Supplementary Materials A

The following changes to enhancement, coping-with-depression, and conformity items were made after expert feedback. In terms of the enhancement item, the general statement (“I’ve used cannabis/alcohol because it enhances my pleasure”) and second item example (“because it’s fun”) were altered; 21% of experts thought the word “pleasure” had sexual connotations and 21% thought “because it’s fun” overlapped with the social motive and/or did not reflect an *increase* in fun (i.e., enhancement of experience). Thus, the general statement was changed (i.e., “I’ve used cannabis/alcohol because it enhances positive feelings) and a different enhancement item that loads well onto both the MMM and the MDMQ-R enhancement scales was selected (i.e., “to get a high”).

In terms of the coping-depression item, the second item example (“to forget my worries”) was altered; 52% of experts disagreed that it was very relevant to the motive, and reported the item was too similar to the coping-with-anxiety motive. Thus, the second item example was changed to “stop me from dwelling on things”, as it also loads strongly onto the coping-with-depression motive, appears to tap into the same part of the construct, and is less overtly associated with anxiety.

In terms of the conformity item, the first item example (“because my friends pressure me to use”) was altered; 10% disagreed that this item example was very relevant to the motive, and 15% indicated people often do not identify with active pressure, teens would not endorse the item, or the item does not translate well to other cultures. Thus, the first item example was changed to “to be liked”, as this item loads well onto the conformity motive construct.

Supplementary Materials B

Brief Alcohol Motives Measure (BAMM)

Listed below are 6 reasons people might be inclined to drink alcoholic beverages. Please decide how frequently your own drinking is motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.

1. In the past 30 days, **I’ve used alcohol because it enhances positive feelings** *(e.g., because I*

*like the feeling,* or *to get a high).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used alcohol because it’s a good way to socialize with others** *(e.g., because it makes social gatherings more enjoyable* or *to be sociable).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used alcohol because it helps me cope when I’m feeling nervous, anxious, or tense** *(e.g., to reduce my anxiety* or *to relax).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used alcohol because it helps me cope when I’m feeling sad, down, or blue** *(e.g., because it helps me when I’m feeling depressed* or *to stop me from dwelling on things).*

**NEVER**

**ALWAYS**

1. In the past 30 days**, I’ve used alcohol because I didn’t want to feel left out** *(e.g., to be liked* or *to fit in with a group I like).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used alcohol because it expands my awareness** *(e.g., allows me to be more creative and original* or *to understand things differently).*

**NEVER**

**ALWAYS**

Brief Cannabis Motives Measure (BCAMM)

Listed below are 6 reasons people might be inclined to use cannabis. Please decide how frequently your own cannabis use is motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.

1. In the past 30 days, **I’ve used cannabis because it enhances positive feelings** *(e.g., because I like the feeling,* or *to get a high).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used cannabis because it’s a good way to socialize with others** *(e.g., because it makes social gatherings more enjoyable* or *to be sociable).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used cannabis because it helps me cope when I’m feeling nervous, anxious, or tense** *(e.g., to reduce my anxiety* or *to relax).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used cannabis because it helps me cope when I’m feeling sad, down, or blue** *(e.g., because it helps me when I’m feeling depressed* or *to stop me from dwelling on things).*

**NEVER**

**ALWAYS**

1. In the past 30 days**, I’ve used cannabis because I didn’t want to feel left out** *(e.g., to be liked* or *to fit in with a group I like).*

**NEVER**

**ALWAYS**

1. In the past 30 days, **I’ve used cannabis because it expands my awareness** *(e.g., allows me to be more creative and original* or *to understand things differently).*

**NEVER**

**ALWAYS**

Suggested Instructions for the BAMM and BCAMM for Different Time Frames

While the BAMM and BCAMM have only been validated using a timeframe of the past 30 days, researchers may be interested to know the suggested wording for utilizing the BAMM and BCAMM for daily, momentary, or weekly time frames. Below we have included the suggested wordings for such timeframes. Please note the BAMM and BCAMM have not yet been validated using such timeframes.

BAMM

Daily: “Listed below are 6 reasons people might be inclined to drink alcoholic beverages. Please decide how frequently your own drinking in the past 24 hours was motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.”

EMA: “Listed below are 6 reasons people might be inclined to drink alcoholic beverages. Please decide how frequently your own drinking in the time since the last survey was motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.”

Weekly: Listed below are 6 reasons people might be inclined to drink alcoholic beverages. Please decide how frequently your own drinking in the past 7 days was motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.”

BCAMM

Daily: “Listed below are 6 reasons people might be inclined to use cannabis. Please decide how frequently your own cannabis use in the past 24 hours was motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.”

EMA: “Listed below are 6 reasons people might be inclined to use cannabis. Please decide how frequently your own cannabis use in the time since the last survey was motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.”

Weekly: Listed below are 6 reasons people might be inclined to use cannabis. Please decide how frequently your own cannabis use in the past 7 days was motivated by each of the reasons listed and click on the place on the scale that best represents this frequency.”

