1 Historical and Contemporary Perspectives on Pathways to Recovery from Alcohol Use Disorder

Jalie A. Tucker and Katie Witkiewitz

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Substance use disorders (SUD) are among the most prevalent mental health disorders worldwide. Alcohol is the most commonly used substance and contributes to 5 percent of the global burden of disease (World Health Organization [WHO], 2018). Globally, it has been estimated that over 100.4 million people meet current criteria for an alcohol use disorder (AUD; GBD 2016 Alcohol and Drug Use Collaborators, 2018), and many more persons engage in risky drinking or experience negative consequences related to drinking that fall short of clinical diagnostic criteria. Thus, alcohol use is a major public health problem associated with enormous social and economic costs (US National Institute on Alcohol Abuse & Alcoholism [NIAAA], 2020).

Despite the ubiquity and burden of risky alcohol use and AUD, most individuals who develop an AUD or have subclinical problems will eventually reduce or resolve their problem (Dawson et al., 2005, 2007; Fan et al., 2019; Kelly et al., 2017; Sobell et al., 1996). This contrasts with long-held views of alcohol problems as chronic and intractable and is based on evidence from many sources including epidemiological surveys, prospective observational studies, and randomized clinical trials of patients with AUD (Tucker et al., 2020; Witkiewitz et al., 2020). Many will reduce risky drinking practices and experience AUD symptom reduction, and some will further achieve and maintain "recovery." Although different stakeholders (e.g., researchers, government agencies, service providers, mutual help groups, and persons with AUD) have defined recovery somewhat differently, most definitions emphasize improvements in health, functioning, and well-being. The extent to which definitions focus on reductions in risky drinking practices or require abstinence is more variable.

Scientific work on AUD recovery is maturing and has propelled a shift from a monolithic abstinence-oriented view of alcohol problems, treatment approaches, and recovery pathways to a pluralistic view that recognizes the heterogeneous, multidimensional nature of these central features of AUD. This chapter describes historical and contemporary perspectives and empirical findings concerning the

multiple pathways to alcohol problem reduction and AUD recovery, including illustrative research on the epidemiology of recovery and longitudinal studies of drinking behavior change in different populations. The chapter concludes with consideration of the research, practice, and public health implications of revised views of beneficial behavior change across the AUD severity spectrum that are grounded in scientific evidence.

Historical Views and Definitions of Recovery

Concerns with how to enjoy drinking in moderation while guarding against the harms of excessive consumption were core issues in early medical approaches to managing chronic inebriation that continue in contemporary definitions of recovery and approaches to promoting it. In the late 1700s, American physician Benjamin Rush (1785) wrote about potential remedies for "curing the ardent use of spirits on the body and mind." He viewed abstinence from distilled spirits as critical but allowed for consumption of larger quantities of beer or wine as a temporary substitute for liquor. This very early harm reduction approach contrasts with later approaches epitomized by the Temperance Movement during the nineteenth and early twentieth centuries, which focused on eradicating alcohol use through alcohol education and legal prohibition of alcohol sales that failed as an alcohol control strategy.

Founded in the 1930s, Alcoholics Anonymous (AA) offered a mutual help program defined by 12 steps in the recovery process of achieving and maintaining lifelong abstinence that continues to influence many modern concepts of recovery and treatment approaches. However, the "Big Book" of AA (1939) also made clear that abstinence was not sufficient to define recovery and described recovery as a lifelong journey involving transformative changes that lead to improved health, functioning, and well-being. In the mid-twentieth century, Jellinek (1960) formalized the concept of "alcoholism" as a progressive chronic disease with several variants or "species," including "gamma alcoholics" who were unable to limit their drinking and for whom lifelong abstinence was essential. Edwards and Gross (1976) refined the disease concept by developing the "alcohol dependence syndrome," defined as a narrowing of the drinking repertoire, increased salience of the need to drink over competing needs and responsibilities, tolerance and withdrawal symptoms, and reinstatement of dependence after abstinence. Thus, early modern work was heavily influenced by AA, and abstinence achieved through treatment or AA participation was widely considered critical for recovery until the late twentieth century.

