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ORIGINAL ARTICLE

Defining and operationalizing the phenomena of recovery: a working definition from the recovery science research collaborative

Robert D. Ashford[a], Austin Brown[b], Tiffany Brown[c], Jason Callis[d], H. Harrington Cleveland[e], Emily Eisenhart[f], Hillary Groover[b], Nicholas Hayes[g], Teresa Johnston[b], Thomas Kimball[g], Brigitte Manteuffel[h], Jessica McDaniel[b], Lindsay Montgomery[b], Shane Phillips[i], Michael Polacek[b], Matt Statman[j] and Jason Whitney[e]

[a]University of the Sciences Substance Use Disorders Institute, Philadelphia, PA, USA; [b]Kennesaw State University, Kennesaw, GA, USA; [c]University of Oregon, Eugene, OR, USA; [d]University of Georgia, Athens, GA, USA; [e]Pennsylvania State University, State College, PA, USA; [f]Georgia Southern University, Statesboro, GA, USA; [g]Texas Tech University, Lubbock, TX, USA; [h]Georgia Health Policy Center, Georgia State University, Atlanta, GA, USA; [i]North Carolina State University, Raleigh, NC, USA; [j]University of Michigan, Ann Arbor, MI, USA

ABSTRACT

A number of definitions exist for the concept of "recovery" in both the substance use disorder (SUD) and mental health (MH) fields. Previous attempts to define recovery have not reached consensus among experts within the field. Thus, the definition has remained diffuse at the expense of attempts to measure and evaluate treatment and recovery outcomes. The notion of recovery as an organizing principle between SUD and MH, collectively identified as behavioral health (BH), can be better served by a collaborative endeavor to define the word and concept of "recovery". The Recovery Science Research Collaborative (RSRC), an interdisciplinary bi-annual collaboration among recovery researchers and professionals from across the country, sought to address the definition of recovery at the inaugural meeting in December 2017 at Kennesaw State University. The RSRC undertook this task with the primary goal of defining "recovery" for use in research – aiming to create a consensus definition that allows recovery to be clearly operationalized and effectively investigated.

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Recovery; addiction; substance use disorder; behavioral health; recovery measurement; recovery science

Introduction

Defining phenomena and operationalizing these definitions is key to scientific research. Without definitions that achieve some level of consensus, researchers have no way to assess the validity of measurements of phenomena, define outcomes, or come to agreement on meanings and values within a specific field. The fields of substance use disorder (SUD) and mental health (MH) recovery have seen several attempts at defining the word and concept of "recovery." National organizations such as the Substance Abuse and Mental Health Association (SAMHSA), the American Society for Addiction Medicine (ASAM), the Hazelden Betty Ford Foundation (HBFF), and others have developed working definitions of recovery (The Betty Ford Institute Consensus Panel 2007; Substance Abuse and Mental Health Services Administration 2011; American Society of Addiction Medicine 2013). However, various operational weaknesses and professional lens-specific limitations from the fields in which such definitions originate remain, and a true consensus among the recovery field and community has yet to be obtained.

The task of defining recovery inherently involves a large number of stakeholders, including those delivering professional and paraprofessional services as well as peers in recovery themselves. Inherent in a multiplicity of stakeholders and providers, there is significant financial and clinical stake in such definitions (Kelly and Hoeppner 2015). The divide between professionals and peers within substance use and mental health disorder communities has generated tension in attempts to define recovery as well (El-Guebaly 2012). Various styles of individual recovery and the accompanying recovery experiences have further complicated the issue (e.g. abstinence-based recovery, medication-assisted recovery, natural recovery, etc.) (White 2007). These obstacles, as White (2007) describes, have prevented an achievement of true scientific consensus on the definition of recovery. Overcoming these obstacles and establishing a level of scientific consensus on the definition of recovery by an independent panel is an essential step in advancing the rigor of recovery research. Such a definition can then be handed over to the larger scientific community for evaluation of use within research frameworks. In an attempt to complete such a task, the Recovery Science Research Collaborative (RSRC) was convened in December 2017.

As an independent panel, the RSRC has a mission to support the direct expansion of the science of recovery and recovery support systems. As the centerpiece of the panel's endeavors, the RSRC could not philosophically move forward without defining recovery or adopting an official definition from stakeholder entities such as SAMHSA.