Supplementary Material C

Feedback on the BAMM and BCAMM

Please complete questions 1-3 about the following shortened drinking motives item: “In the past 30 days, **I’ve used alcohol because it enhances my pleasure** *(e.g., because I like the feeling, because it’s fun).”*

1. This item reflects the enhancement motive clearly (i.e., it is face valid)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the enhancement motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the enhancement motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 4-6 about the following shortened drinking motives item: “In the past 30 days, **I’ve used alcohol because it’s a good way to socialize with others** *(e.g., because it makes social gatherings more enjoyable* or *because it is what most my friends do when we get together).”*

1. This item reflects the social motive clearly (i.e., it is face valid).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the social motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the social motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 7-9 about the following shortened drinking motives item: “In the past 30 days, **I’ve used alcohol because it helps me cope when I’m feeling nervous, anxious, or tense** *(e.g., to reduce my anxiety* or *because I feel more self-confident or sure of myself).*”

1. This item reflects the coping-anxiety motive clearly (i.e., it is face valid).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the coping-anxiety motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the coping-anxiety motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 10-12 about the following shortened drinking motives item: “In the past 30 days, **I’ve used alcohol because it helps me cope when I’m feeling sad, down, or blue** *(e.g., because it helps me when I’m feeling depressed* or *to stop me from dwelling on things).*”

1. This item reflects the coping-depression motive clearly (i.e., it is face valid).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the coping-depression motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the coping-depression motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 13-16 about the following shortened drinking motives item: “In the past 30 days, **I’ve used alcohol because I didn’t want to feel left out** *(e.g., because my friends pressure me to use marijuana* or *to fit in with the group I like).*”

1. This item reflects the conformity motive clearly (i.e., it is face valid).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the conformity motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the conformity motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. I would use the Shortened Modified Drinking Motives Questionnaire Revised after it has been validated.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please describe why you would not use this measure in the box below.

If you have any additional comments about our shortened alcohol motives measure, please leave them in in the box below.

Feedback on the Shortened Marijuana Motives Measure

Please complete questions 1-3 about the following shortened marijuana motives item: “In the past 30 days, **I’ve used marijuana because it enhances my pleasure** *(e.g., because I like the feeling* or *to get high).*”

1. This item reflects the enhancement motive clearly (i.e., it is face valid)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the enhancement motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the enhancement motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 4-6 about the following shortened marijuana motives item: “In the past 30 days, **I’ve used marijuana because it’s a good way to socialize with others** *(e.g., to be sociable* or *because it makes social gatherings more fun).*”

1. This item reflects the social motive clearly (i.e., it is face valid).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the social motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the social motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 7-9 about the following shortened marijuana motives item: “In the past 30 days, **I’ve used marijuana because it expands my awareness** *(e.g., allows me to be more creative and original* or to *understand things differently)*.”

1. This item reflects the expansion motive clearly (i.e., it is face valid).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the expansion motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the expansion motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 10-12 about the following shortened marijuana motives item: “In the past 30 days, **I’ve used marijuana because it helps me cope when I’m feeling nervous, anxious, depressed, or sad** *(e.g., to forget about my problems* or *it helps when I feel depressed or nervous).*”

1. This item reflects the coping motive clearly (i.e., it is face valid)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the coping motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the coping motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

Please complete questions 13-16 about the following shortened marijuana motives item: “In the past 30 days, **I’ve used marijuana because I didn’t want to feel left out** *(e.g., because my friends pressure me to use marijuana* or *to fit in with the group I like).*”

1. This item reflects the conformity motive clearly (i.e., it is face valid).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects all aspects of the conformity motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. This item reflects the core aspects of the conformity motive construct.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning and how the item could be improved.

1. I would use the Shortened Marijuana Motives Measure after it has been validated.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please describe why you would not use this measure in the box below.

If you have any additional comments about our shortened marijuana motives measure, please leave them in in the box below.

Feedback on the Approach to Test Construction

1. Using a visual analog response scale is a good idea.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning.

1. This is an acceptable approach to short-form test development.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| [ ] | [ ] | [ ] | [ ] | [ ] |
| Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |

If you disagree, please comment in the box below on your reasoning.

