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Positive resources for psychiatry in the fourth industrial revolution: Building patient and family focused psychological capital (PsyCap)

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Abstract

COVID-19 is altering the world, impacting every facet of life, and driving an associated global paradigm shift. Threats to our individual, family, team, community, and global well-being consume our attention at the potential price of our well-being and performance. The time to respond with scientific approaches to protect our most precious assets – people – is now. COVID-19, unstable geopolitical systems, and accelerated scientific and technological breakthroughs are characteristic of what has been identified as a Fourth Industrial Revolution (4IR). This 4IR is placing a premium on solutions that are validated to increase well-being, especially those that simultaneously significantly increase performance. Psychological Capital or simply PsyCap has emerged as a leading evidence-based positive approach to human

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development, drawing from previously largely untapped psychological resources (Hope, Efficacy, Resilience and Optimism or the HERO within). Although there is an extensive, growing body of PsyCap academic research in all levels of analysis and domains, there is still a void in PsyCap's applications within psychiatry. The purpose of this article is to review PsyCap applications and its implications for the practice of psychiatry, especially within the context of 4IR and the second wave of Positive Psychology (PP 2.0). Specific attention is given to evidence-based, non-stigma applications for the effective practice of psychiatry.

Keywords: Psychological capital, PsyCap, fourth industrial revolution, positive psychology, hope, efficacy, resilience, optimism, HERO within

As we evolve into the Fourth Industrial Revolution (4IR), The World Economic Forum (WEF) predicts the disruption of every industry and institution in the world. This revolution will be driven by scientific and technological breakthroughs that challenge geographical boundaries, existing regulatory frameworks, and, importantly, even go so far as to redefine what it means to be human (Schwab, 2016). This revolutionary environment creates a context that the WEF and U.S. Army War College refers to as VUCA – volatile, uncertain, complex, and ambiguous. Simultaneously, the disastrous COVID-19 global pandemic has resulted in a paradigm shift that has dramatically impacted every facet of our lives—how we live, work, play, learn, socialize, and govern. The economic, human, social, and psychological capital impacts of this global pandemic will be felt for generations. While current global circumstances may seem extremely bleak, through a positive lens we believe that the 4IR can also represent unforeseen opportunities to redefine industries and institutions worldwide, to include the field of psychiatry. Identifying new opportunities, crossing the “knowing-doing” gap between science and practice globally, and proliferating access to well-being, performance, and mental health services will be essential to our global recovery and new way of “being” in the 4IR. However, 4IR will certainly introduce challenges that more so than ever will require a focus on our most important and valuable asset—people, as we try to protect them from the potentially devastating consequences of COVID-like crises and rapid innovation and breakthrough technologies that pose risks to their thriving, well-being, and optimal performance.

Amidst the VUCA environment of 4IR and COVID-19, academic inquiry of positive psychology (the study of human strengths, well-being, and human potential) is experiencing its own evolution, if not revolution. Since 1998, positive psychology has increasingly been introduced and identified within the academic literature as undergoing a Wave 1 Positive Psychology 1.0 (PP1.0) to more recent Wave 2 Positive Psychology 2.0 (PP2.0) (e.g. see Wong, 2011). PP1.0 has led to a groundswell of research and inquiry around well-being and strengths-based research to counterbalance the decades of historical research on what was wrong with people...negatively- oriented psychopathology, dysfunctional behavior and mental illness. PP2.0, on the other hand, pushes positive psychology towards more inclusive and balanced research which in addition to focusing on the what makes life worth living and how to improve life for all people—also embraces further balance between positive and negative, along with an appreciation of the ambivalent nature of the good life (Mayer et al., 2019). Additionally, PP2.0 acknowledges the dialectical nature of well-being (Lomas & Ivtzan, 2016) and the role of negative emotions, or the “dark” side of life, while better understanding its role in our positive functioning and human development and transformation (Ivtzan et al., 2016; Wong, 2011, 2019).

As the scientific inquiry of PP2.0 progresses, interdisciplinary approaches, such as our Positive Organizational Behavior (POB, see Luthans, 2002a, 2002b) and its core construct of Psychological Capital or PsyCap consisting of Hope, Efficacy, Resilience and Optimism or the HERO within (see Luthans, Avolio, et al., 2007; Luthans et al., 2004; Luthans et al., 2015; Luthans & Youssef, 2004; Luthans, Youssef, et al., 2007,) provide valuable evidence-based approaches that address many of the goals of positive psychology (PP1.0 and PP2.0). PsyCap fosters the development of positivity in general, while also providing the opportunity to balance positivity and negativity within the dialectical nature and development of the HERO positive psychological resources that lead to well-being and performance. All agree the future global mental health demands are significant, and collectively, we do not have the supply to meet the current demand, let alone in the 4IR future. As a result, novel, innovative, stigma eliminating approaches such as PsyCap which can support well-being, mental health, AND performance (regardless of wellness or illness) seems essential.