In the late 1970s, Pattison, M. B. Sobell, and L. C. Sobell (1977) advanced a reconceptualization of alcohol dependence that remains influential today. They described alcohol dependence as a serious health problem and emphasized a "continuum from non-pathological to severely pathological problem development" that "follows variable patterns over time and does not necessarily proceed

inexorably to severe fatal stages." Further, "[r]ecovery ... bears no necessary relation to abstinence, although such a concurrence is frequently the case" (pp. 4–5). This framework influenced behavior therapy research and practice from the 1970s to the present and generated evidence-based AUD treatments in use today, including relapse prevention, motivational interviewing, reinforcement-based treatments, and cognitive-behavioral therapy.

The Sobells also conducted treatment research that showed a subset of inpatients with severe alcohol dependence maintained controlled (i.e., moderate or low-risk) drinking for several years after treatment, a finding that ignited controversy by challenging the view that recovery required lifelong abstinence (1995). Their findings concerning moderation have since been widely replicated and extended (Tucker et al., 2020a). Although criteria for low- versus high-risk drinking vary across studies and countries (Furtwængler & De Visser, 2013), low-risk drinking among persons previously diagnosed with AUD is firmly established as a favorable outcome in addition to abstinence.

Concurrent with the controlled drinking controversy, research emerged on "natural" recovery in the absence of treatment. Vaillant's (1996) pioneering longitudinal study of the "natural history of alcoholism" indicated that some individuals with AUD could recover without treatment. Room (1977) reviewed then segregated research on recovery observed in population surveys and clinical studies and wrote about the "two worlds of alcohol problems." Whereas clinical researchers studied relatively homogeneous samples of treatment seekers with severe AUD, survey researchers studied population rates of alcohol use, AUD, and remission. Surveys revealed the variable nature of problem severity and the substantial remission of risky drinking and AUD, often without treatment, that was largely hidden from clinical researchers. As discussed later, bridging these bodies of work is fundamental to understanding and promoting reduction in alcohol-related problems across clinical and nonclinical populations.

Contemporary Views and Definitions of Recovery

Current literature includes four somewhat overlapping approaches to defining recovery: (1) remission of symptoms included in clinical diagnostic schemes for AUD; (2) cessation of risky drinking, typically defined as sustained abstinence; (3) comprehensive definitions that focus on improved functioning and well-being; and (4) views of recovery among persons with AUD. Research has favored the first two approaches because they provide quantifiable, albeit limited, measures of improvement. The second two approaches are more comprehensive concerning the scope of changes important for recovery, but their measurement is less well developed. A challenge at hand is expanding recovery research beyond drinking and symptom reduction to include a focus on improved well-being.

Clinical Diagnosis of AUD and Remission

The American Psychiatric Association (APA) and the WHO offer clinical diagnostic systems used, respectively, within and outside the United States. The *APA Diagnostic and Statistical Manual*, 5th edition (DSM-5; 2013), defines AUD based on meeting criteria for 2 or more of 11 symptoms in the past 12 months that fall within 4 clusters: physiological correlates of alcohol use ((1) tolerance, (2) craving, (3) symptoms of withdrawal); loss of control over alcohol use ((4) drinking longer or larger amounts than intended, (5) unsuccessful efforts to cut down or control drinking); alcohol taking over other meaningful activities ((6) time spent in activities related to alcohol, (7) other activities given up because of alcohol); and problems resulting from alcohol use ((8) failure to fulfill role obligations, (9) social or interpersonal problems, (10) physical or psychological problems, (11) use in situations that are physically hazardous). "Remission" from AUD is defined based on the length of time that symptoms other than craving are no longer present, including early (>3 months and <12 months) and sustained (>12 months) remission.

The *WHO International Classification of Diseases*, 10th edition (ICD-10; 1992) defines alcohol dependence based on having 2 or more of 6 symptoms in the past 12 months, including (1) tolerance; (2) craving; (3) physiological withdrawal; (4) loss of control over drinking; (5) drinking taking over other activities; and (6) problems resulting from alcohol use. Later supplements and revisions included early and sustained remission codes identical to the DSM-5 or reduced the number of core features defining AUD.