Supplementary Materials D

Table 1

*Correlations Between BAMM and MDMQ-R+ at T1 and T2*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Enhance A
 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief- Social A
 | .47\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Cope Anxiety A
 | .32\*\* | .24\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Cope Depression A
 | .38\*\* | .18\* | .63\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Conformity A
 | .16\* | .29\*\* | .13 | .17\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Expansion A
 | .19\* | .27\*\* | .25\*\* | .42\*\* | .27\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Enhance A
 | .53\*\* | .24\*\* | .26\*\* | .23\*\* | .14 | 19\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief- Social A
 | .32\*\* | .43\*\* | .14 | .09 | .23\*\* | .14 | .89\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Cope Anxiety A
 | .27\*\* | .33\*\* | .54\*\* | .53\*\* | .16\* | .28\* | .28\*\* | .24\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Cope Depression A
 | .22\*\* | .24\*\* | .43\*\* | .52\*\* | .11 | .19\* | .20\*\* | .03 | .37\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Conformity A
 | .05 | .30\*\* | .12 | .16\* | .55\*\* | .19\* | .11 | .24\*\* | .28\*\* | .24\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Expansion A
 | .29\*\* | .22\*\* | .23\* | .29\*\* | .21\*\* | .34\*\* | .34\*\* | .08 | .38\*\* | .45\*\* | .45\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 MDMQ-R+ Enhance
 | .63\*\* | .48\*\* | .23\*\* | .25\*\* | .04 | .19\*\* | .53\*\* | .29\*\* | .24\*\* | .24\*\* | .73 | .30\*\* | - |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 MDMQ-R+ Social
 | .09 | .47\*\* | -.01 | .00 | .36\*\* | .10 | .24\*\* | .40\*\* | .68\* | .13 | .29\*\* | .21\*\* | .30\*\* | - |  |  |  |  |  |  |  |  |  |  |
| 1. T1 MDMQ-R+ Cope Anxiety
 | .45\*\* | .30\*\* | .01\*\* | .59\*\* | .16\* | .30\*\* | .57\*\* | .31\*\* | .51\*\* | .38\*\* | .16\* | .17\*\* | .39\*\* | .13 | - |  |  |  |  |  |  |  |  |  |
| 1. T1 MDMQ-R+ Cope Depression
 | .41\*\* | .18\* | .63\*\* | .73\*\* | .17\* | .28\*\* | .27\*\* | .06 | .01\*\* | .43\*\* | .08 | .20\*\* | .31\*\* | .10 | .71\*\* | - |  |  |  |  |  |  |  |  |
| 1. T1 MDMQ-R+ Conformity
 | .12 | .32\*\* | .14 | .11 | .61\*\* | .09 | .09 | .20\*\* | .16 | .41 | .47\*\* | .14 | .05 | .37\*\* | .23\*\* | .21\*\* | - |  |  |  |  |  |  |  |
| 1. T1 MDMQ-R+ Expand
 | .27\*\* | .23\*\* | .26\*\* | .25\*\* | .17\* | .49\*\* | .25\*\* | .12 | .21\* | .15 | .23\*\* | .33\*\* | .34\*\* | .14\* | .34\*\* | .31\*\* | .17\* | - |  |  |  |  |  |  |
| 1. T2 MDMQ-R+ Enhance
 | .49\*\* | .36\*\* | .15\* | .16\* | .06 | .10 | .60\*\* | .29\*\* | .21\* | .25\*\* | .12 | 41.\*\* | .63\*\* | .29\*\* | .23\*\* | .17\* | .12 | .21\*\* | - |  |  |  |  |  |
| 1. T2 MDMQ-R+ Social
 | .09 | .34\*\* | .08 | .05 | .24\*\* | .19\*\* | .08 | .38\*\* | .01 | .03 | .27\*\* | .09 | .14 | .49\*\* | .17\* | .13 | .30\*\* | .26\* | .29\*\* | - |  |  |  |  |
| 1. T2 MDMQ-R+ Cope Anxiety
 | .27\*\* | .23\*\* | .53\*\* | .44\*\* | .21\*\* | .11 | .35\*\* | .14 | .58\*\* | .49\*\* | .23\*\* | .21\*\* | .30\*\* | .26\*\* | .54\*\* | .49\*\* | .21\*\* | .23\*\* | .32\*\* | .22\*\* | - |  |  |  |
| 1. T2 MDMQ-R+ Cope Depression
 | .28\*\* | .78\* | .50\*\* | .54\*\* | .20\*\* | .18\* | .29\*\* | .01 | .58\*\* | .62\*\* | .28\*\* | .37\*\* | .25\*\* | .15\* | .46\*\* | .59\*\* | .22\*\* | .26\*\* | .32\*\* | .27 | .66\*\* | - |  |  |
| 1. T2 MDMQ-R+Conformity
 | .06 | .25\*\* | .18\* | .14 | .36\*\* | .15 | .15\*\* | .07 | .25\*\* | .31\*\* | .60\*\* | .34\*\* | .10 | .31\*\* | .18\*\* | .17 | .48\*\* | .25\*\* | .22\* | .32\*\* | .31\*\* | .49\*\* | - |  |
| 1. T1 MDMQ-R+ Expand
 | .19\* | .19\* | .24\*\* | .30\*\* | .21\*\* | .26\*\* | .27\*\* | .10 | .04\*\* | .36\*\* | .37\*\* | .57\*\* | .26\*\* | .19\* | .32\*\* | .27\*\* | .26\*\* | .39\*\* | .42\*\* | .13 | .40\*\* | .47\*\* | .38\*\* | - |
| Mean | 53.63 | 65.39 | 29.08 | 20.08 | 17.46 | 11.36 | 52.05 | 6184 | 28.58 | 22.91 | 21.83 | 15.45 | 14.83 | 15.45 | 8.62 | 14.50 | 6.73 | 7.68 | 14.06 | 15.20 | 8.31 | 14.76 | 7.41 | 7.91 |
| *SD* | 30.04 | 27.35 | 31.07 | 27.39 | 23.20 | 16.75 | 31.44 | 25.88 | 29.38 | 27.68 | 24.75 | 20.76 | 4.55 | 3.73 | 3.38 | 6.74 | 2.48 | 2.85 | 4.76 | 4.19 | 3.22 | 7.16 | 3.59 | 3.78 |

*Note.* Correlations represent pooled Spearman’s Rank Order Correlations.T1 = time one; T2 = time two; Brief Enhance A = brief alcohol motives measure enhancement item; Brief Social A = brief alcohol motives measure social item; Brief Cope Anxiety A= brief alcohol motives measure coping-with-anxiety item; Brief Cope Depression A = brief alcohol motives measure coping-with-depression item; Brief Conformity A = brief alcohol motives measure conformity item; MDMQ-R+ Enhance = Modified Drinking Motives Questionnaire Revised+ enhancement subscale; MDMQ-R+ Social = Modified Drinking Motives Questionnaire Revised+ social subscale; MDMQ-R+ Cope Anxiety = Modified Drinking Motives Questionnaire Revised+ coping-with-anxiety subscale; MDMQ-R+ Cope Depression = Modified Drinking Motives Questionnaire Revised+ coping-with-depression subscale; MDMQ-R+ Conformity = Modified Drinking Motives Questionnaire Revised+ conformity subscale; MDMQ-R+ Expand = Modified Drinking Motives Questionnaire Revised+ expansion subscale.