CONTACT Austin Brown abrow563@kennesaw.edu Center for Young Adult Addiction and Recovery, Kennesaw State University, 1085 Canton Pl. NW Suite 6139 B MD 6002, Kennesaw, GA 30144, USA

The Recovery Science Research Collaborative (RSRC)

The RSRC consists of university researchers, direct practice staff, public health professionals, and policy advisors from institutions across the country. The Center for Young Adult Addiction and Recovery (CYAAR) convened the RSRC through direct invitation. Support for the RSRC meeting and activities was made possible through philanthropic gifts to the CYAAR earmarked for recovery science research activities. The inaugural RSRC meeting was held at Kennesaw State University from December 3–5th, 2017 with the following members in attendance (alphabetical order by last name):

1. Robert Ashford (University of the Sciences)
2. Austin Brown (Kennesaw State University (KSU))
3. Tiffany Brown (University of Oregon)
4. Jason Callis (University of Georgia)
5. H. Harrington Cleveland (Pennsylvania State University (PSU))
6. Emily Eisenhart (Georgia Southern)
7. Hillary Groover (KSU)
8. Nick Hayes (Texas Tech University (TTU))
9. Teresa Johnston (KSU)
10. Thomas Kimball (TTU)
11. Brigitte Manteuffel (Georgia Health Policy Center, Georgia State University)
12. Jessica McDaniel (KSU)
13. Lindsay Montgomery (KSU)
14. Shane Phillips (North Carolina State University)
15. Michael Polacek (KSU)
16. Matt Statman (University of Michigan)
17. Jason Whitney (PSU)

The primary goals of this inaugural meeting were to: (1) reach a consensus definition of the concept and word of recovery, (2) discuss the current state of recovery research in the field, and (3) identify recommendations for future research directions.

In keeping with the intellectual independence of the panel, it was agreed that such a panel would attempt to define recovery for research purposes, rather than adopt the official definition from a stakeholder entity. However, it was also agreed that such a definition should be arrived at only after a thorough assessment of existing definitions. Through either espousing or discarding key strengths and weaknesses from the most current supporting data, the group was able to produce a *synthetic*, but *independent*, recovery definition, which could be operationalized for recovery science and research.

Existing definitions and background

White (2007) illuminates key points about the paradigms of recovery. As White purports, reduction or elimination of symptomatological indices has been the classical bedrock of previous recovery definitions. However, recovery is generally believed to encompass far more restorative and healing aspects than mere symptom reduction, even when primary symptoms are mostly eradicated. Recovery, conceptualized and defined as an ongoing process with various pathways of deliberate and sustained growth, allows for a broader understanding of recovery phenomena while allowing for specific factors to be measured. Associated measured phenomena include social functioning, quality of life, and relief of psychological distress. Moving from a deficit-based paradigm to a more holistic, strengths-based paradigm allows growth, rather than pathological reductions, to be the central paradigm of recovery science. Challenges to defining recovery also include the degree of specificity, inclusion or non-inclusion of behavioral health recovery, cultural considerations, and degrees of changes defining the initiation, sustainment, and fulfillment of definitional parameters.

Since the early 2000s, changing paradigms around the concept of recovery have been taken up in meaningful ways by various stakeholders. These stakeholder groups have attempted to develop working definitions of recovery, yielding 10 relevant definitions (Figure 1).

Three leading definitions of recovery come from SAMHSA, the American Society of Addiction Medicine (ASAM), and the Betty Ford Institute Consensus Panel (BFICP) (The Betty Ford Institute Consensus Panel 2007; Substance Abuse and Mental Health Services Administration 2011; American Society of Addiction Medicine 2013). As with any definition, each of these has its strengths and challenges. To some extent, these may reflect the position of the institution providing the definition - government, treatment, and clinical - and agreement reached between affiliated parties, and may not serve the operational needs of rigorous research and evaluation.

SAMHSA

In their 2011 working definition, SAMHSA defined *recovery* from mental health and/or substance use disorder as: "A process of self-directed change through which individuals improve their health and wellness, live self-directed lives, and strive to reach their full potential."

An obvious strength of this definition is the holistic implication, and the focus on striving for healthy potential. An additional strength of the definition is its scope, encompassing both mental health and substance use disorder recovery. The focus on self-directed living, health and wellness, and recovery as a process are all key concepts that should be included in defining recovery. Potential weaknesses of this definition are the non-specific nature of the definition. There are many processes individuals may engage in that improve their lives, their autonomy, or their wellness. From education to exercise, all lives are improved through intentional processes of change, not just the process of recovery. For an entity such as SAMHSA, whose main function is that of a governmental agency dedicated to "reducing the impact of substance use disorders and mental health" by providing a clearinghouse for "information, services, and research", such a definition may be quite serviceable and broad so as to cast as wide a net as possible for their intended function. Key areas of this definition were adopted by the RSRC panel, most notably the focus on recovery as a