Global pre-COVID-19 well-being and mental health

Prior to the COVID-19 pandemic, leading global research indicated a future that included: stress being identified as the epidemic of the 21st Century by The World Health Organization (with the workplace being identified as the primary source); suicides increasing globally at alarming double digit rates amongst high risk populations (our youngest and oldest) (Quinnett, 1987). Also, there is and will be a global shortage in mental health providers, especially with geographical variation in services and effectiveness between metropolitan and rural communities.

Even in high income countries such as the United States, it is estimated that 65% of non-metropolitan counties do not have access to a psychiatrist and almost half of non-metropolitan counties (47%) do not have a psychologist (Andrilla et al., 2018). This geographical variation in the supply of psychiatry, and mental health professionals in general, to rural areas is further exacerbated by a shortage of psychiatrists and mental health professionals worldwide.

In 2015, an estimated 43.4 million Americans aged 18 and older suffered from behavioral health issues (Andrilla et al., 2018). The reality is, almost every human being at some point or another will face a mental health challenge during the course of their lifetime. This could be related to general stress management, anxiety, depression, substance abuse, suicidal ideation, violence (bullying, harassment, physical, gender-based), or may be something circumstantial, such as adjusting to sudden or unexpected changes in life (i.e. grief over the loss of a loved one, divorce, separation, or even changes in the workplace). While most individuals will face a mental health challenge during the course of their lifetime, many individuals are underserved, and unaware, of modern mental health and well-being evidence-based treatments. These can alter and transform lives – leading to improved well-being. Without access to psychiatric care, the 43.4 million Americans suffering from behavioral health issues are likely much higher, with the potential of millions of Americans in rural areas who are suffering in silence, undiagnosed and untreated. The U.S. Census estimates that roughly 60 million, or one in five Americans, equating to 19.3% of the U.S. population, live in rural areas (Ratcliffe et al., 2016). These rural locations occupy 97% of United States' land area, representing

a large geographically dispersed population of Americans in need of mental health education, services, and treatments.

On a macro perspective, the National Institute of Mental Health identifies depression as the most common mental health disorder. Globally, the WHO confirms depression as the most common mental health disorder, impacting approximately 264 million people worldwide. Depression is the most undiagnosed, but treatable disorder. When left undiagnosed and untreated, depression increases risk of several comorbid factors (i.e. stress, anxiety, substance abuse, suicide) that negatively impact well-being, and can shorten or even end lifespans.

Adding further complexity to these mental health and well-being challenges within the U.S., the Veteran's Administration reports that an estimated 5 million (out of 18 million total) Veterans live in rural communities. This equates to roughly 28% of our former U.S. service members living and working in rural geographical areas that are underserved. We know from extensive research on our military service members that this population in particular is at heightened risk for both physical and psychological challenges (i.e. shorter overall life expectancies, stress, anxiety, depression, PTSD, substance abuse, suicide, etc.) (Krasikova et al., 2015). These statistics emphasize the need to provide mental health services in more geographically dispersed rural communities.

The data above (which can be extrapolated, or is even generally worse, across much of the world) provides compelling arguments driving the goal of psychiatry (according to the American Psychiatric Association) as being broadly accessible in the prevention, education, and treatment of those suffering from mental health challenges. Importantly, the same goes for their family members. It also provides compelling evidence that psychiatry's goal of meeting the unfulfilled global needs for treatment of mental illness is not being met, and that demand is rapidly increasing.

COVID-19 stressors and stigma issues

COVID-19 introduces a global pandemic that is increasing stressors and potentially negatively threatening well-being and performance

worldwide. We know from extant research that individuals suffering from mental health challenges prior to COVID-19 are specifically even more vulnerable during this crisis, resulting in further unmet patient demand (World Health Organization, 2005). In addition, as outlined above, organizations such as the American Psychiatric Association (APA), World Health Organization (WHO), World Economic Forum (WEF), and the World Psychiatric Association (WPA) indicate that prior to COVID-19, mental health issues were increasing at alarming rates, leading to billions of individuals worldwide who are at high risk for mental health challenges, which are now exacerbated by COVID-19.

Stigma remains a major problem globally, creating barriers to services for individuals who are in need, regardless of access to services. As noted by Corrigan (2004), “Although the quality and effectiveness of mental health treatments and services have improved greatly over the past 50 years, many people who might benefit from these services choose not to obtain them or do not fully adhere to treatment regimens once they are begun” (p. 614). People tend to avoid being associated with mental health care. Additionally, the type of label applied to mental health challenges carries valence. For example, people with psychotic disorders are judged more harshly than people with depression or anxiety disorders (Pescosolido et al., 1999).

Important roles for psychiatry in 4IR

We believe in the 4IR the field of psychiatry has much to offer, and much to gain by implementing evidence-based approaches which increase access to psychiatric services, specifically to underserved geographical populations across the world. We propose one such evidence-based approach which has been clearly demonstrated to increase well-being and performance is PsyCap (see meta-analysis by Avey et al., 2011 and comprehensive review by Newman, Ucbasaran, Zhu, & Hirst). Perhaps most interestingly, PsyCap represents a new resource to psychiatry that provides a two-pronged set of valuable and measurable outcomes: (1) Broadly extends the reach of psychiatry (and mental health in general) to patients of all demographics and their families, while reducing stigma associated with mental health by focusing on positivity in general and well-being and performance

in particular (both proactively, and in response to adversity/diagnosis), and (2) Provides an evidence-based framework preparing psychiatry for the cultural and soci-cultural needs now and the future driven by 4IR and PP2.0.

