ChecKIT

Administration and Scoring of the Michigan Alcoholism Screening Test (MAST)

PAR Staff

OVERVIEW

The Michigan Alcoholism Screening Test (MAST; Selzer, 1971; Selzer et al., 1975) is 24-item questionnaire developed to screen for alcohol dependence and alcohol-related behaviors. Administration and scoring, available on PARiConnect, take approximately 10 minutes to complete.

ADMINISTRATION

The MAST may be administered using PARiConnect, PAR's online assessment platform. Examinees can complete the MAST in-office or at a remote location via an email link, which launches the administration. Detailed information on the use of PARiConnect is available under All Help Topics in PARiConnect.

Each of the 24 items are displayed one at a time with a progress bar displayed below the response options. Items cannot be skipped during administration. Therefore, an advantage to administering the MAST via PARiConnect is the ability to capture a complete administration each and every time.

Respondents are asked to respond Yes or No to each item. For three items (i.e., items 18, 23, and 24), if endorsed, respondents are also asked to enter the number of times they have experienced the situation in question (i.e., severe withdrawal symptoms, arrests).

Item Wording

Item wording has evolved since the MAST was first published. Currently, there are two versions—the original 25-item measure (Selzer, 1971) and a modified 24-item questionnaire (Selzer et al., 1975) that omits the unscored item (item 7, Do you ever try to limit your drinking to certain times of the day or certain places?). Numerous wording variations also exist, with some versions modifying language to be gender neutral. For the MAST on PARiConnect, items were initially based on the revised MAST published by Selzer et al. (1975). Slight wording modifications have been made to the items based on recommendations from the literature for clarity and to ensure the wording is gender neutral. Five items (i.e., items 3, 10, 11, 12, and 22) have been modified to be gender neutral. For item 8, the wording "because of your own drinking" was added to the 1975 version based on recommendations by Martin et al. (1990) to improve specificity of the MAST. Likewise, several other items mentioned drinking but were not clearly specific to the respondent's own drinking. These items (i.e., items 10, 14, 20, 21, and 22) were modified from "drinking" to "your drinking" to clarify the intention of the item based on recommendations by Svikis et al. (1991). Item 13 was modified from "work" to "work or school" to better clarify the intention of that item. The sub-item "How many times?" was added to items 18, 23, and 24 to allow respondents to indicate how many times they have experienced the situation. Minor grammatical changes were made to items 1 and 18 to improve clarity.

SCORING

In the literature, the MAST has been scored using either the original weighted scoring system (Selzer, 1971) or an alternative unit scoring approach (i.e., 1 point per item). According to Minnich et al. (2018), there is no empirical support for one scoring method versus the other. Specifically, the weighted scoring method has not been found to demonstrate greater accuracy and is more prone to calculation errors. Some researchers have criticized this approach as arbitrary (Connor et al., 2007; Thurber et al., 2001). Nevertheless, the weighted and unit scoring systems are correlated at r = .99 (Pokorny et al., 1972). In an effort to adhere more closely to the original instrument (Seltzer, 1971), the MAST Score Report on PARiConnect primarily reports the weighted raw score. However, the MAST Items and Responses table also includes the unit raw score, which is calculated by summing the points assigned to each item (Yes = 1, No = 0). Items 1, 4, 6, and 7 are reverse scored where Yes = 0 and No = 1. Unit raw scores range from 0 to 24, with higher values being indicative of more problematic alcohol-related behaviors.

The weighted raw score is calculated by summing the weighted scores assigned to each item (Yes = 1, 2, or 5; No = 0, see Appendix). Items 1, 4, 6, and 7 are reversed scored where Yes = 0 and No = 2. In the original article, Selzer (1971) indicated that questions that were highly discriminating were assigned a value of 2 points and others were assigned a value of 1. An "alcoholic response" to questions 8, 19, or 20 were considered diagnostic, so Selzer assigned a value of 5 points. Weighted raw scores range from 0 to 53. Like the unit raw score, higher scores are indicative of more problematic alcohol-related behaviors.