SOURCE	YEAR	DEFINITION
CENTER FOR SUBSTANCE ABUSE TREATMENT (CSAT)	2005	Recovery from alcohol and drug problems is a process of change through which an individual achieves abstinence and improved health, wellness and quality of life.
AMERICAN SOCIETY OF ADDICTION MEDICINE (ASAM)	2005	A patient is in a ''state of recovery'' when he or she has reached a state of physical and psychological health such that his/her abstinence from dependency-producing drugs is complete and comfortable.
BETTY FORD INSTITUTE	2006	A voluntarily maintained lifestyle characterized by sobriety, personal health, and citizenship.
WILLIAM L. WHITE	2007	Recovery is the experience (a process and a sustained status) through which individuals, families, and communities impacted by severe alcohol and other drug (AOD) problems utilize internal and external resources to voluntarily resolve these problems, heal the wounds inflicted by AOD- related problems, actively manage their continued vulnerability to such problems, and develop a healthy, productive, and meaningful life.
UK DRUG POLICY COMMISSION	2008	The process of recovery from problematic substance use is characterised by voluntarilysustained control over substance use which maximises health and wellbeing and participation in the rights, roles and responsibilities of society.
SCOTTISH GOVERNMENT	2008	A process through which an individual is enabled to move on from their problem drug use, towards a drug-free life as an active and contributing member of society.
SAMSHA	2011	Recovery from mental disorders and substance use disorders is a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential.
AMERICAN SOCIETY OF ADDICTION MEDICINE (ASAM)	2013	A process of sustained action that addresses the biological, psychological, social and spiritual disturbances inherent in addiction.
KELLY AND HOEPPNER	2014	Recovery is a dynamic process characterized by increasingly stable remission resulting in and supported by increased recovery capital and enhanced quality of life.
RECOVERY RESEARCH INSTITUTE ADDICTION-ARY	2017	The process of improved physical, psychological, and social well-being and health after having suffered from a substance-related condition.

Figure 1. Recovery definitions. *This figure documents the most popular definitions of recovery (Kelly and Hoeppner 2015; Courtesy of the Recovery Research Institute 2017).

process with holistic goals that occur through self-directed means.

ASAM

Developed first in 2005 and updated in 2013, ASAM's definition of recovery is applicable only to substance use disorders, with specific focus on the chronic disease concept of addiction pathology. ASAM's definition of recovery reads: "A process of sustained action that addresses the biological, psychological, social, and spiritual disturbances inherent in addiction." The definition goes on to explain "Recovery aims to improve the quality of life by seeking balance and healing in all aspects of health and wellness, while addressing an individual's consistent pursuit of abstinence, impairment in behavioral control, dealing with cravings, recognizing problems in one's behavior and interpersonal relationships, and dealing more effectively with emotional responses."

This definition is perhaps the most specific of the three detailed here, and touches on integral elements of wellness, while at the same time aligning behavioral and emotional healing as concurrent necessities. Within the ASAM definition is the conceptualization of recovery as a process which includes multi-dimensional spheres from the biological, psychological, social, and spiritual arenas. We see also the use of sustained action or intentionality in seeking recovery as a key fulcrum of the definitional paradigm. This sets recovery as an actionable and intentional process of seeking wholeness.

The inclusion of spiritual disturbances is also a key strength. This provides inclusive room for spiritually-based recovery programs and their ensuing concepts of recovery as overcoming a "spiritual malady" through "spiritual

awakening", and the rapid conversionary processes of the programs such as the Christian-centered Celebrate Recovery or Buddhist-centered Refuge Recovery. Though generally poorly defined in recovery research, certain common elements do emerge from meta-analysis of spirituality; namely the role of spirituality in relatedness, transcendence, and meaning (Cook 2004). Spirituality may serve recovery by providing comfort, the means of rectifying the past, illumination to new realities, and a coherent sense of union with others and the universe (Drobin 2014). Suffice to say, spirituality is a multi-dimensional concept with intrinsic properties that involves coping, meaning, quality of life, stress-reduction, and health protective factors (Miller and Thoresen 2003; Laudet et al. 2006; Park 2012). Spiritually-based recovery constitutes a large amount of recovery experiences and as such, spirituality appears to be an essential component of the recovery process for many (Kelly et al. 2017). This aligns well with the holistic conceptualization that recovery is a healing of the body and mind and the seeking of balance in one's life as an intentional act within the recovery framework. Acts such as prayer, meditation, yoga, and the seeking of "mindfulness" appear often within the anecdotal and even the scientific literature on the topic (Chiesa and Serretti 2014). Shortcomings of the ASAM definition may include the overall length of the definition and the criterion of pursuit of abstinence. While abstinence may be the most emancipatory state of individual recovery for those with severe substance use disorders, it is better considered a recovery outcome, but not required to consider an individual engaging with the recovery process. Abstinence may also remain physically and biochemically impossible for some of the most severe cases of SUD, particularly those involving opioid use, where opioid-agonist therapy is considered the appropriate clinical course of care.