As a result, the aim of this article is to provide practical, operationalized, evidence-based approaches for prevention and care of mental health patients and their families, as well as specific guidance on how PsyCap supports PP (1.0 and 2.0) in the 4IR, VUCA context. We will begin with a brief review of the Industrial Revolutions, followed by an introduction to POB, its core construct of PsyCap, and a brief review of pertinent research of value to psychiatry and mental health professionals in general. Next we'll provide examples of how to apply the science of PsyCap to patient and family care. Then we will discuss how PsyCap supports PP in the 4IR, VUCA context, highlighting future ideas to impact theory and PP practice, including PP2.0.

Brief overview of industrial revolutions

Historically, we will identify four industrial revolutions that have drastically shaped how we live, and what it means to be “human.” The First Industrial Revolution introduced the use of steam power to mechanize production; the second ushered in groundbreaking inventions in telecommunications, manufacturing, transportation, and technological advancements using electric power to generate mass production; and the third introduced the digital era (i.e. internet) (Schwab, 2016). Today, the World Economic Forum (WEF) led by Professor Klaus Schwab argues that society is undergoing a Fourth Industrial Revolution (4IR). This revolution is described as an age of scientific and technological breakthroughs that will disrupt industries, dilute geographical boundaries, and challenge existing frameworks. In essence, the 4IR, consistent with the three previous industrial revolutions, is once again expected to redefine what it means to be human, and also redefine “who we are” as well as “who we can become.”

Societies today are experiencing paradigm shifts related to COVID-19 and this 4IR simultaneously, leading to what can only be expected to be an exponential shift in our human development. Artificial intelligence, medicine (to include developments in neuropsychiatry),

blockchain, and positive organizational behavior represent scientific breakthroughs and technological advancements that profoundly change how we view well-being, performance, and the treatment of health—physically, mentally, and psychologically. While these same assets provide many opportunities, there is also a downside related to our VUCA context. Some of the same scientific breakthroughs and technologies that have the potential to improve what it means to be human, and “who we are,” also threaten it (Schwab, 2016). For example, as artificial intelligence replaces work previously performed by humans, job security and professional self-concepts are certain to be impacted, both negatively and positively. It is precisely through this human dimension, people focused multidisciplinary approaches that scientifically we can embrace the opportunities that the 4IR represents, while mitigating the negative and sometimes unintended consequences that surround this unprecedented period of simultaneous opportunity and peril. We believe that POB and its core construct of PsyCap have much to offer in the 4IR, and specifically much to offer to the theory, research and practice of global psychiatry.

Positive organizational behavior and psychological capital

Over the last 20+ years, a new paradigm perspective of human and organizational behavior has emerged represented by the fields of Positive Psychology and POB. At attendance at the first Positive Psychology Summit (PP1.0) in 1999 while affiliated as a Senior Scientist with the famed Gallup Organization, Luthans noted the absence and evaluated the implications for his field of organizational behavior. He soon thereafter (2002a, 2002 b) introduced what he termed Positive Organizational Behavior or simply POB into the PP1.0 literature. State-like POB he defined as “the study and application of positively oriented human resource strengths and psychological capacities that can be measured and make a contribution to performance improvement in the workplace” (Luthans, 2002a, p. 698).

In order for a PP1.0 construct to be considered for inclusion in POB, he determined three criteria which must be met: (1) theory and research supported and validly measurable, (2) related to performance improvement, and (3) state-like and thus, open to learning,

development, change, and management (Luthans, 2002a). As important as the performance impact, was that the POB positive constructs must be based on a scientific foundation and state-like and, thus, be open to development through short, targeted, evidence-based, and scientifically validated training interventions.

Psychological capital as a derivative and outgrowth of POB

Research following the POB PP1.0 inclusion criteria led Luthans to the identification of a second order, core construct he termed Psychological Capital or simply PsyCap. It is comprised of the four well known positive, first order constructs of: (1) Hope, (2) Efficacy, (3) Resilience, and (4) Optimism. This multi-variable PsyCap is often referred to with its acronym of the “HERO within.” Importantly, about the past two decades, PsyCap has been both theoretically (Luthans, 2002a, 2002b; Luthans, Youssef, et al., 2007; Youssef-Morgan & Luthans, 2013) and empirically (Luthans, Avolio, et al., 2007; also see reviews by Avey et al., 2011; Dawkins et al., 2013; Newman et al., 2014) been clearly demonstrated to be a second-order construct which accounts for more variance in attitudes, behavior and performance than the four individual positive constructs that make it up. As a result, PsyCap provides an additive value above and beyond hope, efficacy, resilience, and optimism (Avey et al., 2010). There has also been recent Latent Profile Analysis (LPA) conducted on a large sample which gives the strength and impact of various combinations of the four PsyCap resources. This study found most support for the strongest combination and impact on desired outcomes being the profile of PsyCap as a unitary structure (i.e. the profile with all four having positive valances combined together vs. profiles of combined highs and lows) (Djourova et al., 2019). In keeping with the POB inclusion requirements, PsyCap as a core construct is also open to development and has desirable impact on all types of outcomes using a wide variety of interventions (for a summary, see Luthans & Youssef- Morgan, 2017).