When items 18, 23, and 24 are endorsed, the number of experiences reported by the examinee will appear in the MAST Items and Responses table. However, these values are not included in the weighted raw score. Despite Selzer's initial recommendations to use response weighting per event for these three items, this scoring approach has not been used consistently throughout the literature. Furthermore, response weighting for these three items is not used in the revised measure presented in Selzer et al. (1975). Nevertheless, we provide those responses for examiners who wish to calculate the scores manually by including these values. In this scoring methodology, the number of times endorsed for item 18, "After heavy drinking, have you ever had delirium tremens (DTs) or severe shaking, or heard voices or seen things that weren't really there?" would be allotted 5 points each. The number of times endorsed for item 23, "Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages?" would be allotted 2 points each. The number of times endorsed for item 24, "Have you ever been arrested, even for a few hours, because of other drunken behavior?" would be allotted 2 points each.

MAST Score Report

Classifications

After generating a Score Report on PARiConnect, the MAST Score Summary table will display the weighted raw score and classification. Cut scores for diagnostic classification have evolved since the MAST was first published. In the original article, Selzer (1971) identified a cut score of 5 or higher for a diagnosis of alcoholism. Selzer reported sensitivity of .98, specificity of .95, positive predictive value of .96, and negative predictive value of .98 using a sample of men admitted to an inpatient unit compared to a control group of men with no alcohol problems. Selzer et al. (1975) found the original MAST cut score to be overly sensitive and expressed concerns of higher-than-expected false positives. Consequently, they suggested revised cut points of 0 to 4 to mean "not alcoholic," 5 to 6 to mean "maybe alcoholic,", and 7 or more to mean "alcoholic." Similarly, to reduce false positives, Levenson et al. (1987) proposed using a cut score of 9 or greater for alcoholism and 3 or less for absence of alcoholism.

Ross et al. (1990) compared MAST scores to diagnoses of alcoholism obtained from the National Institute of Mental Health Diagnostic Interview Schedule (Robins et al., 1981). They found a cut score of 13 or greater yielded the highest overall classification accuracy of 88%, sensitivity of .93, specificity of .75, positive predictive value of .91, and negative predictive value of .80. Ross et al. noted that a cut score of 18 would be necessary to meet the threshold for meeting all the Diagnostic and Statistical Manual of Mental Disorders, Third Edition criteria for an alcohol disorder.

The MAST on PARiConnect includes classification ranges based on guidance by Selzer et al. (1975) to reduce false positives. Weighted raw scores ranging from 0 to 4 are classified as "No alcohol use disorder indicated," 5 to 6 are classified as "Possible alcohol use disorder," and 7 to 53 are classified as "Indicates alcohol use disorder." In addition to these classification ranges, additional interpretive text is provided when weighted raw scores are 7 or greater. For scores ranging from 7 to 24, additional interpretive text states there is "clear evidence of problems related to drinking" based on guidance by Skinner (1982). For scores 25 or greater, the additional interpretive text states there is evidence of "substantial" alcohol problems (Skinner, 1982).

Treatment Recommendations

The MAST Score Report includes a brief interpretation and recommendation section based on an examinee's weighted raw score. Substance use disorder evaluation recommendations are based on weighted raw scores (see Table 1). Individuals that receive a score of 5 or higher should be recommended for further evaluation.

Table 1. MAST Recommendations

WEIGHTED RAW SCORE RANGE	RECOMMENDATION
0 to 4	No further action is recommended.
5 to 6	Further evaluation by a health care professional is recommended.
7 to 53	A comprehensive substance use disorder evaluation by a health care professional is recommended.