Betty Ford Institute Consensus Panel

In 2007, the Betty Ford Institute Consensus Panel defined recovery as: "A voluntary maintained lifestyle characterized by sobriety, personal health, and citizenship." This definition has several important aspects, as it summarizes the dimensions of wellness into "personal health", while implying community health through active engagement of "citizenship". Community engagement and prosocial behaviors may very well be characterized by the concept of citizenship, as has been put forth in social models of recovery (Best and de Alwis 2017). Again, we see the idea of self-directed efforts to sustain or maintain a degree of wellness illustrated in the previous definitions. The term "sobriety" is stated to be the "criterion necessary for a recovery lifestyle". Similar to the ASAM definition involving abstinence, this term is less stringent, while maintaining a focused lens of substance use disorder specificity.

Although this definition is both compact and specific, the reliance on a diffuse concept of sobriety may present the same challenges as the ASAM reliance on "abstinence". While "sobriety" may offer more as it suggests "clear-headedness" rather than a specified state of abstention, this may be misinterpreted. As outcomes and degree of emancipation from addictive and or pathological states vary, one may be remiss to require a completely substance-free outcome of the recovery process. It also shares the limiting factor of the ASAM definition in that it is narrowly focused on substance use disorders, failing to take into account both the similarities with mental health disorders, and the large prevalence of co-occurring mental health disorders in individuals with a primary addiction pathology (Kessler et al. 2005).

Framework for an Updated Definition of Recovery

From these leading definitions we can surmise certain basic and fundamental elements, while setting aside certain contentions and confusions in a new definition of recovery. The first element being the role of the individual as an active participant choosing to seek wellness. The second being the paradigm of recovery as a state of wellness across multiple dimensions including physical, psychological, and spiritual. We can also anticipate the importance of engagement with a community that upholds prosocial values and expectations of behavior.

Individually, quality of life seems to serve as the central operant in the recovery process. Quality of life is likely achieved through a holistic approach to overcoming the restraints of a pathological way of being. The relationship to oneself, and the relationship to one's surroundings and other people, must be based in rational, equitable, and fulfilling ways whereby the individual engages in servicing and receiving of mutual benefit. It is important also to note that as a process, recovery is a verb, bringing forth the idea of action that moves one from disordered states to states more conducive of balance, harmony, growth, and health.

Noticeably missing from each existing definition is an overt recognition that the contexts, systems, and people involved in recovery may vary greatly across individuals and between segments of similar groups of individuals. The role of community for example, may predictably harm individuals that are seeking recovery. The role of socio-economic factors, stigma, ethnicity, recovery pathways, and degrees of pathological severity and organic impairment all have a major impact on the cognizance and establishment of, the motivation for, and the ability to maintain recovery. Any discussion of recovery that does not account for the role of contexts and individual experiences will ultimately be incomplete.

Defining the concept of recovery may have wide-ranging implications. These may include informing research endeavors, improving the evaluation of clinical outcomes, program development, interventions, and guiding future evidence-based practices in clinical and social-based care. This paper details the process of the RSRC in reaching a consensus definition of recovery, as well as the parameters of terms included in the final definition. In addition, we put forth recommendations intended to assist in the process of selecting metrics of recovery so future research not only has a useful definition of recovery, but empirical ways to effectively measure the concept in individuals with behavioral health disorders.

Table 1. Term definitions.

Term	Definition Used
Dynamic	(Of a process or system) characterized by constant change, activity and progress.
Intentional	Done on purpose, deliberate
Relational	Concerning the way in which two or more things are related
Process	A series of actions or steps taken in order to achieve a particular end
Sustained	Continuing for an extended period without interruption
Efforts	A vigorous or determined attempt
Wellness	A state of being in good health, especially as an actively pursued goal
Individual	Of and for a particular person
Social	(Adjective): relating to a society and its organization, synonyms *community, collective, group*
Experiential	Involving or based on experience and observation
Contexts	The circumstances that form the setting for an event, statement or idea, and in terms of which it can be fully understood and assessed.

Methods

Process

The consensus process started with examining current definitions of recovery from leading sources such as The Betty Ford Institute Consensus Panel (2007), UK Drug Policy Commission (2008), Substance Abuse and Mental Health Services Administration (2011), American Society of Addiction Medicine (2013), and Recovery Research Institute (2017) (see Figure 1). Discussions took place regarding the strengths and weaknesses of each definition, especially regarding populations left out by defining recovery in certain ways, and the reasoning for word choice and boundaries involved in previous definitions. Several of these definitions contain particularly strong points the panel hoped to incorporate.