PsyCap is specifically defined and universally accepted as being “an individual’s positive psychological state of development characterized by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive

attribution (optimism) about succeeding now and in the future, (3) persevering towards goals, and when necessary, redirecting paths to goals (hope) in order to succeed, and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success” (Luthans, Youssef, et al., 2007, p. 3). PsyCap represents a new form of capital (often untapped and underdeveloped) that focuses on “who you are” and, most importantly, “who you can become” expanding human potential (Luthans et al., 2004; Luthans & Youssef, 2004).

As we consider the 4IR and the impact on psychiatry, it is not lost that the 4IR is expected to alter “who we are” as individuals within accelerated VUCA contexts. PsyCap development, which focuses on people, and “who they are” as well as “who they can become,” provides a scientifically validated framework that serves as a *scaffolding* for psychiatry, both from a global mental health care perspective, and as a means to address the cultural and soci-cultural issues driven by 4IR and PP2.0. Now, let’s take a deeper dive into the meaning of each of the PsyCap HERO components.

PsyCap hope

Hope has a long theoretical and empirical history within psychology and was determined to strongly meet the PsyCap inclusion criteria to become a vital component. PsyCap hope primarily draws from the theoretical and research work of Snyder et al. (1991) and is defined as “a positive motivational state that is based on an interactively derived sense of successful (1) agency (goal-oriented energy), and (2) pathways (planning to meet goals)” (p. 287). Individuals who are high in hope tend to be good at setting goals, identifying multiple pathways or “steps” along their goal pathway, as well as possessing the ability to reset goals when obstacles and adversity are encountered. High hope individuals are also resourceful; they reach out to others for support and ideas to generate additional pathways towards their goal pursuit, while optimizing resources by leveraging strengths along the way.

PsyCap efficacy

Commonly referred to as self-efficacy in the academic literature, simply put it refers to one's confidence and belief based upon Albert Bandura's (1997) considerable theory and research. Stajkovic and Luthans (1998) define confidence, or self-efficacy, as an individual's conviction about his or her abilities to mobilize the motivation, cognitive resources, and courses of action needed to successfully execute a specific task within a given context. Their meta-analysis demonstrated a strong relationship between efficacy and performance, and also provided clear guidelines of how it can be developed. Individuals who are high in self-efficacy possess a generalized belief in their ability to achieve their goals and draw upon domain specific mastery experiences when faced with unique, complex challenges such as is found in today's and tomorrow's VUCA environment.

PsyCap resilience

Resilience is simply defined as the ability to bounce back from adversity or even dramatic positive changes (Luthans, 2002a; Masten, 2001). Coutu (2002) describes those with resilience to have a staunch acceptance of reality; a deep belief, often buttressed by strongly held values, that life is meaningful, and an uncanny ability to improvise and adapt to significant change. Similar to early developmental psychologists' recognition that strengths and assets can provide valuable "buffering" effects when stress or adversity arises, organizational behaviorists alike find that this same concept of buffering effects can be developed through mindful attention on one's assets, weaknesses, and influencers. Focusing on assets provides clear identification of human strengths that can be leveraged during difficult times or setbacks, while understanding weaknesses provides early guidance on what individual vulnerabilities or deficits are that introduce risk. Influencers include evaluation of those areas where individuals have some sense of control, or directional influence, which may assist in efforts to bounce back and even beyond following adversity. In today's 4IR and PP2.0 context, building resilience is essential in attaining flexibility and adaptability. Individuals who are high in resilience

are able to manage emotional labor following adversity, and as a result, bounce back faster when obstacles are encountered. This ability to bounce back increases the types of goals individuals set (hope), as well as generalized confidence. Individuals who are high in resilience also tend to be more confident about their ability to manage challenges, adversity, and stressors.

PsyCap optimism

Our meaning of optimism draws both from Scheier and Carver (1985) on positive future expectations that are open to development and Seligman (2002) which largely draws from attribution theory related to how events are interpreted. According to Seligman, optimists interpret bad events as being only temporary, while pessimists interpret bad events as being permanent. These attributions touch on two critical dimensions of optimism: permanence and pervasiveness. Optimists tend to make permanent attributions (“I’m good at what I do”), versus pessimists who make temporary attributions (“I tried hard on this particular task and got lucky”).