*\** *p* < .05; \*\* *p* < .01

Table 2

*Correlations Between BCAMM and MMM+ at T1 and T2*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Enhance C
 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-

Social C | .39\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-

Cope Anxiety C | .34\*\* | .13 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Cope Depression C
 | .43\*\* | .14 | .75\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Conformity C
 | -.08 | .27\*\* | .01 | .01 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 Brief-Expansion C
 | .30\*\* | .27\*\* | .28\*\* | .32\*\* | .09 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Enhance C
 | .49\*\* | .23\*\* | .25\*\* | .27\*\* | -.17\* | .13 | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-

Social C | .23\*\* | .47\*\* | .06 | .20\*\* | .09 | .21\*\* | .41\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-

Cope Anxiety C | .29\*\* | .04 | .60\*\* | .61\*\* | -.01 | .26\*\* | .39\*\* | .24\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Cope Depression C
 | .30\*\* | .15 | .50\*\* | .60\*\* | .04 | .27\*\* | .40\*\* | .37\*\* | .81\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Conformity C
 | -.08 | .24\*\* | .06 | .14 | .33\*\* | .10 | -.05 | .39\*\* | .21\*\* | .24\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T2 Brief-Expansion C
 | .14 | .22\*\* | .22\*\* | .29\*\* | .17\* | .50\*\* | .21\*\* | .29\*\* | .39\*\* | .47\*\* | .36\*\* | - |  |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 MMM+ Enhance
 | .62\*\* | .35\*\* | .32\*\* | .34\*\* | -.07 | .43\*\* | .45\*\* | .20\*\* | .20\* | .28\*\* | -.07 | .24\*\* | - |  |  |  |  |  |  |  |  |  |  |  |
| 1. T1 MMM+ Social
 | .31\*\* | .65\*\* | .13 | .16 | .26\*\* | .40\*\* | .20\*\* | .28\*\* | .07 | .22\*\* | .18\* | .33\*\* | .45\*\* | - |  |  |  |  |  |  |  |  |  |  |
| 1. T1 MMM+ Cope-Anx
 | .35\*\* | .16 | .81\*\* | .70\*\* | -.07 | .33\*\* | .33\*\* | .15 | .59\*\* | .51\*\* | .04 | .27\*\* | .41\*\* | .18\* | - |  |  |  |  |  |  |  |  |  |
| 1. T1 MMM+ Cope Dep
 | .38\*\* | .15 | .73\*\* | .83\*\* | .02 | .35\*\* | .24\*\* | .17\* | .57\*\* | .62\*\* | .11 | .31\*\* | .41\*\* | .21\* | .75\*\* | - |  |  |  |  |  |  |  |  |
| 1. T1 MMM+ Conformity
 | .00 | .35\*\* | -.07 | -.03 | .59\*\* | .10 | -.07 | .28\* | -.04 | .08 | .34\*\* | .17\* | -.05 | .34\*\* | -.11 | .02 | - |  |  |  |  |  |  |  |
| 1. T1 MMM+ Expand
 | .31\*\* | .35\*\* | .21\*\* | .24\*\* | .08 | .79\*\* | .10 | .17\* | .19\*\* | .25\*\* | .14 | .46\*\* | .42\*\* | .44\*\* | .29\*\* | .39\*\* | .19\* | - |  |  |  |  |  |  |
| 1. T2 MMM+ Enhance
 | .48\*\* | .33\*\* | .20 | .24\*\* | -.10 | .27\*\* | .62\*\* | .34\*\* | .26\*\* | .29\*\* | -.02 | .28\*\* | .61\*\* | .33\*\* | .26\*\* | .25\*\* | .00 | .24\*\* | - |  |  |  |  |  |
| 1. T2 MMM+ Social
 | .24\*\* | .53\*\* | .14\* | .23\*\* | .09 | .30\*\* | .31\*\* | .62\*\* | .21\*\* | .33\*\* | .33\*\* | .35\*\* | .29\*\* | .57\*\* | .21\*\* | .25\*\* | .20\* | .31\*\* | .44\*\* | - |  |  |  |  |
| 1. T2 MMM+ Cope-Anx
 | .30\*\* | .16\* | .59\*\* | .57\*\* | -.08 | .24\*\* | .41\*\* | .30\*\* | .75\*\* | .68\*\* | .15 | .35\*\* | .27\*\* | .16\* | .67\*\* | .58\*\* | -.06 | .21\*\* | .44\*\* | .37\*\* | - |  |  |  |
| 1. T2 MMM+

Cope Dep | .31\*\* | .14 | .52\*\* | .60\*\* | -.02 | .25\*\* | .36\*\* | .30\*\* | .67\*\* | .74\*\* | .18\* | .44\*\* | .26\*\* | .19\* | .57\*\* | .64\*\* | .04 | .26\*\* | .34\*\* | .39\*\* | .81\*\* | - |  |  |
| 1. T2 MMM+ Conformity
 | .05 | .29\*\* | .03 | .11\* | .27\*\* | .01 | .02 | .33\*\* | .06 | .17\* | .56\*\* | .15 | .05 | .23\*\* | .04 | .13\*\* | .46\*\* | .09 | .09 | .42\*\* | .15 | .26\*\* | - |  |
| 1. T1 MMM+ Expand
 | .16\* | .23\*\* | .24\*\* | .29\*\* | .12 | .53\*\* | .17\* | .26\*\* | .34\*\* | .41\*\* | .25\* | .73\*\* | .34\*\* | .35\*\* | .32\*\* | .41\*\* | .18\* | .56\*\* | .40\*\* | .45\*\* | .44\*\* | .54\*\* | .26\*\* | - |
| Mean | 68.09 | 40.45 | 51.88 | 38.36 | 13.94 | 36.31 | 60.60 | 37.36 | 46.14 | 35.44 | 15.85 | 29.32 | 17.08 | 10.67 | 10.79 | 18.61 | 6.36 | 10.91 | 16.14 | 10.71 | 10.56 | 18.17 | 6.77 | 10.14 |
| *SD* | 30.36 | 31.69 | 35.06 | 35.95 | 22.75 | 33.44 | 31.12 | 28.69 | 34.59 | 33.21 | 20.43 | 28.83 | 5.03 | 4.14 | 3.74 | 9.08 | 2.34 | 5.50 | 5.52 | 4.55 | 4.09 | 9.40 | 3.07 | 5.27 |