From the background literature defining recovery, as well as definitions held by organizations, several strengths were distilled and utilized. These included: (1) considering recovery as an intentional, self-directed process, and (2) including holistic elements, such as quality of life, spirituality, citizenry, and community involvement. Weaknesses in definitions included: (1) focusing only on substance use disorder, rather than broader inclusion of mental health disorders under the term behavioral health disorder; and (2) including traits that serve better as outcomes (e.g. abstinence) than definitional parameters. While overall outcome states may be of value in the search for efficaciousness, particularly in empirical research; it is important that such outcomes are placed within the context of processes that induce global wellness.

Construction of the RSRC definition began with linguistic analysis of key concepts and terms that related to specific features of recovery. Particularly, that recovery is a process that often occurs through relationships in a multiplicity of trajectories. Additionally, that overlap exists between mental health and substance use disorder recovery paradigms, and that the scope and context of recovery is influenced by cultural and ecological factors.

Reaching consensus

After developing three potential definitions of recovery from the break out group session, the full RSRC discussed the merits of each definition separately. In this iterative process, a final proposed definition was created with elements from each of the three. Members of the RSRC ($N = 17$) then voted non-anonymously on each definition. With light modifications to the definition after two rounds of voting, consensus was reached on the third vote.

Results

The RSRC consensus definition of recovery

The RSRC's consensus definition of recovery is: *"Recovery is an individualized, intentional, dynamic, and relational process involving sustained efforts to improve wellness."*

Definitional parameters of the consensus definition

Individual terms are defined but should be viewed holistically in context of the phrase they are contained within. Table 1 provides all individual definitions used within the final RSRC recovery definition.

"An individualized, intentional, dynamic, and relational process"

The definitional parameters of recovery must take into account the variance that occurs across demographic characteristics (e.g. gender, race, ethnicity, disordered pathologies, age, etc.) and environmental (e.g. social and experiential) contexts. While recovery as a process is likely to contain certain similarities across stratified segments of the population, it is as likely to contain mediating and moderating variables creating an individualized process at all stages. As such, recovery must not be constrained or limited by definitional parameters that also seek to constrain the population of interest.

White and Sanders (2008) stress the importance of not imposing a dominant "organizing metaphor for recovery" onto historically disempowered individuals and communities. Doing so not only has the potential to reenact processes of colonization, it also fails to accurately comprehend how individuals and entire communities of people understand the etiology of addiction and recovery. Allowing for contextual variance can assist in further operationalizing the recovery process, and the measurement of such a process, for many populations of interest, despite the contexts in which they exist.

None of the previous definitions went so far as to include a parameter allowing for individualization of recovery along differential contexts. The closest comes from Substance Abuse and Mental Health Services Administration (2011)

definition, which calls for self-direction, which is an individualized element. However, this seems to be attributed to autonomy, rather than personal contexts.

We have also put forth here that the process of recovery is an intentional one. This is an important distinction from treatment and prevention services, which can be intentionally sought out or mandated through various means (e.g. court-ordered, parent/guardian ordered, etc.). Recovery as an intentional process relates to the autonomy of the individual in choosing to engage in the process – that they are an active partner, self-directing the desired outcomes through formal partnership with professionals, peer-driven communities, and fellowships, or through informal, organic networks such as family, friends, and/or faith. While individuals may unconsciously "drift" or "age-out" of substance use disorders (White 2007) and while mental health disorders may become naturally less disruptive as one ages, such degrees of spontaneous remissions may lack the intentional and conscious choice to seek wellness and therefore may not fit within the definition of recovery presented here. However, as natural recovery has been proposed as a process that simply does not require the use of formal or informal supports such as treatment or mutual-aid groups but is likely still intentional, additional insight into this process of natural recovery is needed. For those individuals that have resolved a SUD without the use of external supports, it is likely that the process is ultimately intentional and mirrors the growth that can be expected when one is in recovery.

Borrowing from several definitions the presumption that recovery is a process of change, rather than an outcome that is static once achieved suggests an inherently dynamic process. Ergo, the results of the recovery process are varied, affect different spheres of life at different times, and are constantly evolving. The rationale for recovery as a dynamic process is exemplified by the complexities of possible trajectories and outcomes, which may vary between individuals. Outcomes of such a process are pro-social, life-affirming, and trend toward wellness. However, the essence of recovery is a desired movement from disordered to more ordered states, whereby more ordered states are likely to provide a more fulfilling, connected, and meaningful way of living, responding, and being.

Relationships between individuals, relationships with oneself, and relationships to institutions, ideas, and cultural social systems are the chief wellspring from which the pathological manifestations of substance use disorder and related mental health pathologies tend to manifest. Families, relationships, and systems, such as criminal justice and medical, are all dragged into the realm of the pathology. Thus, the chief platform or stage where recovery emerges is in these same realms, but more importantly, in the recovering individual's relationships to themselves, others, and society. Recovery is very much a pro-social process whereby individuals become more synchronized in values, thoughts, actions, and beliefs through their relationships to the world around them. This is a mutually beneficial and reciprocal arrangement which builds the multi-directionality needed for stable social capital.

