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One Size Should Not Fit All, So Use the Right Tool For the Job

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CONCISE STATEMENT

The 4/5+ criterion for heavy drinking has limited validity as an index of treatment efficacy, and use of continuous and multi-dimensional measures of outcome are recommended. The 4/5+ criterion continues to be a useful indicator of alcohol-related risk for screening and prevention.

Keywords

heavy drinking; binge drinking; 4/5+ criterion; outcome measure; alcohol treatment

Increased acceptance of harm reduction approaches and non-abstinent treatment goals (1, 2) have complicated the use of dichotomous measures of ‘problem drinking.’ We agree with Pearson and colleagues (3) that the 4/5+ criterion for heavy drinking has limited validity as an index of treatment efficacy. However, in the spirit of not throwing the baby out with the bathwater, we argue that this criterion has utility as an indicator of alcohol-related risk in a variety of other clinical and prevention contexts.

The 4/5+ criterion is an insensitive measure of treatment outcome in the context of clinical trials. First, it is only sensitive to decreases in alcohol use that cross the 4/5 line: a change from 6 to 3 standard drinks per day would be counted as ‘treatment success,’ while a much larger decrease from 15 to 6 drinks per day would not. This limits the utility of the 4/5+ criterion because it fails to capture clinically meaningful change in alcohol use. Second, an exclusive focus on consumption is inconsistent with the DSM-5 definition of alcohol use disorder, which focuses on ways that alcohol use interferes with functioning. It is illogical to consider an individual who consumes 5 drinks on one occasion with no alcohol-related problems a treatment failure, but an individual who consumes no more than 3 drinks per day but experiences 10 alcohol-related consequences a treatment success. Finally, the alcohol treatment research community has a long tradition of recommending that outcomes be measured using continuous measures (e.g., percent days abstinent) (4) and from a multi-dimensional perspective (5–7). Given these considerations, the 4/5+ criterion is unsuitable as a sole index of treatment efficacy in clinical trials.

As pointed out by Pearson and colleagues, the 4/5+ criterion originated as a population-based indicator of risky drinking – that is, drinking likely to result in negative consequences

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– in the context of adolescent (Monitoring the Future) and young adult (College Alcohol Study) drinking. Thus, 4/5+ was developed as a measure of risk for individuals just beginning their drinking career or for those who have not developed an alcohol use disorder. At the outset, the use of the 4/5+ definition of binge or heavy drinking was controversial, in part because it was at odds with the use of the terms by the treatment community, it was dichotomous, and it was not reliably associated with problems (8, 9).

Despite these limitations, the 4/5+ criterion has proven utility as an indicator of alcohol and other health-related risk. Low to moderate heavy drinking thresholds (including the 5+ cut-off) are reliable predictors of the maximum number of drinks consumed in the past month, particularly among women (10); and individuals drinking at these thresholds accounted for 85% of alcohol-impaired driving episodes in the United States in 2012 (11). Even in the absence of self-reported psychosocial problems, heavy drinking can have an adverse effect on health. The 4/5+ criterion may also be useful in identifying individuals at risk for a range of other health behaviors, including risky sexual activity, tobacco and illicit drug use, non-compliance with recommended health screenings, adverse cardiovascular events, cancer, and mortality (12–17). Therefore, the 4/5+ threshold may be useful as a screening tool to identify individuals who may benefit from brief advice or health interventions.

Finally, for the purposes of education and prevention messaging, there is utility in establishing clear guidelines for risk. The establishment of a heavy-drinking threshold (e.g., 4/5+) can shape perceptions of what is ‘normative’ and, ostensibly, ‘safe’ drinking (8, 10, 18). In the case of many young adults, normative perceptions are often unrealistically elevated (19). Therefore, it can be useful to offer an alternative frame of reference and point out that arguably low levels of alcohol use (i.e., 4/5+ drinks per occasion) have been associated with adverse health and safety outcomes.

Pearson and colleagues have offered compelling arguments against the use of a categorical criterion as a marker of problematic drinking in treatment settings, whether based on numbers of drinks consumed or number of problems reported. The 4/5+ criterion may be the right tool for some purposes but is unlikely to be sensitive or specific enough to determine whether a person has truly benefitted from treatment.

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