**Supplemental material**

**S1 Content of the BtB intervention**

Table copied from the RCT protocol paper: Schouten, M.J.E., Dekker, J.J.M., de Bruijn, T.Q., Ebert, D.D., Koomen, L.M., Kosterman, S.L.A., Riper, H., Schaub, M.P., Goudriaan, A.E., Blankers, M. (2021) Effectiveness of a digital alcohol moderation intervention as an add-on to depression treatment for young adults: study protocol of a multicentre pragmatic randomized controlled trial. *BMC Psychiatry*. 22;21(1):265. doi: 10.1186/s12888-021-03222-1

|  |  |  |
| --- | --- | --- |
| **Phase** | **Element** | **Content** |
| **Create & set up account** | Determining personal drinking goal | Abstinence: Gradually reduce alcohol use until abstinence. Controlled drinking: set the maximum of drinks per day and number of drinking days. |
| Setting up personal profile, preferences for program reminders  | Choosing animated avatar, name, preferences for receiving program reminders (e.g. registering alcohol use, progress report after completing modules, notification for reply’s on forum boards). Optional: inviting a buddy who receives progress reports. |
| **Getting started**  | Daily alcohol use registration during the program | Registration and monitoring of daily alcohol use and if preferred, registration of where and with whom and what type of thoughts and feelings the participant experienced.Optional: registration of mood and activities during the day. |
| Module 1: Changing alcohol use | Animated video: introduction about the program. Reading assignment: tips for the optimal program experience.Assignment: writing down disadvantages of current alcohol use and advantages of changing alcohol use in short- and long-term.Reading assignment: information on self-control strategies that may help to adhere to the drinking goal. Assignment: writing down personal self-control strategies Summary assessment: self-reflection questions in which the key points of module 1 are summarized.  |
| Module 2: Preventing relapse  | Animated video: information on withdrawal symptoms.Reading assignment: physical and mental short- and long-term effects of alcohol.Reading assignment: dealing with craving.Optional assignment: setting up a personal activity list of things to do. Reading assignment: learning from a relapse. Assignment: writing down a personal relapse planSummary assessment: self-reflection questions in which the key points of module 2 are summarized. |
| Module 3: Recognizing & dealing with high risk situations  | Animated video: information about how help from others can help in adhering to drinking goal.Reading assignment: identifying high risk situations.Assignment: writing down personal high risk situationsOptional Quiz 1: facts about alcohol and depressionReading assignment: patient story Summary assessment: self-reflection questions in which the key points of module 3 are summarized. |
| Module 4: Gaining insight  | Animated video: skills to decline offered alcoholic drinks.Assignment: insight in to personal drinking patterns (graphs that visually display frequent locations and persons and experienced thoughts and feelings from when the participant drinks alcohol and that were registered during the program). Assignment: writing down a personal prevention plan.Optional assignment: update the personal activity listSummary assessment: self-reflection questions in which the key points of module 4 are summarized. |
| Module 5: Restructuring thoughts  | Animated video: information about restructuring and challenging negative thoughts. Optional Quiz 2: facts about alcohol. Reading assignment: information about the relationship between thoughts, feeling and behaviour.Assignment: challenging negative thoughts by writing down helping thoughts.Reading assignment: patient story.Summary assessment: self-reflection questions in which the key points of module 5 are summarized. |
| Aftercare module 6: Staying motivated  | Animated video: Final video that summarizes phase 1-5. Reading assignment: information about other treatment resources for reducing alcohol use Reading assignment: patient storyFinal summary assessment: self-reflection questions about achievements and challenges regarding changing alcohol use.  |
| **Extra (optional) features** | Diary  | Free writing in diary  |
| Forum | Various forum boards about depression and alcohol use, to exchange positive personal stories and motivate and talk to other peers. |
| Dealing with craving | Tips and assignments about how to cope with craving  |
| Additional information  | Additional information and tips for: alcohol-free drinks, tips to stay motivated, how to deal with stress, tips to sleep better, definition standard glasses, dealing with negative feelings, mindfulness exercises.  |
| Insight in alcohol use patterns and high risk situations  | Visual graphs: displays with whom and which locations and specific thoughts and feelings that the participant registered and experienced when drinking alcohol.  |
| Progress report | Monthly calendar: displays the registered days in which participant did or did not adhere to their drinking goal. Days that light up green indicate drinking below drinking goal and red indicate drinking above drinking goal.  |
| Milestones & badges | Earning badges for program activities and achievements: e.g. adhering to drinking goal for certain amount of time, writing in diary, posting messages on the forum boards, completing modules.  |
| Program progress reports e-mails  | Personalized progress reports of completed modules   |