Previous definitions regarding recovery as a process are: The Center for Substance Abuse Treatment (2005), William White (2007), The Scottish Government (2008), the UK Drug Policy Commission (2008), Substance Abuse and Mental Health Services Administration (2011), American Society of Addiction Medicine (2013), Kelly and Hoeppner (2015), and the Recovery Research Institute (Recovery Research Institute 2017). Two definitions fall on a different spectrum, and regard recovery either as a state or outcome that is a product of change (American Society of Addiction Medicine 2005), or as a lifestyle typology (The Betty Ford Institute Consensus Panel 2007).

"Involving sustained efforts"

Sustaining wellness over time is an intentional act involving such mechanisms as social support, clinical input and modification, and ongoing efforts at self-awareness, in order to maintain a state of freedom from pathological symptomatology or to reach the desired self-directed recovery outcomes. The majority of such effort is captured in behaviors and actions toward wellness, either directly or indirectly. These efforts can include attending mutual-aid peer support programs, engaging with a recovery community organization, on-going clinical care, taking prescribed medications, exercise, etc.

As behavioral health disorders are often categorized as chronic in nature (National Institute of Mental Health 1987; American Society of Addiction Medicine 2011), it is critical that the recovery process involves sustained efforts over time. While these efforts may indeed vary in magnitude and frequency, given the dynamic nature of the recovery process, it is a hallmark that some level of effort is indeed sustained long-term for individuals.

Definitions containing elements that direct towards sustained and individualized efforts are: Betty Ford Institute Consensus Panel (2007), William White (2007), the UK Drug Policy Commission (2008), and American Society of Addiction Medicine (2013). This varies from other definitions of recovery – including American Society of Addiction Medicine (2005), Center for Substance Abuse Treatment (2005), The Scottish Government (2008), Substance Abuse and Mental Health Services Administration (2011), Kelly and Hoeppner (2015), and Recovery Research Institute (2017) – where sustained efforts are not mentioned explicitly.

"To improve wellness"

Ecological factors, intrapersonal factors, and interpersonal factors are all involved in wellness. Given the eight dimensions of wellness (Substance Abuse and Mental Health Services Administration 2016), coupled with the propensity for substance use disorder to cause wide ranging negative consequences, the recovery from such would naturally require healing and growth in multiple areas or life spheres. Intentional efforts to enact recovery dynamics, even in areas not typically associated with SUD is the hallmark of recovery. This also includes direct efforts to mitigate and manage co-occurring behavioral health issues which may complicate the overall efforts toward holistic health.

All previous definitions contained parameters that explicitly mention multiple aspects of wellness though there was variance among the included domains in the concept of "wellness" or "wellbeing".

Discussion

Previous attempts to define recovery have been plentiful throughout the behavioral health field. Each attempt has contributed toward the ever-expanding foundation of this phenomena as conceptualized throughout the sciences. In an attempt to provide a definition of recovery that is multifaceted and applicable to all sectors of behavioral health (e.g. MH and SUD), the RSRC brought together stakeholders that reached a consensus definition.

Of special interest in the RSRC consensus definition is the lack of a predilection of abstinence as a necessary standard of recovery, which is similar to the SAMHSA working definition of recovery (Substance Abuse and Mental Health Services Administration 2011). The aim of this consideration was driven by a desire for inclusivity. This includes encompassing both MH and SUD recovery, as well as varying paths of recovery initiation and maintenance (i.e. recovery pathways), within the definition. The field of SUD treatment and recovery has continued to evolve, most rapidly in the midst of the ongoing opioid epidemic in the United States. Most recently, this has included increased visibility of alternative forms of recovery (e.g. opioid-agonist medications; harm reduction; etc.), apart from the more traditional interpretations of recovery that are predicated on complete abstinence. While the current definition does not exclude this hallmark of abstinence, which is present in many individuals' recovery process (Kelly et al. 2017), it does intentionally allow for a broader set of parameters focusing on self-defined criteria of the process, be that abstinence, moderation, or medication use.

Freedom from problematic substance use is likely the preferred goal if one is seeking wellness, provided such substance use cannot be controlled or managed. In those individuals with severe SUD, where such control or management is not considered possible, abstinence is likely necessary for this freedom at some point in the recovery process. Thus, the aspirational goal of such emancipation from substances, when achievable, is implied through movement towards wellness itself. Therefore, "abstinence" is perhaps better used as a clinical or aspirational outcome, rather than a definitional boundary to be captured by the term "recovery". As a dynamic process of self-directed action, it is the movement toward wellness, rather than any single outcome state that is of interest to research. In this view, "recovery" may best be visualized as a process rather than an outcome. Abstinence, as one of many outcomes that may or may not fully occur across multiple domains of individual wellness, is thus a potential product of the process of recovery. This is especially significant when one considers related disordered co-occurrence, and the recovery paradigm borrowed from modern behavioral health. Problematic use, as only one symptom of a larger state of disorder, like any number of troubling symptoms related to psychopathology, may never be fully resolved, or may occur from time to time. Thus, the tallying of symptomatological occurrences may fail to capture the overall picture of recovery, and ultimately relies on a deficit-based, rather than strengths-based evaluation.