As it turns out, optimism not only sets expectancies about our past and future events, it also has important implications for individual strategies of coping (Scheier et al., 1986), acting as a buffer against stress. “Optimists and pessimists spontaneously employ quite different coping strategies when confronted by stressful situations. Optimism was positively correlated within indications of active coping, with elaboration or complexity of coping strategies, and with the seeking of social support. Optimism was inversely correlated with focus on emotion and emotional expression, and with disengagement from the goal” (Scheier & Carver, 1985, p. 241). In other words, optimism impacts how individuals perceive stress and perhaps, more importantly for psychiatry, how they cope with stress. Optimism also determines how people problem solve when faced with complexity, adversity and obstacles are encountered. Optimists tend to employ an approach to coping that in many life circumstances is most adaptive, and least dysfunctional. In addition, this optimistic coping strategy impacts one’s level of hope, thus showing the interactive, synergistic nature of overall PsyCap.

Theoretical foundations for PsyCap

As a second order construct, PsyCap's theoretical foundation draws from Hobfoll's (2002) psychological resources theory, which itself encompasses several stress theories, to include Conservation of Resources (COR) theory. COR suggests that individuals seek to acquire and maintain resources (objects, social status, social connections, time, knowledge). Stress occurs when there is a loss of resources, a threat of loss, or when individuals fail to gain resources after substantive resource investment and can result in increases in stress or anxiety (Hobfoll, 2002). COR also stands out in 4IR and PP2.0 as it emphasizes means for positive adaptation under circumstances of loss (such as in a VUCA environment), highlighting the importance of how individuals acquire, maintain, and foster the necessary resources to both meet their current demands and to help guard against further resource depletion (Wright & Hobfoll, 2004). As such, "one's ability to acquire and maintain resources is both a means and an end— a means for achieving success and ends that include adaptation, coping, and wellbeing," (Hobfoll, 2002, p. 307). Positive psychological resources, such as hope, efficacy, resilience, and optimism (compromising PsyCap), counteract the distress from resource demands, acting as a suppressor of stress and anxiety.

PsyCap also draws from well-known PP1.0 Barbara Fredrickson's (2001) Broaden-and Build theory of positive emotions. This theory would posit that when positive resources such as hope, efficacy, resilience, and optimism in PsyCap are developed, positive emotions are not only increased, but there can also be upward spirals of the four positive resources as well. These upward spirals promote the development of overall PsyCap. The broadened thought action repertoires can contribute to the explanation of the synergistic nature of PsyCap beyond the four positive psychological resources that make it up.

PsyCap research especially relevant to psychiatry

Since the introduction of POB (Luthans, 2002a, 2002b) and PsyCap (Luthans, Avolio, et al., 2007; Luthans et al., 2004; Luthans & Youssef, 2004; Luthans, Youssef, et al., 2007), the scientific work on PsyCap

has exploded globally. In recent years increasing relative emphasis is being given to human well-being over performance. Specifically, research pertinent to psychiatry and mental health in general is being conducted. There is growing cross-cultural empirical evidence of PsyCap reducing stress, anxiety, depression, substance abuse, PTSD, domestic abuse/violence and stigma, while increasing well-being, health and relationship PsyCap, constructive conflict, and overall life satisfaction (e.g. Krasikova et al., 2015; Luthans et al., 2013 and for a summary see Luthans & Youssef-Morgan, 2017).

Important from a psychiatric perspective, PsyCap can be developed domain specific, meaning that it can be developed as part of both patient and family mental health care, building the asset of collective PsyCap (cPsyCap) for family units (see Broad & Luthans, 2016). We propose cPsyCap can extend individual PsyCap skills to the family unit level of analysis, providing patients, families, and mental health professionals with a common language or, as we said previously –“scaffolding” in which to frame hope, efficacy, resilience, and optimism, or the HERO within. This strengths-based approach offers much promise to individuals facing a health crisis, physical and psychological. For example, we proposed at The Dana Farber Cancer Institute at Harvard University to change the lives of terminally ill patients by developing PsyCap resources, thus improving subjective wellbeing and positive emotions alongside their prescribed cancer treatment and care. The idea of an individual diagnosed with a serious illness focused on building PsyCap resources and well-being throughout their grueling journey offers new pathways and opportunities for patients which were previously untapped and underdeveloped. This serves as an example for psychiatrists and mental health professionals in general to provide an evidence-based positive mindset and suggested specific guidelines to leverage for their patient and family care.

PsyCap for psychiatric patients and family care

Psychiatric patients and their family systems are known to experience heightened stressors related to diagnosis, treatment, and management (World Health Organization (WHO), 2005). In addition, stigma often results in the silent suffering of both patients and their families. We

believe that PsyCap can provide valuable positive psychological resources (hope, efficacy, resilience, and optimism) that can be developed simultaneous to diagnosis, treatment, and maintenance. We also believe that when family systems learn the skills of developing PsyCap resources, they are able to lean on this new source of “capital” as they define “who they are” both as individuals and as a family. They are also provided with domain specific guidance on how to expand their individual and family pathways, towards “who they can become.” We now turn towards evidence-based guidance from PsyCap applicable to psychiatric mental health care.