*Note.* Correlations represent pooled Spearman’s Rank Order Correlations. T1 = time one; T2 = time two; Brief Enhance C = brief cannabis motives measure enhancement item; Brief Social C = brief cannabis motives measure social item; Brief Cope Anxiety C = brief cannabis motives measure coping-with-anxiety item; Brief Cope Depression C = brief cannabis motives measure coping-with-depression item; Brief Conformity C = brief cannabis motives measure conformity item; MMM+ Enhance = Marijuana Motives Measure+ enhancement subscale; MMM+ Social = Marijuana Motives Measure+ social subscale; MMM+ Cope Anxiety = Marijuana Motives Measure+ coping-with-anxiety subscale; MMM+ Cope Depression = Marijuana Motives Measure+ coping-with-depression subscale; MMM+ Conformity = Marijuana Motives Measure+ conformity subscale; MMM+ Expand = Marijuana Motives Measure+ expansion subscale.

*\** *p* < .05; \*\* *p* < .01

Supplementary Table 3

*Correlations Between T1 BAMM Social Item and Individual MDMQ-R+ Social Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BAMM Social
 | - |  |  |  |  |  |
| 1. MDMQ-R+ item 1
 | .00 | - |  |  |  |  |
| 1. MDMQ-R+ item 4
 | .33\*\* | .14\*\* | - |  |  |  |
| 1. MDMQ-R+ item 7
 | .61\*\* | .13\*\* | .45\*\* | - |  |  |
| 1. MDMQ-R+ item 10
 | .10 | .24\*\* | .31\*\* | .24\*\* | - |  |
| 1. MDMQ-R+ item 13
 | .53\*\* | .29\*\* | .35\*\* | .42\*\* | .22\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MDMQ-R+ item 1 = “As a way to celebrate.”; MDMQ-R+ item 4 = “Because it is what most of my friends do when we get together.”; MDMQ-R+ item 7 “To be sociable.”; MDMQ-R+ item 10 = “Because it is customary on special occasions.”; MDMQ-R+ item 13 = “Because it makes a social gathering more enjoyable.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 4

*Correlations Between T1 BCAMM Social Item and Individual MMM+ Social Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BCAMM Social
 |  |  |  |  |  |  |
| 1. MMM+ item 1
 | .35\*\* | - |  |  |  |  |
| 1. MMM+ item 4
 | .47\*\* | .39\*\* | - |  |  |  |
| 1. MMM+ item 7
 | .59\*\* | .37\*\* | .45\*\* | - |  |  |
| 1. MMM+ item 10
 | .19\* | .48\*\* | .41\*\* | .32\*\* | - |  |
| 1. MMM+ item 13
 | .65\*\* | .42\*\* | .49\*\* | .52\*\* | .34\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MMM+ item 1 = “As a way to celebrate.”; MMM+ item 4 = “Because it is what most of my friends do when we get together.”; MMM+ item 7 “To be sociable.”; MMM+ item 10 = “Because it is customary on social occasions.”; MMM+ item 13 = “Because it makes a social gathering more enjoyable.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 5

*Correlations Between T1 BAMM Coping with Anxiety Item and Individual MDMQ-R+ Coping with Anxiety Subscale Items*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1. | 2. | 3. | 4. | 5. |
| 1. BAMM Coping with Anxiety
 |  |  |  |  |  |
| 1. MDMQ-R+ item 2
 | .48\*\* | - |  |  |  |
| 1. MDMQ-R+ item 8
 | .33\*\* | .12 | - |  |  |
| 1. MDMQ-R+ item 11
 | .62\*\* | .36\*\* | .47\*\* | - |  |
| 1. MDMQ-R+ item 19
 | .70\*\* | .44\*\* | .30\*\* | .64\*\* |  |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MDMQ-R+ item 2 = “To relax.”; MDMQ-R+ item 9 = “Because I feel more self-confident or sure of myself.”; MDMQ-R+ item 11 “Because it helps me when I am feeling nervous.”; MDMQ-R+ item 19 = “To reduce my anxiety.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 6

*Correlations Between T1 BCAMM Coping with Anxiety Item and Individual MMM+ Coping with Anxiety Subscale Items*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 1. | 2. | 3. | 4. | 5. |
| 1. BCAMM Coping with Anxiety
 |  |  |  |  |  |
| 1. MMM+ item 2
 | .53\*\* | - |  |  |  |
| 1. MMM++ item 8
 | .33\*\* | .14 | - |  |  |
| 1. MMM++ item 11
 | .73\*\* | .48\*\* | .36\*\* | - |  |
| 1. MMM+ item 19
 | .80\*\* | .56\*\* | .24\*\* | .74\*\* |  |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MMM+ item 2 = “To relax.”; MMM+ item 9 = “Because I feel more self-confident or sure of myself.”; MMM+ item 11 “Because it helps me when I am feeling nervous.”; MMM+ item 19 = “To reduce my anxiety.”