Defining recovery in this way allows for an increased understanding of the nuances of the process and also leads to decreased stigma and discrimination that may be an unintended outcome of previous definitions. Recovery, by the very concepts that define it, will always be a movement toward decreasing states of pathological bondage and increasing states of wellness. It is ultimately arbitrary to utilize the use/non-use of specific substances as a definitional parameter. In this way, the RSRC definition completely avoids the categorical discussions and contentions, while remaining focused on an overarching thematic purity of self-directed strivings to free oneself from negative, substance-induced, or behaviorally problematic ways of being.

Recommendations for measurement of the RSRC definition of recovery

More recent research into recovery phenomena has sought to include the use of novel measures typically associated with other areas of social science. Quality of life (Laudet 2011; Kirouac et al. 2017), Flourishing (Diener et al. 2010), and cognitive function (Vonmoos et al. 2014) along with neurological markers and priming of neurological reaction (Dempsey et al. 2015) to cues have all been explored. Objective measures achieved by brain scans through fMRI and other methods have offered hope for the future of objective measurements. Additionally, biological statistics captured in real time through wearable technology has also offered promise for objective measuring.

In addition to any objective biomarkers, various domains of wellness may be evaluated along with ecological and social benchmarks to best capture recovery experiences, stages, and ingredients. Intrapersonal dynamics, as well as psychological and trait-level personality integers may also be considered as valuable methods of assessing recovery states through psychometrics. Past studies have utilized a multitude of metrics and methods to capture recovery action and to illuminate self-reported qualities of recovery. In an effort to capture these elements, we are providing a contextual overview of the common qualities of recovery, and then specific measures that align with the definition of recovery put forth in the current study.

Qualities of recovery

Four domains of recovery, along with 35 elements, were previously identified as abstinence in recovery, essentials of recovery, enriched recovery, and spirituality in recovery (Kaskutas et al. 2014). The focus of the study was to capture elements that define the recovery experience (Kaskutas et al. 2014). Short- and long- term recovery elements must be considered in selecting metrics to best capture variability between individual's experiences. Laudet and White (2008) identified several

"ingredients" associated with recovery. From their study, 12-step affiliation and life meaning were found to be predictive of sustained recovery. Neale et al. (2014) used online Delphi groups to identify 15 broad categories involving areas ranging from substance use, psychological health, physical health, time, education/training, identity/self-awareness, and anti-social behavior. Social identity has also been considered of importance to recovery and may be included as a possible factor (Dingle et al. 2015; Best et al. 2016). Patient recorded outcome measures (PROMs) and other qualitative studies have examined subjective qualities that could be operationalized, as well as the methods by which metrics are created through patient input and testing, and may also be included (Neale and Strang 2015; Neale et al. 2015).

Borrowing from behavioral health and wellness metrics, some key areas emerge as possible factors worth measuring. First and foremost is the development and monitoring of key behavioral indices that indicate velocity and direction toward wellness, and the related strategies involved in overcoming and/or managing troubling behaviors. Basic guidelines of the recovery paradigm in behavioral health involve a sense of belongingness, community, empowerment, and a sense of agency (Sherer et al. 1982; Speer and Peterson 2000). Connectedness, hope, identity, meaning, and empowerment (CHIME) are considered standard domains for behavioral health recovery (Leamy et al. 2011). Finally, stigma is a central aspect of behavioral health considerations and as such may be factored into any measurement of recovery processes (Rüsch et al. 2005).

It remains, though, to ask how can we measure processes that are dynamic? The answer may not lay in what to measure, but rather how we measure. Longitudinal research design and assessment, such as daily diary studies or ecological momentary assessment designs would be preferred strategies to capture and operationalize the phenomena. Linkages between the phenomena that constitute the process of recovery and the time scales on which these phenomena vary and co-vary could provide invaluable data. Additionally, stages of change, motivation for change, and other factors can be considered that may capture aspects of intentionality and effort if captured longitudinally. Relational perspectives imply that social connections are central to the process of wellness. As such, measures of individual differences in intrapersonal processes could be coupled with broader social function measures to investigate the observed relationships between individuals and how they function in social settings. These described suggestions could serve to effectively capture the complex and multi-level processes of recovery. While not exhaustive, Table 2 provides an additional list of useful scales and measures of recovery that should continue to be evaluated and used when appropriate.

