotion? (Facilitator – Eric Elbogen, PhD, Research Investigator, VHA Homeless Programs Office, National Center on Homelessness Among Veterans)
- **Topic 2:** How can we promote more attention to well-being measurement in health research, clinical care, and population health promotion? (Facilitator - Barbara Bokhour, PhD, Co-Director of Center for Healthcare Organization and Implementation Research, VHA Whole Health Evaluation Lead)
- **Topic 3:** Are there unique considerations in measuring the well-being of diverse populations, and if so, what are they? (Facilitator - Ernest Moy, MD, MPH, Executive Director, Office of Health Equity, VHA)

d. Meeting Wrap-Up and Closing Remarks