Developing patient and family hope

The Psychological Capital Intervention (PCI) (Luthans et al., 2006, 2010) uses a three-pronged strategy in a goal-oriented framework, which includes goal design, pathway generation, and avoiding/overcoming obstacles. Patients and family members would begin by identifying an individual or collective valuable goal which they will use throughout the process. Participants are instructed on the ideal design for goals to include: (1) concrete end points to measure success; (2) an approach (rather than an avoidance) framework, which allows participants to positively move towards goal accomplishment instead of away from undesired goals, and (3) importance of identifying sub-goals in order to reap the benefits of even small “wins,” which Snyder et al. (1991) calls “stepping.”

After a valuable goal is determined, pathways are then developed. First, using the stated goal, participants are asked to generate multiple pathways to this goal. They are encouraged to brainstorm as many alternative pathways as possible, regardless at this point of practicality of implementation. Patients and families work together to brainstorm these multiple pathways. The final step is to inventory pathways, which entails considering the resources required to pursue each pathway. After careful patient/family deliberation, the unrealistic goal pathways are discarded, and a smaller number of realistic goal pathways are identified.

Obstacles can act as goal blockers leading to negative reactions, frustration and disengagement from pursuing goals. The final stage

in the hope development is building goal setting processes and anticipatory abilities in such a way as to anticipate, plan for, and overcome obstacles. Participants are instructed and given a few minutes to consider the potential obstacles, or “what can stop you from accomplishing your goal?” After time for self-reflection, the patient/ family members again gather to hear alternative perspectives on potential obstacles and strategies to overcome them. The facilitator focuses on utilizing this process to identify obstacles in advance and choose an alternate pathway or pathways to avoid blockage.

At the completion of this hope dimension of the PCI, patients/family members have identified a valuable goal in such a way as to take ownership, be prepared for obstacles, and be ready to implement multiple pathways as contingency plans. Throughout this PCI development process, the facilitator tries to acknowledge and encourage positive “self-talk.” The facilitator maintains focus on goal setting, pathway generation, and overcoming obstacles as a process that can and should be applied to an array of patient/ family goals. Transferability back to daily life is emphasized. In other words, this part of the PCI focuses on how to increase participants’ level of hope in the patient and family abilities to accomplish goals individually, and collectively.

Through exploring the process of building PsyCap hope further and by example, as patients and families learn about diagnosis and care, they can become empowered. This can be accomplished by developing realistic goals, identifying individual and family specific strengths and weaknesses, and collaborating together on pathways towards goal achievement. When goal pathways are blocked, they learn skills necessary to be flexible and adaptable, empowering them to quickly reset and refocus on predetermined alternate pathways to achieve and positively continue forward in goal pursuit and eventual attainment. Participants are also provided with evidence-based tips on how to reduce emotional labor associated with setbacks and adversity.

Developing patient and family efficacy

As indicated, Albert Bandura is widely recognized for the theoretical foundation and developmental processes for building efficacy or confidence. When developing PsyCap, efficacy was arguably the most

criteria-meeting and academically accepted of the four components (Luthans, 2002a, Luthans, Youssef, et al., 2007). The efficacy input into our PCI largely draws from Bandura's widely recognized taxonomy of sources of efficacy. These include task mastery or success, modelling or vicarious learning, social persuasion and positive feedback, and physiological and/or psychological arousal. In addition, there is extensive academic literature that evolves efficacy from an individual asset, to the collective, through similar collective development processes (e.g. see Broad & Luthans, 2016).

In our PCI, following Bandura's emphasis on the role that goal orientation and framing plays in building efficacy, we integrate our previously described goal exercise with the four sources of efficacy. We also reflect on what we know about relatively stable personality traits which have been identified and composed as a snapshot of the patient and family. For example, we would suggest encouraging patients and family members to reflect back on a personality exercise which led to a family view of personalities. From this, we then encourage family members to discover and evaluate where there may be natural talents, where personality factors match efficacy requirements (e.g. choosing an extravert to deliver the family dinner speech, the family artist to draw a sketch for the dinner party, etc.). During this time, the facilitator engages in allowing participants to experience and model success, and through social persuasion and arousal, are all aimed at accomplishing the patient/family goals set earlier in the development of hope. This efficacy building process elicits positive emotions and builds the participant's confidence, and also collectively the patient and family's confidence, to generate and implement plans to attain goals.

The facilitator and other participants serve as role models for this efficacy-building process. Bandura asserts that the perceived expertise and the relevance of models are key to determining the magnitude of influence. As described under the hope input into the PCI, when participants generate pathways, inventory resources required for goal accomplishment, and identify sub-goals as milestones or stepping goals to accomplishment, they have created an imaginal, implicit successful experience. This success in turn is modelled by participants for each other. Participants are able to visualize accomplishing each step towards their goal. In other words, in this input into

the PCI, participants and their families (the collective), gain implicit task mastery and experience success to enhance their individual and collective efficacy in the PsyCap development process. Additionally, the detailed work composing a view of the collective personality dimensions deepens knowledge about inherent personality dimensions among the patient and family members. This fosters an environment whereby inherent personality dimensions combined with individual skills and abilities can be matched to tasks that build individual and collective efficacy.