Table 2. Recovery measures and scales.

Measure/Scale	Citation/Source
Substance Use Recovery Evaluator (SURE)	Neale et al. (2016)
Recovery Attitudes Questionnaire (RAQ-16)	Borkin et al. (2000)
Recovery Self-Assessment (RSA)	O'Connell et al. (2005)
Recovery Oriented Systems Indicators Measure (ROSI)	Dumont et al. (2005)
Recovery Assessment Scale (RAS)	Corrigan et al. (1999)
Illness Management and Recovery Scales (IMR)	Salyers et al. (2007)
Stages of Recovery Instrument (STORI)	Andresen et al. (2003)
Recovery Process Inventory (RPI)	Jerrell et al. (2006)
Mental Health Recovery Star (MHRS)	MacKeith and Burns (2008)
Self-Identified Stages of Recovery Inventory (SISRI)	Andresen et al. (2003)
Questionnaire of Processes in Recovery (QPR)	Neil et al. (2009)

Future directions

This new definition of recovery brings with it multiple opportunities to continue to support the behavioral health field. First and foremost are the continued endeavors to operationalize the aspects of the process so they may be accurately measured, supported, and strengthened where needed. While definitions of recovery have abounded, the operationalization of the definitional parameters has lacked, and remains a critical need within the field at large. The current definition allows for previous measures and conceptualizations of recovery (e.g. assessment of recovery capital, quality of life) to be maintained and further evaluated, while also opening up new threads of scientific inquiry into individualized recovery processes, wellness as the organizing framework for recovery, and the dynamic nature of the recovery phenomenon.

Perhaps the most beneficial future directions, and ones that this new definition of recovery is inclusive of, is the relational and social aspects of the recovery process. Recent works have begun to explore the importance of relationships and community in the recovery process (Best and Laudet 2010; Best et al. 2017) and we believe this new definition lends support this important framework and the future implications it holds.

Additionally, as the understanding and support of multiple pathways to recovery likely becomes greater, the individualized recovery process will become a prominent element. While past definitions have not excluded individuality as an organizing and important consideration, this new definition of recovery features it explicitly. The focus on variance in the recovery process – be that due to gender (Wincup 2016), race and ethnicity (White and Sanders 2008), culture (Jacobson and Farah 2012), criminal justice status differences (Lyons and Lurigio 2010) etc. – is important to further explore. While mechanisms of recovery support may be similar at a population level, the focus on individual mechanisms cannot be understated.

It remains unlikely that field-wide consensus may ever be reached on a single definition of recovery. The efforts of the RSRC have been undertaken in such a way that all behavioral health professions, recovery activists, and recovery scientists can adopt the definition in meaningful ways to support their endeavors and work. Further qualitative study should be undertaken to explore additional input from each of these stakeholder groups to identify the levels of consensus with the definition put forth, and equally weighted dissent to the definition. It is the recommendation of the RSRC that given the constantly evolving nature of the behavioral health field (including recent advances in neuroimaging) that any definition of the recovery process be continuously evaluated.

Limitations

The current methodology drew from the expertise and experience of a diverse set of stakeholders, however, that a larger sample of diverse individuals was not involved in the process, the results may be less relevant and impactful, or missing key elements. Additionally, the removal of the use/non-use paradigm (i.e. the reliance on abstinence from specific substances as a symptomatological and measurement standard), is likely to lead to the removal of some objective biomarkers and will complicate the measurement of recovery in the short-term.

All attempts to define terms within research involve a degree of exclusion and inclusion along dialectic perimeters. The meanings, values, and assumptions of all language is a constantly evolving affair. Limitations to this definition may also involve temporaneous constrictions as treatment, medication, public health, political, and social realities evolve.

Conclusion

Definitions of recovery serve two primary purposes: (1) to inform and evaluate treatment, prevention, and recovery support services; and (2) to inform the underlying research of the recovery phenomena and the individuals who experience it. Previous definitions of recovery, though plentiful, contain several strengths and limitations inhibiting their successful use across both purposes. The RSRC definition put forth here has been carefully crafted by a diverse set of stakeholders in hopes to inform the practical field of behavioral health (e.g. treatment, prevention, and recovery support services), as well as to create a definition that can more easily be operationalized by recovery researchers and scientists. Although field-wide consensus on the definition of recovery is an arduous process, it is necessary to continue to engage in the process and push forward.

Disclosure statement

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ORCID

Robert D. Ashford http://orcid.org/0000-0003-3979-1754
Austin Brown http://orcid.org/0000-0001-9958-3696
Emily Eisenhart http://orcid.org/0000-0003-4659-5911

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