**S2. Table 4. Mixed model results for primary and secondary outcomes on the returning program users sample**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Outcome**  | **Follow-up** | **Model\*** | **B or OR\*\*** | **P** | **95% CI** |
|  |  |  |  |  | **Lower** | **Upper** |
| ***Primary***  |  |  |  |  |  |
| **Treatment response \*\*\***  | 3-month  | Crude  | 1.33 | 0.641 | 0.40 | 4.40 |
| Adjusted | 1.02 | 0.978 | 0.23 | 4.44 |
| 6-month  | Crude  | 2.24 | 0.100 | 0.86 | 20.39 |
| Adjusted  | 3.56 | 0.042 | 1.05 | 12.15 |
|  |  |  |  |  |  |
| ***Secondary*** |  |  |  |  |  |
| **7-day TLFB** | 3-month  | Crude  | -3.52  | 0.022  | -6.52  | -0.52 |
| Adjusted  | -4.51  | 0.004  | -7.57  | -1.45 |
| 6-month | Crude  | -3.27  | 0.035 | -6.31 | -0.23 |
| Adjusted | -3.57 | 0.023  | -6.64 | -0.50 |
|  |  |  |  |  |  |
| **AUDIT**  | 3-month | Crude | -2.13  | 0.004 | -3.57  | -0.69 |
| Adjusted | -2.27  | 0.002 | -3.72 | -0.82 |
| 6-month | Crude | -1.82  | 0.015  | -3.28  | -0.36 |
| Adjusted | -1.97  | 0.008 | -3.42  | -0.51 |
|  |  |  |  |  |  |
| **CES-D**  | 3-month | Crude | -1.22  | 0.479 | -4.61  | 2.16 |
|  |  | Adjusted | -0.84  | 0.622  | -4.16  | 2.49 |
|  | 6-month | Crude | -0.93  | 0.592  | -4.31  | 2.46 |
|  |  | Adjusted | -1.03 | 0.539  | -4.31  | 2.26 |

*Returning program users were defined as participants with 3 ≥ log-ins into the digital BtB intervention. Accordingly, 17 subjects were excluded, resulting into a total sample of n=146 (i.e. 90% of the original sample). Treatment response: treatment success when meeting specific criteria based on CES-D and TLFB; 7-day TLFB: number of weekly standard drinks; AUDIT: Alcohol use and alcohol-related problems (total score, 0-40); CES-D: depressive symptoms (total score, 0-60); \*crude models are adjusted for baseline values of the outcome variable, adjusted treatment response model: adjusted for baseline treatment response, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; adjusted 7-day TLFB model: adjusted for baseline 7-day TLFB, baseline CES-D, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; adjusted AUDIT model: adjusted for baseline AUDIT, baseline CES-D, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; adjusted CES-D model: adjusted for baseline CES-D, baseline 7-day TLFB, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; \*\* Treatment response effects are presented as OR, secondary outcomes effects are presented as regression coefficients (*B); *\*\*\* Treatment response results are based on generalized linear models.*

**S3. Table 5. Mixed model results for primary and secondary outcomes on the completers-only dataset**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Outcome**  | **Follow-up** | **Model\*** | **B or OR\*\*** | **P** | **95% CI** |
|  |  |  |  |  | **Lower** | **Upper** |
| ***Primary***  |  |  |  |  |  |
| **Treatment response \*\*\***  | 3-month  | Crude  | 1.26 | 0.703 | 0.37 | 4.24 |
| Adjusted | 0.74 | 0.686 | 0.16 | 3.16 |
| 6-month  | Crude  | 2.26 | 0.095 | 0.88 | 6.13 |
| Adjusted  | 3.72 | 0.033 | 0.15 | 2.60 |
|  |  |  |  |  |  |
| ***Secondary*** |  |  |  |  |  |
| **7-day TLFB** | 3-month  | Crude  | -3.09  | 0.012 | -5.51  | -0.67 |
| Adjusted  | -3.60  | 0.008 | -6.27  | -0.94 |
| 6-month | Crude  | -2.58  | 0.038 | -5.03  | -0.14 |
| Adjusted | -2.74  | 0.043 | -5.39 | -0.09 |
|  |  |  |  |  |  |
| **AUDIT**  | 3-month | Crude | -1.46  | 0.012 | -2.60  | -0.32 |
| Adjusted | -1.46  | 0.020 | -2.69 | -0.23 |
| 6-month | Crude | -1.68  | 0.004 | -2.83  | -0.53 |
| Adjusted | -1.77  | 0.005 | -3.00  | -0.55 |
|  |  |  |  |  |  |
| **CES-D**  | 3-month | Crude | -2.62  | 0.079 | -5.55  | 0.30 |
|  |  | Adjusted | -2.07  | 0.184 | -5.13  | 0.98 |
|  | 6-month | Crude | -2.26 | 0.134 | -5.20  | 0.69 |
|  |  | Adjusted | -2.49  | 0.107 | -5.52  | 0.54 |

*Sensitivity analysis: completers-only dataset includes the observed (non-imputed) data. Treatment response: treatment success when meeting specific criteria based on CES-D and TLFB; 7-day TLFB: number of weekly standard drinks; AUDIT: Alcohol use and alcohol-related problems (total score, 0-40); CES-D: depressive symptoms (total score, 0-60); \*crude models are adjusted for baseline values of the outcome variable, adjusted treatment response model: adjusted for baseline treatment response, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; adjusted 7-day TLFB model: adjusted for baseline 7-day TLFB, baseline CES-D, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; adjusted AUDIT model: adjusted for baseline AUDIT, baseline CES-D, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; adjusted CES-D model: adjusted for baseline CES-D, baseline 7-day TLFB, impact of COVID-19 measures on alcohol use and depressive symptoms, recruitment strategy, age, gender; \*\* Treatment response effects are presented as OR, secondary outcomes effects are presented as regression coefficients (*B); *\*\*\* Treatment response results are based on generalized linear models.*