Exploring the process of building PsyCap efficacy further and through example, as patients and family members learn about their strengths and weaknesses, they begin to build collective self-awareness. This includes an understanding of inherent personality factors, responses to stress (and different stressors), and coping mechanisms (domain and diagnosis specific). They also can develop specific evidence-based practices to increase confidence by focusing on task mastery (i.e., using appropriate coping skills), positive feedback and social persuasion, modelling, vicarious learning, and physiological and psychological arousal.

Developing patient and family resilience

There are three major recognized components of resilience attributed to the work of well-known developmental psychologist Ann Masten (2001): asset factors, risk factors, and influence processes. In the PCI, these components are adapted to the individual/family level of discussion and analysis. Assets refer to factors that increase resiliency (e.g., education, cooperation, support). Masten's (2001) research, as well as others, has found that resilience factors can be managed, developed, and accelerated. The most effective development strategies were found to be based upon enhancing assets, and proactively avoiding risky, potentially adverse events.

The resilience input into our PCI focuses on developing and changing patient/family member perceptions of influence through cognitive, emotional, and behavioral processes. As indicated, highly resilient people are characterized by a staunch view of reality (Coutu, 2002). Thus, as the resilience input into our PCI strategy, participants

identify a recent setback. This can be major (a recent diagnosis) or minor (new environment requiring new coping strategies). Participants are then instructed to write their immediate reactions to the identified setback. The facilitator then elaborates on examples of a staunch view of reality and an ideally resilient process for mentally framing, or reframing, a setback—what is within the participants control, out of their control, and various options for taking corrective, hopefully collective (i.e. with family) action.

In affecting the perception of influence in building resiliency, cognitive processes are employed to frame patient/family setbacks in terms of impact, control, and options associated with participant goals. Participants are asked to repeat/practice these new processes on additional relevant setbacks at school/ work/home in order to reinforce learned cognitive processes which perpetuate the development of not only resiliency, but also “realistic” optimism (demonstrating again the interactive, synergistic nature of the PsyCap facets). Participants are encouraged to practice anticipating and addressing setbacks associated with goals in the hope building process. When participants more accurately frame a patient/ family setback in terms of true impact, control, and options, they are more likely to not only bounce back from a setback but may be able to attain levels even above where they started. Thus, going beyond the original level of patient/family well-being and performance after a setback is central to the collective resiliency input in the PsyCap development process.

Exploring the process of building PsyCap resilience further and through example, patients and family members having identified strengths and weaknesses will further explore assets, influences and control. When adversity does strike, patients and family members learn how to quickly deploy previously identified assets, assess which are currently within their control and outside their control, and then as individuals and collectively try to mitigate the risk factors that may impede their bouncing back and beyond.

Developing patient and family optimism

When it comes to optimism, we draw from expectancy- value orientation and positive attributional, explanatory style, with realistic

optimism being the ideal. The facilitator requests the patient/family to complete an exercise where each member writes down three things they are thankful for as it relates to their family unit. Each family member shares their three things within the group, and then they collectively build out a list of family attributes they currently possess. This list should be guided by making a contribution towards meeting goals and strengthening their family bond.

The facilitator then provides information to the participants about how hope, efficacy, and resilience can also provide value by building family optimism. In addition, the facilitator addresses how optimism can impact decision making under stress, the so-called threat rigidity cycle (Staw et al., 1981), and common reactions to stress. The patient/family reflects on the outcomes of the collective personality view of the unit. They identify who in the family may be naturally optimistic, and who in the family may be naturally pessimistic. Critical in this phase of the PCI is that there is no one gold standard. In fact, a naturally optimistic patient/family member may gain great value by spending time with a relatively more pessimistic counterpart in identifying obstacles to goals and finding that level of optimism that is rooted in a staunch sense of reality (a hallmark of resilience). The facilitator will describe tendencies between optimists and pessimists. For example, in preparing for obstacles, pessimists lose more options by expecting bad things to happen. In the collective hope development portion of this PCI, worst-case scenarios can be anticipated, and preparations proactively put in place for the patient/family to continue to move ahead and succeed. This process counteracts pessimism and supports the development of realistic, yet optimistic, expectations and is reinforced by positive “self and family talk,” while also positively impacting patient and family confidence.

Exploring the process of building PsyCap optimism further and through example, patients and family members can engage in small, daily rituals (i.e. doing specific things at specific times) to boost optimism. An example would be identifying positive emotions that occur daily (e.g. a valued family time occurring around meals at the dinner table) and taking moments to reflect or share these collectively. They can also benefit by engaging in positive future planning, increasing hope and optimism simultaneously.

PsyCap in 4IR, PP2.0 and psychiatry – evidence-based but so far under-utilized

As 4IR redefines “who we are,” PsyCap is certainly evidence-based but as yet under-utilized approach which we assert can assist us in finding it. The opportunities within 4IR are numerous: the use of artificial intelligence to promote well-being and mental health provide many promising opportunities to psychiatry, and in the delivery of mental health services in general. Collaborations through our Positive Organizational Behavior Institute (POBI) (a non-profit Washington, DC based global think tank committed to well-being and performance) have included work with POBI Fellow Dr. Kazuo Yano (also Corporate Chief Scientist, Hitachi Ltd, Tokyo, Japan), alongside his work with MIT (see Broad, 2020; Tsuji et al., 2019).