Thus, DSM-5 bases remission on not meeting symptoms of the disorder and is silent about alcohol consumption. The ICD schemes require abstinence for full remission, whereas partial remission requires reductions in drinking and the absence of symptoms.

Cessation of Risky Drinking

The large alcohol treatment outcome literature has relied heavily on drinking practices as an outcome metric, typically using NIAAA (2005, 2020) quantity–frequency criteria considered indicative of higher-risk drinking (any occasions of >14 drinks weekly or >5 drinks daily for men; >7 drinks weekly or >4 drinks daily for women in the past year). However, as discussed in Witkiewitz and Tucker (2020), such consumption-based thresholds lack sensitivity and specificity for predicting problems related to drinking and do not differentiate individuals based on measures of health, functioning, and well-being. Moreover, risk of AUD continues to increase above the 4+/5+ cut-points through approximately 10 drinks for women and 11 drinks for men (Linden-Carmichael et al., 2019). Cut-points also ignore the influence of weight, sex, and health status in determining effects of different levels of drinking (Pearson et al., 2016). They also

ignore the temporal patterning and manner of drinking over time that can contribute to risk and recovery; e.g., excessive infrequent drinking has been associated with greater risk than stable levels of heavy alcohol consumption (Grønbaek, 2009).

On balance, risky drinking cut-points may be useful for screening for AUD risk in general and medical populations. But in isolation, they do not offer a useful dimension to characterize AUD severity and are insufficient to characterize risk reduction during a recovery attempt.

Stakeholder Definitions of Recovery

In contrast to this limited focus on drinking practices, recent recovery definitions advanced by key stakeholders emphasize the importance of functioning, health, and well-being in defining recovery. For example, the Betty Ford Consensus Panel (2007) defined recovery as "a voluntarily maintained lifestyle characterized by sobriety, personal health, and citizenship" (p. 222). The US Substance Abuse and Mental Health Administration (SAMHSA, 2011) defined recovery as "a process of change through which individuals improve their health and wellness, live a self-directed life, and strive to reach their full potential." Abstinence is cited as one avenue to achieving improved health. In 2017, a Recovery Science Research Collaborative meeting convened by recovery researchers examined the concept of recovery based on a literature review and ideas generated by group members (Ashford et al., 2019). They concluded that "[r]ecovery is an individualized, intentional, dynamic, and relational process involving sustained efforts to improve wellness" in health, psychosocial, and functional domains (p. 5). The National Institute on Alcohol Abuse and Alcoholism (NIAAA, 2020) defined recovery as maintenance of remission from DSM-5 AUD symptoms and cessation from heavy drinking. They further noted that recovery often encompasses "fulfillment of basic needs, enhancements in social support and spirituality, and improvements in physical and mental health, quality of life, and other dimensions of well-being." Two additional categories defined by more limited improvements were remission from AUD symptoms as defined by DSM-5 criteria (excluding craving) or cessation from heavy drinking.

These stakeholder definitions focus on improved health, well-being, and functioning in areas adversely affected by drinking and do not emphasize or are silent about achieving abstinence. Similar to the Big Book of AA, abstinence, without improvement in functioning or well-being would not be considered recovery. These are similar to recovery definitions for other psychiatric disorders (e.g., schizophrenia, depression) that emphasize recovery of functioning and do not require the absence of symptoms, but differ from recovery definitions for health conditions (e.g., cancer) that require symptom reduction/elimination but do not require improved functioning and well-being.

Views of Recovery among Persons with AUD

Mixed methods research has identified recovery elements from the perspective of persons seeking to resolve AUD. Consistent with recent stakeholder definitions and quantitative research discussed later, elements involving improved well-being were generally endorsed to a greater extent than outcomes focused solely on level of substance use or absence of symptoms.