\*\* *p* < .01; \* *p* < .05

Supplementary Table 7

*Correlations Between T1 BAMM Coping with Depression Item and Individual MDMQ-R+ Coping with Depression Subscale Items*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10.  |
| 1. BAMM Coping with Depression
 |  |  |  |  |  |  |  |  |  |  |
| 1. MDMQ-R+ item 5
 | .55\*\* | - |  |  |  |  |  |  |  |  |
| 1. MDMQ-R+ item 14
 | .64\*\* | .53\*\* | - |  |  |  |  |  |  |  |
| 1. MDMQ-R+ item 16
 | .53\*\* | .57\*\* | .55\*\* | - |  |  |  |  |  |  |
| 1. MDMQ-R+ item 17
 | .60\*\* | .53\*\* | .52\*\* | .67\*\* | - |  |  |  |  |  |
| 1. MDMQ-R+ item 20
 | .52\*\* | .51\*\* | .50\*\* | .53\*\* | .48\*\* | - |  |  |  |  |
| 1. MDMQ-R+ item 21
 | .52\*\* | .48\*\* | .42\*\* | .47\*\* | .50\*\* | .54\*\* | - |  |  |  |
| 1. MDMQ-R+ item 22
 | .53\*\* | .46\*\* | .54\*\* | .46\*\* | .44\*\* | .44\*\* | .66\*\* | - |  |  |
| 1. MDMQ-R+ item 23
 | .50\*\* | .45\*\* | .40\*\* | .46\*\* | .57\*\* | .50\*\* | .64\*\* | .55\*\* | - |  |
| 1. MDMQ-R+ item 27
 | .49\*\* | .39\*\* | .48\*\* | .57\*\* | .55\*\* | .43\*\* | .47\*\* | .42\*\* | .58\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MDMQ-R+ item 5 = “To forget my worries.”; MDMQ-R+ item 14 = “To cheer me up when I’m in a bad mood.”; MDMQ-R+ item 16 = “To numb my pain”; MDMQ-R+ item 17 = “Because it helps me when I am feeling depressed.”; MDMQ-R+ item 20 = “To stop me from dwelling on things.”; MDMQ-R+ item 21 = “To turn off negative thoughts about myself.”; MDMQ-R+ item 22 = “To help me feel more positive about things in my life.”; MDMQ-R+ item 23 = “To stop me from feeling so hopeless about the future.”; MDMQ-R+ item 27 = “To forget painful memories.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 8

*Correlations Between T1 BCAMM Coping with Depression Item and Individual MMM+ Coping with Depression Subscale Items*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10.  |
| 1. BCAMM Coping with Depression
 |  |  |  |  |  |  |  |  |  |  |
| 1. MMM+ item 5
 | .73\*\* | - |  |  |  |  |  |  |  |  |
| 1. MMM+ item 14
 | .71\*\* | .66\*\* | - |  |  |  |  |  |  |  |
| 1. MMM+ item 16
 | .68\*\* | .71\*\* | .56\*\* |  |  |  |  |  |  |  |
| 1. MMM+ item 17
 | .78\*\* | .66\*\* | .68\*\* | .72\*\* | - |  |  |  |  |  |
| 1. MMM+ item 20
 | .64\*\* | .65\* | .61\*\* | .63\*\* | .65\*\* | - |  |  |  |  |
| 1. MMM+ item 21
 | .72\*\* | .67\*\* | .56\*\* | .72\*\* | .70\*\* | .71\*\* | - |  |  |  |
| 1. MMM+ item 22
 | .56\*\* | .50\*\* | .57\*\* | .51\*\* | .57\*\* | .60\*\* | .63\*\* | - |  |  |
| 1. MMM+ item 23
 | .64\*\* | .58\*\* | .54\*\* | .68\*\* | .68\*\* | .59\*\* | .76\*\* | .59\*\* | - |  |
| 1. MMM+ item 27
 | .63\*\* | .58\*\* | .52\*\* | 70\*\* | .62\*\* | .50\*\* | .65\*\* | .43\*\* | .63\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MMM+ item 5 = “To forget my worries.”; MMM+ item 14 = “To cheer me up when I’m in a bad mood.”; MMM+ item 16 = “To numb my pain”; MMM+ item 17 = “Because it helps me when I am feeling depressed.”; MMM+ item 20 = “To stop me from dwelling on things.”; MMM+ item 21 = “To turn off negative thoughts about myself.”; MMM+ item 22 = “To help me feel more positive about things in my life.”; MMM+ item 23 = “To stop me from feeling so hopeless about the future.”; MMM+ item 27 = “To forget painful memories.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 9

*Correlations Between T1 BAMM Enhancement Item and Individual MDMQ-R+ Enhancement Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BAMM Enhancement
 |  |  |  |  |  |  |
| 1. MDMQ-R+ item 3
 | .55\*\* | - |  |  |  |  |
| 1. MDMQ-R+ item 6
 | .37\*\* | .46\*\* | - |  |  |  |
| 1. MDMQ-R+ item 9
 | .40\*\* | .39\*\* | .35\*\* | - |  |  |
| 1. MDMQ-R+ item 12
 | .40\*\* | .55\*\* | .47\*\* | .26\*\* | - |  |
| 1. MDMQ-R+ item 26
 | .65\*\* | .66\*\* | .33\*\* | .43\*\* | .50\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MDMQ-R+ item 3 = “Because I like the feeling.”; MDMQ-R+ item 6 = “Because it is exciting.”; MDMQ-R+ item 9 = “To get a high.”; MDMQ-R+ item 12 = “Because it’s fun.”; MDMQ-R+ item 26 = “Because it makes me feel good.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 10