Reliability and Validity

Minnich and colleagues (2018) provide a thorough overview of validity and reliability studies of the MAST. They found that when all 37 included studies were weighted and then averaged, the grand internal consistency coefficient was .84 with average internal consistency coefficients of .85 and .82 for clinical and nonclinical samples, respectively. Test–retest reliabilities of .97, .94, and .95 have been reported for 1-, 3-, and 7-day testing intervals, respectively (Zung, 1982; Teitelbaum & Carey, 2000). Across 23 studies (N = 6,260), Minnich et al. reported the percent correctly classified was 80%, sensitivity was .70, specificity was .83, positive predictive value was .56, and negative predictive value was .93 when using the original cutoff score of 5 (Selzer, 1971). However, they noted the optimal cutoff score appeared to be 8 with an overall classification accuracy of 81%, sensitivity of .84, specificity of .75, positive predictive value of .83, and negative predictive value of .86. Among nonclinical samples (N = 8,049), the total mean was 2.28 (SD = 3.02). Six of these studies disaggregated these nonclinical sample statistics by gender, such that the mean for men (N = 440) was 3.41 (SD = 3.01) and the mean for women (N = 1,248) was 1.24 (SD = 3.33). In sum, as reported in the MAST literature, there is evidence of strong internal consistency and test–retest reliability.

REFERENCES

Connor, J., Grier, M., Feeney, G., Young, R. (2007). The validity of the Brief Michigan Alcohol Screening Test (bMAST) as a problem drinking severity measure. *Journal of Studies on Alcohol and Drugs, 68*, 771–79. https://doi.org/bnn2

Levenson, R. W., Oyama, O. N., & Meek, P. S. (1987). Greater reinforcement from alcohol for those at risk: Parental risk, personality risk, and sex. *Journal of Abnormal Psychology, 96*(3), 242–253. https://doi.org/czq36d

Martin, C. S., Liepman, M. R., & Young, C. M. (1990). The Michigan Alcoholism Screening Test: False positives in a college student sample. *Alcoholism: Clinical and Experimental Research, 14*(6), 853–855. https://doi.org/bbkgvd

Minnich, A., Erford, B. T., Bardhoshi, G., & Atalay, Z. (2018). Systematic review of the Michigan Alcoholism Screening Test. *Journal of Counseling & Development, 96*(3), 335–344. https://doi.org/fs9g

Pokorny, A. D., Miller, B. A., & Kaplan, H. B. (1972). The brief MAST: A shortened version of the Michigan Alcoholism Screening Test. *American Journal of Psychiatry, 129*(3), 342–345. https://doi.org/fs9h

Robins, L. N., Helzer, J. E., Croughan, J., & Ratcliff, K. S. (1981). National Institute of Mental Health diagnostic interview schedule. Its history, characteristics, and validity. *Archives of General Psychiatry, 38*(4), 381–389. https://doi.org/dvqfhg

Ross, H. E., Gavin, D. R., & Skinner, H A. (1990). Diagnostic validity of the MAST and the Alcohol Dependence Scale in the assessment of DSM-III alcohol disorders. *Journal of Studies on Alcohol, 51,* 506–513. https://doi.org/frxr

Selzer, M. L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *American Journal of Psychiatry, 127*, 1653–1658. https://doi.org/frxs

Selzer, M. L., Vinokur, A., & van Rooijen, L. (1975). A self-administered Short Michigan Alcoholism Screening Test (SMAST). *Journal of Studies on Alcohol and Drugs, 36*(1), 117–126. https://doi.org/d835

Skinner, H. A. (1982). *Guidelines for Using the Michigan Alcoholism Screening Test.* Toronto: Addiction Research Foundation.