For example, Kaskutas et al. (2014) had over 9,000 persons self-identified as in recovery rate the extent to which specific elements belonged in their personal definition of recovery. A four-factor solution was found: (1) abstinence, (2) essentials of recovery (e.g., dealing with challenging negative feelings, realistic self-appraisal), (3) enriched recovery (e.g., self-care, inner peace, living a life that contributes to others and society), and (4) spirituality. Using the same data set, Witbrodt and colleagues (2015) identified five latent classes of recovery elements characterized as the following: (1) 12-step traditionalist, (2) 12-step enthusiast, (3) secular, (4) self-reliant, and (5) atypical. Those in the 12-step traditionalist and enthusiast classes were mostly abstinent and engaged in AA or other 12-step programs, whereas those in the secular, self-reliant, and atypical recovery classes were less likely to be abstinent or engaged in 12-step programs. Across all classes, commonly endorsed items were (1) being honest with myself, (2) handling negative feelings without using, (3) being able to enjoy life, and (4) growth and development. Similarly, Neale and colleagues (2016) developed a patient-reported outcome measure of recovery from drug and alcohol dependence, named the Substance Use Recovery Evaluator (SURE). Factor analyses yielded a five-factor solution: (1) substance use, (2) material resources, (3) outlook on life, (4) self-care, and (5) relationships.

Related work has focused on the role of social networks and social capital in recovery (Best et al., 2016; Granfield & Smith, 1999; Humphreys et al., 1999). Granfield and Smith (1999) introduced the concept of "recovery capital" in the context of understanding and promoting natural recovery without treatment. They focused on building and using internal and external resources (e.g., social, physical, cultural, community) needed to initiate and sustain recovery, which is variable across individuals and changeable over time. Best and colleagues (2016) proposed that an individual's social identity shifts during recovery and becomes increasingly defined by the norms and behaviors of people in their lives who do not drink alcohol compared to those who do. This is consistent with research showing that higher rates of AA attendance are associated with greater rates of abstinence and with members reporting having more non-drinking friends (Humphreys et al., 1999).

Finally, it is important to acknowledge the term "recovery" is strongly associated with AA and similar mutual help groups. Although the term is widely used in clinical research and practice, many persons attempting to stop or reduce risky drinking do not identify with being in recovery (Kelly et al., 2017) and reject labels indicative of AUD, especially those attempting to resolve a drinking

problem on their own (Sobell et al., 1996). Therefore, caution should be exercised when using the term recovery.

Empirical Research on AUD Recovery Rates, Patterns, and Outcomes

Studies of recovery-relevant patterns, processes, and outcomes include the following: (1) population surveys of large representative samples of drinkers that are cross-sectional or have short-term (e.g., 1 year) follow-ups, and (2) longitudinal studies with longer follow-ups that tend to employ smaller, less representative samples. Both approaches have methodological strengths and limitations. For example, of necessity, surveys typically employ brief measures that cannot assess recovery in the comprehensive manner described earlier, and the cross-sectional designs and brief follow-ups are poorly suited to investigate recovery as a dynamic behavior change process. Longitudinal research provides superior information about change processes and outcomes, but the follow-up intervals rarely exceed 3–5 years, although there are notable exceptions with follow-ups of 8–10 years or more (Brennan et al., 2011; Vaillant et al., 1996). Together, these two bodies of research reveal a coherent, complementary, and optimistic view of the extent, nature, and dynamics of positive drinking behavior change.

Epidemiology of Recovery and Relationships with Help-Seeking and Problem Severity

As reviewed by Tucker et al. (2020a), population surveys have consistently shown that most individuals who develop an AUD or have subclinical alcohol problems will reduce or resolve their problem on their own or with assistance from professional alcohol treatment or mutual help groups (e.g., Dawson et al., 2005, 2007; Fan et al., 2019; Kelly et al., 2017; Sobell et al., 1996). Specific improvement rates vary depending on the intervals over which drinking status was assessed (e.g., lifetime or shorter interval), how improvement or recovery/remission was measured, and participant problem severity, help-seeking, and demographic characteristics. The number of quit attempts before stable change is achieved is also variable; some persons succeed on the first attempt, while others require many tries (Kelly et al., 2019). But improvement over time is a robust finding, regardless of help-seeking status.