*Correlations Between T1 BCAMM Enhancement Item and Individual MMM+ Enhancement Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BCAMM Enhancement
 |  |  |  |  |  |  |
| 1. MMM+ item 3
 | .53\*\* | - |  |  |  |  |
| 1. MMM+ item 6
 | .42\*\* | .56\*\* | - |  |  |  |
| 1. MMM+ item 9
 | .46\*\* | .57\*\* | .43\*\* | - |  |  |
| 1. MMM+ item 12
 | .52\*\* | .67\*\* | .58\*\* | .58\*\* | - |  |
| 1. MMM+ item 26
 | .64\*\* | .64\*\* | .38\*\* | .49\*\* | .64\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MMM+ item 3 = “Because I like the feeling.”; MMM+ item 6 = “Because it is exciting.”; MMM+ item 9 = “To get a high.”; MMM+ item 12 = “Because it’s fun.”; MMM+ item 26 = “Because it makes me feel good.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 11

*Correlations Between T1 BAMM Conformity Item and Individual MDMQ-R+ Conformity Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BAMM Conformity
 |  |  |  |  |  |  |
| 1. MDMQ-R+ item 15
 | .41\*\* | - |  |  |  |  |
| 1. MDMQ-R+ item 18
 | .34\*\* | .34\*\* | - |  |  |  |
| 1. MDMQ-R+ item 24
 | .35\*\* | .30\*\* | .57\*\* | - |  |  |
| 1. MDMQ-R+ item 25
 | .47\*\* | .31\*\* | .48\*\* | .41\*\* | - |  |
| 1. MDMQ-R+ item 28
 | .56\*\* | .36\*\* | .48\*\* | .47\*\* | .50\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MDMQ-R+ item 15 = “To be liked.”; MDMQ-R+ item 18 = “So that others won’t kid me about not using.”; MDMQ-R+ item 24 = “Because my friends pressure me to use.”; MDMQ-R+ item 25 = “To fit in with a group I like.”; MDMQ-R+ item 28 = “So I won’t feel left out.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 12

*Correlations Between T1 BCAMM Conformity Item and Individual MMM+ Conformity Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BCAMM Conformity
 |  |  |  |  |  |  |
| 1. MMM+ item 15
 | .35\*\* | - |  |  |  |  |
| 1. MMM+ item 18
 | .40\*\* | .55\*\* | - |  |  |  |
| 1. MMM+ item 24
 | .48\*\* | .27\*\* | .39\*\* | - |  |  |
| 1. MMM+ item 25
 | .40\*\* | .35\*\* | .44\*\* | .42\*\* | - |  |
| 1. MMM+ item 28
 | .54\*\* | .43\*\* | .47\*\* | .50\*\* | .61\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MMM+ item 15 = “To be liked.”; MMM+ item 18 = “So that others won’t kid me about not using.”; MMM+ item 24 = “Because my friends pressure me to use.”; MMM+ item 25 = “To fit in with a group I like.”; MMM+ item 28 = “So I won’t feel left out.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 13

*Correlations Between T1 BAMM Expansion Item and Individual MDMQ-R+ Expansion Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BAMM Expansion
 |  |  |  |  |  |  |
| 1. MDMQ-R+ item 29
 | .20\*\* | - |  |  |  |  |
| 1. MDMQ-R+ item 30
 | .42\*\* | .33\*\* | - |  |  |  |
| 1. MDMQ-R+ item 31
 | .30\*\* | .53\*\* | .46\*\* | - |  |  |
| 1. MDMQ-R+ item 32
 | .36\*\* | .43\*\* | .52\*\* | .63\*\* | - |  |
| 1. MDMQ-R+ item 33
 | .41\*\* | .38\*\* | .36\*\* | .45\*\* | .42\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MDMQ-R+ item 29 = “To know myself better.”; MDMQ-R+ item 30 = “Because it helps me be more creative and original.”; MDMQ-R+ item 31 = “To understand things differently.”; MDMQ-R+ item 32 = “To expand my awareness.”; MDMQ-R+ item 33 = “To be more open to experiences.”

\* *p* < .05; \*\* *p* < .01

Supplementary Table 14

*Correlations Between T1 BCAMM Expansion Item and Individual MMM+ Expansion Subscale Items*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |
| 1. BCAMM Expand
 |  |  |  |  |  |  |
| 1. MMM+ item 29
 | .48\*\* | - |  |  |  |  |
| 1. MMM+ item 30
 | .75\*\* | .61\*\* | - |  |  |  |
| 1. MMM+ item 31
 | .77\*\* | .61\*\* | .80\*\* | - |  |  |
| 1. MMM+ item 32
 | .78\*\* | .64\*\* | .76\*\* | .85\*\* | - |  |
| 1. MMM+ item 33
 | .54\*\* | .54\*\* | .61\*\* | .64\*\* | .65\*\* | - |

*Note*. Correlations are Spearman’s Rank Order. Statistics represent pooled effects. MMM+ item 29 = “To know myself better.”; MMM+ item 30 = “Because it helps me be more creative and original.”; MMM+ item 31 = “To understand things differently.”; MMM+ item 32 = “To expand my awareness.”; MMM+ item 33 = “To be more open to experiences.”