Svikis, D. S., McCaul, M. E., Turkkan, J. S., & Bigelow, G. E. (1991). Effects of item correction on Michigan Alcoholism Screening Test scores in college men with and without a family history of alcoholism. *Psychological Assessment: A Journal of Consulting and Clinical Psychology, 3*(4), 654–659. https://doi.org/bwqf9k

Teitelbaum, L. M., & Carey, K. B. (2000). Temporal stability of alcohol screening measures in a psychiatric setting. *Psychology of Addictive Behaviors, 14,* 401–404. https://doi.org/dmtd4d

Thurber, S., Snow, M., Lewis, D., & Hodgson, J. M. (2001). Item characteristics of the Michigan Alcoholism Screening Test. *Journal of Clinical Psychology, 57*(1), 139–144. https://doi.org/fv86bp

Zung, B. J. (1982). Evaluation of the Michigan Alcoholism Screening Test (MAST) in assessing lifetime and recent problems. *Journal of Clinical Psychology, 38*(2), 425–439. https://doi.org/d2p7p2

APPENDIX
Michigan Alcoholism Screening Test (MAST) Items and Responses

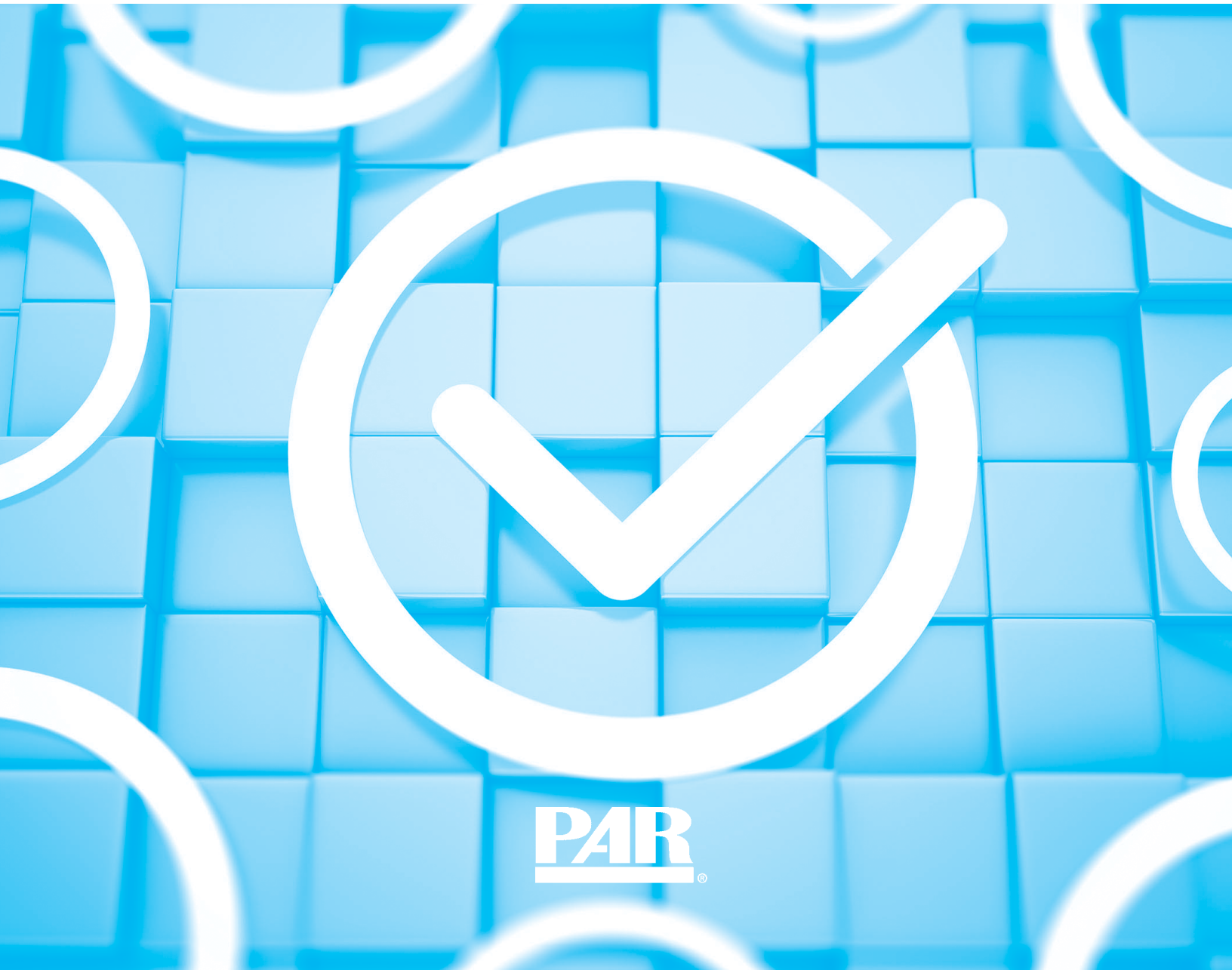| Item	Item	Points for weighted score	Points for unit raw score
1	Do you feel you are a normal drinker? (By normal, we mean you drink less than or as much as most other people)*	Yes = 0, No = 2	Yes = 0, No = 1
2	Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening?	Yes = 2, No = 0	Yes = 1, No = 0
3	Does your partner, a parent, or other near relative ever worry or complain about your drinking?	Yes = 1, No = 0	Yes = 1, No = 0
4	Can you stop drinking without a struggle after one or two drinks?*	Yes = 0, No = 2	Yes = 0, No = 1
5	Do you ever feel guilty about your drinking?	Yes = 1, No = 0	Yes = 1, No = 0
6	Do friends or relatives think you are a normal drinker?*	Yes = 0, No = 2	Yes = 0, No = 1
7	Are you able to stop drinking when you want to?*	Yes = 0, No = 2	Yes = 0, No = 1
8	Have you ever attended a meeting of Alcoholics Anonymous (AA) because of your own drinking?	Yes = 5, No = 0	Yes = 1, No = 0
9	Have you ever gotten into physical fights when drinking?	Yes = 1, No = 0	Yes = 1, No = 0