In contrast, seeking help for drinking problems is uncommon (SAMHSA, 2019). Most surveys indicate that less than 25 percent of persons in need utilize alcohol-focused helping resources from professional treatment or community and peer resources such as mutual help groups. Within the professional sector, care is dispersed through the mental health, medical, and community services

systems, and only a minority receive alcohol-focused services from qualified professionals or programs (Kelly et al., 2017; SAMHSA, 2017). This remains the case even though alcohol services have improved and expanded considerably (SAMHSA, 2017; Tucker & Simpson, 2011) and yield benefits for most recipients. Mutual help groups have likewise expanded in focus and availability. In addition to AA, they include groups such as Self-Management and Recovery Training (SMART) Recovery (www.smartrecovery.org/) and LifeRing Secular Recovery (www.lifering.org/).

Among persons who resolve their drinking problems, the great majority do so without interventions. Surveys indicate that over 70 percent of problem resolutions occur outside the context of treatment, and stable, low-risk drinking is a relatively more common outcome in untreated than treated samples (Fan et al., 2019; Sobell et al., 1996). This is likely due in part to the stigma of alcohol and drug treatment participation, barriers to treatment availability (e.g., cost, accessibility, capacity limitations), and emphasis on abstinence in many treatment programs. As a result, treatment seeking is generally associated with higher problem severity (Fan et al., 2019), and individuals with more severe AUD appear to practice some degree of appropriate self-selection into treatment (Tuithof et al., 2016) and may require more change attempts before achieving stable change (Kelly et al., 2019). Nevertheless, characteristics and outcomes of treated and untreated samples overlap. Recoveries that involve abstinence or low-risk drinking are present in both, and some high-severity treatment seekers achieve recoveries involving low-risk drinking (Witkiewitz et al., 2019).

Fan and colleagues (2019) demonstrated these relationships between help-seeking, problem severity, and drinking-related outcomes using data from the 2012-2013 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC-III; Grant et al., 2015). Respondents who met AUD criteria prior to the past year (n = 7785) were assessed with respect to their current (past year) status based on DSM-5 symptom counts and quantity-frequency criteria indicative of risky drinking. Only 22.8 percent reported any lifetime treatment utilization. Over the one-year timeframe of assessment, 34.2 percent had persistent AUD, whereas most respondents showed some improvement: Abstinence or low-risk drinking without symptoms was achieved by 16.0 percent and 17.9 percent, respectively, and asymptomatic low-risk drinking was more common among never treated (20.4 percent) than treated (9.7 percent) respondents. Also, the majority of treated respondents tended to belong to the persistent AUD (39.2 percent) or abstinent (30.4 percent) outcome groups that are generally associated with higher problem severity.

This illustrative survey, among others, reveals a more optimistic and variable view of recovery pathways and outcomes than suggested by early treatment research. Most affected individuals have less serious problems than the minority who seek treatment, and many improve on their own and maintain abstinence or low-risk drinking without problems.

Recovery across the Lifespan

As discussed in Tucker et al. (2020a), cross-sectional surveys and longitudinal research on age-related trends (Grant et al., 2015; Grucza et al., 2018; SAMHSA, 2019) generally show that alcohol use increases during adolescence and early adulthood and then decreases across the adult lifespan beginning in the mid-20s. Prevalence of past-year binge drinking (45 percent) and AUD (19 percent) are highest in the early 20s (Lee & Sher, 2018) and then decrease continuing well after early adulthood. This nonlinear trajectory, typically termed "maturing out," has been attributed to adult role transitions (e.g., employment, marriage, parenthood) and personal maturation (e.g., decreased impulsivity) common in early adulthood (Lee & Sher, 2018; Lee et al., 2018; Vergés et al., 2013). Treatment participation is uncommon (SAMHSA, 2019).

There are notable exceptions to this general trend. Some young adults who engage in risky alcohol use and develop AUD in early adulthood show persistent or escalating drinking problems in later life, and alcohol use before age 21 predicts persistence and severity of problems throughout the lifespan (Hingson et al., 2006). Nevertheless, reductions in problem drinking in early adulthood occur more often among individuals with the most severe problems at earlier ages (Lee et al., 2018). Development of AUD is less common after age 25, and reductions in problem drinking, including AUD recovery, continue past early adulthood through late middle and old age (60 to over 80 years) (Brennan et al., 2011; Lee et al., 2018). Reductions at older ages are predicted by relatively heavier alcohol use in early old age that prompted complaints from concerned others (Brennan et al., 2011).