Originally focusing on happiness in the workplace, Dr. Yano has conducted years of research over tens of thousands of participants leveraging wearable technologies powered by artificial intelligence and machine learning. Originally starting with “smart badges” that were worn around employee’s necks to track a host of measures including biometric, voice (intonation/tone/ valence, not content), eye contact, etc., correlated with Outlook and email behaviors. This data provided valuable insights into individualized happiness in the workplace, which was further leveraged through the use of artificial intelligence and machine learning. For example, mini instructions were provided to participants throughout the day on activities and actions in which to engage (“You’ve been sitting 2 hours, time to get up and take a walk” or “Today is a good day to participate in an optimism building exercise,” etc.). Over time, individual behaviors can be altered through the artificial intelligence powered by machine learning algorithms providing customized and individualized specific tips and instructions for the improvement of well-being. This provides compelling futuristic psychiatric care opportunities where patient/family well-being and performance can potentially be managed in *real time*.

Upon beginning discussions with Luthans and Broad in the spring of 2018 in Seoul, Korea, Yano and his team began the study of PsyCap in place of happiness. They recognized that a focus on happiness every day may actually lead to degradations in happiness while increasing stress, anxiety, and depression resulting from not meeting

expectations about being happy (Wong, 2011). State-like PsyCap provided more promise to participants as they are educated to expect to see PsyCap fluctuate and are assured they will be provided with evidence-based tips to increase replenishable psychological resources that promote well-being, performance, and ultimately thriving (Tsuji et al., 2019).

This Japanese research is a great example of a 4IR technology that can be leveraged to increase PsyCap. Since its inception, mobile apps have taken the place of “smart badges” worn around participants necks promoting access and scalability. In psychiatry, we imagine a 4IR future where patients receiving a diagnosis can leverage such wearable technologies. Their biometric, eye/voice, social engagement/contact, etc., could be measured and monitored as a means for patients to engage proactively in support of their well-being, performance, and *thriving*. In addition, this approach would seem to provide invaluable information that psychiatrists may be able to statistically analyze in creating proactive, customized, and individualized treatment protocols that extend and expand patient and family well-being and performance. We propose this type of engagement with such 4IR technological breakthroughs could have a radical impact on theory, research, and within psychiatric treatment modalities, as well as and in mental health in general and assist in developing PsyCap for increased well-being and performance.

The evidence-base for PsyCap can be found in the extensive research published in the hundreds of peer-reviewed journals on every continent providing opportunities to span cultural and socio-cultural barriers (Luthans & Youssef-Morgan, 2017). Moreover, breakthrough technologies in 4IR (such as Japan’s wearable sensors) can help address the metropolitan vs. rural variations in mental health care. They may also provide promising new approaches such as PsyCap for the practice of psychiatry in the 4IR by extending reach in care, and quality of care to both metropolitan and rural communities who are too often suffering in silence.

As we consider traditional sources of competitive advantage, the advantages of economic, human, social, and psychological capital will remain critical factors in 4IR. Historically, economic, human, and social capital have received considerably more attention than now decades young PsyCap. However, we believe that 4IR will usher in a continued

focus on the well-being for *all people*. Psychiatric and mental health professionals can leverage PsyCap as outlined in this article to patient and family care, extending their reach to rural populations globally through 4IR connectivity, while simultaneously improving the quality of patient and family treatment and care.

In relation to PP2.0, POB and PsyCap have much to gain in looking at the balanced approach between the positive and negative (Wong, 2011), to include the dialectical nature of how PsyCap is developed within specific domains of psychiatric diagnosis, treatment and maintenance. We believe that well-being and performance can be increased in *wellness* and *illness* through the development of PsyCap. We also see value in understanding the so-called “dark side” of emotions and how they can be harnessed through PsyCap cognitive processes to limit unhealthy emotional labor. In this manner, “dark side” emotions can be alchemized into eventual positively focused PsyCap resource development.

The unintended consequences of 4IR and the persistent VUCA environment we face as societies will have profound impacts on “who we are” as human beings that will require a deeper understanding through scientific inquiry. The acceleration and speed of 4IR will require rapid adjustments in how we live, work, learn, play, and govern, and individuals will vary significantly in these transitions and paradigm shifts. While the 4IR provides many opportunities for a positive approach, much can still be learned about the negative impacts on humans, and how this can be mitigated through the development of new skills and evidence-based resources, such as PsyCap.

A final word

As we move forward into 4IR and PP2.0, we understand both the opportunity and peril that exists. This dialectic must be effectively managed to have a smooth, optimal global transformation. Simultaneously, the landscape of mental health globally has declined substantially over the past few decades, putting increased concern and focus on wellbeing and performance. COVID-19 presents huge additional threats to global mental health due to stress, anxiety, depression, substance-abuse, and suicide, while we battle to extend healthcare to

geographically dispersed and underserved rural populations. POB and PsyCap can provide psychiatric and mental health professionals a relatively new evidence-based approach to help meet the present and future well-being challenges in patient and family care.

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