10	Has your drinking ever created problems between you and your partner, a parent, or other near relative?	Yes = 2, No = 0	Yes = 1, No = 0
11	Has your partner, a parent, or other near relative ever gone to anyone for help about your drinking?	Yes = 2, No = 0	Yes = 1, No = 0
12	Have you ever lost friends or partners because of your drinking?	Yes = 2, No = 0	Yes = 1, No = 0
13	Have you ever gotten into trouble at work or school because of your drinking?	Yes = 2, No = 0	Yes = 1, No = 0
14	Have you ever lost a job because of your drinking?	Yes = 2, No = 0	Yes = 1, No = 0
15	Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?	Yes = 2, No = 0	Yes = 1, No = 0
16	Do you drink before noon fairly often?	Yes = 1, No = 0	Yes = 1, No = 0
17	Have you ever been told you have liver trouble? Cirrhosis?	Yes = 2, No = 0	Yes = 1, No = 0
18a	After heavy drinking, have you ever had delirium tremens (DTs) or severe shaking, or heard voices or seen things that weren't really there?	No = 0, Yes = 2	Yes = 1, No = 0
18b	(If 18a = Yes) How many times?	Not scored	Not scored
19	Have you ever gone to anyone for help about your drinking?	Yes = 5, No = 0	Yes = 1, No = 0
20	Have you ever been in a hospital because of your drinking?	Yes = 5, No = 0	Yes = 1, No = 0
21	Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where your drinking was part of the problem that resulted in hospitalization?	Yes = 2, No = 0	Yes = 1, No = 0
22	Have you ever been seen at a psychiatric or mental health clinic or gone to any doctor, social worker, or clergy member for help with any emotional problem where your drinking was part of the problem?	Yes = 2, No = 0	Yes = 1, No = 0
23a	Have you ever been arrested for drunken driving, driving while intoxicated, or driving under the influence of alcoholic beverages?	No = 0, Yes = 2	Yes = 1, No = 0
23b	(If 23a = Yes) How many times?	Not scored	Not scored
24a	Have you ever been arrested, even for a few hours, because of other drunken behavior?	No = 0, Yes = 2	Yes = 1, No = 0
24b	(If 24a = Yes) How many times?	Not scored	Not scored

*Indicates item is reverse scored.