Research that separated age-related associations between problem onset, remission, and recurrence rates also qualify this general lifespan trajectory (Lee & Sher, 2018; Lee et al., 2018; Vergés et al., 2013). In the NESARC surveys, rates of persistence of alcohol problems over time were relatively stable across ages 18 to 50 years and older, whereas rates of new problem onset and recurrence or relapse from earlier problems declined with age (Vergés et al., 2013). "Desistance" from moderate to severe AUD occurred among younger age groups (ages 25–29 and 30–34), whereas desistance rates from mild AUD were stable across age groups (Lee et al., 2018). Thus, resolution of severe AUD contributes heavily and distinctively to the prevalence of early adulthood remission. These different contributing processes further suggest that maturing out as young people assume adult roles is not a sufficient account of remission rates across the lifespan (Lee & Sher, 2018), and the variable age-related associations between problem onset, remission, and recurrence rates can guide the timing and targeting of interventions.

Finally, natural recoveries tend to occur in mid-life (Kelly et al., 2019; Sobell et al., 1996; Tucker et al., 2020b), which is also when alcohol treatment entry tends to occur (Dawson et al., 2005), typically a decade or more after problem recognition (Tucker & Simpson, 2011). Recovery in mid-life and later ages is

associated with an accumulation of alcohol-related problems coupled with life contexts that support and reinforce reduced drinking and involve post-resolution improvements in functioning and well-being (Moos & Moos, 2007; Tucker et al., 2021). Nevertheless, a few studies observed increased binge drinking among middle-aged and older adults (e.g., Grucza et al., 2018), suggesting there may be dynamic mid-life changes that have not been well researched.

Role of Gender and Race/Ethnicity in Recovery and Help-Seeking

Studies of improvement rates by gender and race/ethnicity suggest that many observed differences involve variations in the timing and extent of reductions in binge drinking and AUD during either young adulthood or older age, even though all groups tend to show overall patterns similar to the population as a whole. For example, using NESARC-III data, Vasilenko et al. (2017) found that while AUD prevalence generally peaked in the 20s and declined steadily with age, prevalence was higher for White persons at younger ages and higher for Black persons at older ages. This cross-over pattern typically occurred around age 60. In mid-life, Black individuals and White individuals had similar prevalence of AUD. Also, White individuals reported higher AUD rates than Hispanic individuals at all ages, and men reported higher AUD rates than women until older age, when women were more likely than men to report AUD in their 70s.

Cohort effects in the age of peak binge drinking prevalence also have been observed. Based on drinking data from 27 cohorts of the annual Monitoring the Future surveys (1976–2004) (Patrick et al., 2019), women in more recent cohorts reported significantly higher binge drinking prevalence than women in earlier cohorts from ages 21 through 30, with risk remaining high throughout the 20s. The shifts toward older age of peak binge drinking prevalence signify extended risks in young adulthood, especially for women.

Sex differences are more apparent in help-seeking than in recovery patterns. Women have lower help-seeking rates than men even after controlling for the higher prevalence of AUD and greater problem severity among men (Gilbert et al., 2019; Zemore et al., 2014). With respect to race/ethnicity, White individuals are proportionately more likely to utilize alcohol services than Black and Hispanic individuals (Gilbert et al., 2019; SAMHSA, 2015; Zemore et al. 2009, 2014). For example, using pooled data from multiple waves of the national probability samples collected in the US National Alcohol Surveys, Zemore et al. (2009) found very low rates of lifetime service utilization among Latinx participants. A later study (Zemore et al., 2014) found lower service utilization among Latinx and Black individuals (vs. Whites) and women (vs. men). Overall, recovery research on race/ethnicity and help-seeking is not extensive, and groups other than White, Black, and Hispanic/Latinx individuals have not been well studied.