\* *p* < .05; \*\* *p* < .01

Supplementary Material E

Statistical Model Decision Making

 For each analysis, we considered the following distributions and links if suitable for the data (e.g., accepted non-integers, accepted zeros): gamma with log link, tweedie with log link, negative binomial with log link, and poisson with log link. We used Raftery’s (1995) criteria for comparing models using BIC values; a BIC difference between models could be weak (0-2), positive (2-6), strong (6-10), or very strong (>10).

**Concurrent Validity**

As seen in Table 1 below, the Gamma distribution with log link was the best fit for T1 QxF analyses for both the BCAAM and the MMM+ models (BCAMM log likelihood = -582.70, BIC = 1191.20; MMM+ log likelihood = -582.66, BIC = 1190.79) and was a significant improvement over the intercept-only models (BCAMM:$ χ$2 (4) = 182.79, *p* < .001; MMM+: $χ$2 (4) = 182.57, *p* < .001). A BIC comparison suggested the difference between models was weak.

**Predictive Validity**

Our first set of predictive validity analyses included alcohol-related problems at T2. As seen in Table 1 below, the negative binomial distribution with log link was the best fit for both the BAMM and the MDMQ-R+ models (BAMM log likelihood = -582.70, BIC = 1005.97; MDMQ-R+ log likelihood = -491.29, BIC = 1003.24) and was a significant improvement over the intercept-only models (BAMM:$ χ$2 (3) = 17.75, *p* < .01; MDMQ-R+: $χ$2 (3) = 20.45, *p* < .01). A BIC comparison suggested positive evidence of difference between models.

Our second set of predictive validity analyses included cannabis-related problems at T2. As seen in the table below, negative binomial distribution with log link was the best fit for both the BCAMM and the MMM+ models (BCAMM: log likelihood = -504.19, BIC = 1035.59; MMM+: log likelihood = -99.92, BIC = 988.96) and was a significant improvement over the intercept-only models (BCAMM:$ χ$2 (3) = 20.76, *p* < .05; MMM+: $χ$2 (3) = 29.79, *p* < .001). A BIC comparison suggested the difference between models was very strong.

Table 1

*Model Comparisons for Generalized Linear Models*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Dependent variable | Independent variables  | Measure | Gamma BIC | Negative binomial BIC | Poisson BIC | Tweedie BIC |
| T1 Cannabis QxF | Enhancement, coping-with-anxiety, coping-with-depression, and expansion motives | BCAMM | 1191.20 | N/A | N/A | 2385.15 |
| MMM+ | 1190.79 | N/A | N/A | 2336.08 |
| T2 Alcohol-related problems | Alcohol quantity, and conformity and coping-with-depression motives | BAMM | N/A | 1005.97 | 1518.031 | 1181.82 |
| MDMQ-R+ | N/A | 1003.24 | 1507.85 | 1175.84 |
| T2 Cannabis-related problems | Cannabis quantity, sex, and conformity and coping-with-depression motives | BCAMM | N/A | 1035.59 | 1639.00 | 1246.08 |
| MMM+ | N/A | 988.96 | 1576.19 | 1219.78 |

N/A = distributions inappropriate due to variables including data that is not whole numbers or includes zero.

Supplementary Materials F

Cannabis Concurrent Validity Analyses

Interpreting the effect sizes for the model examining the current validity of the BCAMM and MMM+ (see Table 6) requires some extrapolation; as this model used a log-link, for every one unit increase in a predictor, the mean of the outcome (cannabis QxF) is multiplied by the exponentiated slope of the predictor. For example, BCAMM coping-with-anxiety has an exponentiated slope of 1.03. Thus, every 1 unit increase in BCAMM coping-with-anxiety corresponds to a 3% increase in cannabis QxF. As the units between the brief- full- measures are different, it may be more useful to examine standard deviations, rather than increases in single units. The standard deviation of BCAMM coping-with-anxiety is 35.95; thus, one standard deviation increase in BCAMM coping-with-anxiety is associated with a 107.85% increase in cannabis QxF (3x35.95). Given the exponentiated 95% confidence interval ranges from 1.01-1.04, one standard deviation could be associated with an 35.95-143.80% increase in cannabis QxF. Applying the same mathematical principles, a one unit increase in the MMM+ coping-with-anxiety motive corresponds to a 15% increase in cannabis QxF. One standard deviation increase in MMM coping-with-anxiety is associated with a 56.1% increase in cannabis QxF (exponentiated 95% CI = 3.74-112.20% increase).

Alcohol Predictive Validity Analyses

The results of the predictive validity analyses from the BAMM and the MDMQ-R (see Table 7) can be interpreted as follows: Exponentiated, one standard deviation increase in BAMM coping-with-depression corresponds to a 27.39% increase in alcohol-related problems (exponentiated 95% CI = 0.08%-27.39% increase). Similarly, one standard deviation increase in MDMQ-R+ coping-with-depression corresponds to a 26.96% increase in alcohol-related problems (exponentiated 95% CI = 13.48-40.44%).

Cannabis Predictive Validity Analyses

 The results of the predictive validity analyses from the BCAMM and the MMM+ (see Table 8) can be interpreted as follows: Exponentiated, one standard deviation increase in BCAMM coping-with-depression corresponded to a 35.95% increase in cannabis-related problems (exponentiated 95% CI = .10-35.95%). Similarly, one standard deviation increase in the MMM+ coping-with-depression corresponded to a 26.32% increase in cannabis-related problems (exponentiated 95% CI = 18.16-54.58%).