**Participant safety procedures**

Participant safety procedures regarding suicide risk were as follows:

All individuals who took the screener were given contact information for local and national mental health resources.

Our protocol for the baseline and EMA period was informed by recommendations regarding the online assessment of suicide risk from Suicidology experts (Schatten, Gaudiano et al., 2020). The baseline survey activated a pop-up window to display national and emergency mental health resources participants could contact over text or phone if they indicated high levels of suicide risk. The pop-up also displayed instructions for how to contact or be contacted by the PI if the participant would like to talk to them. Specifically, the pop-up was activated immediately after a participant provided any of the responses below:

● Answering “yes” to the SITBI question of “have you made a plan to kill yourself in the past week?”; and/or

● Answering “yes” to the SITBI question of “have you made an actual attempt to kill yourself in which you had some intent to die in the past week?”

Because the pop-up may be blocked by certain browser settings, the computer code also generated a link participants could open in a new window. Additionally, regardless of indications of serious suicidal thoughts or behaviors, at the end of the survey, a list of mental health resources and PI contact instructions were provided.

Regarding our EMA protocol, at the baseline visit, participants were informed that no one would observe their EMA responses in real time. Participants were also instructed that if they were to experience worsening suicidality over the course of the study they should reach out to their behavioral health provider and/or emergency numbers. We also included disclaimers at the beginning and end of every EMA survey, reminding participants that no one was monitoring their responses. We further provided participants with emergency contact phone numbers at the end of each EMA assessment (i.e., 911, 1-800-273-TALK).

**Item Reduction**

First, we reduced the items to a set of 24 items; these 24 items were retained because they mapped on most closely to ASAD constructs.

Second, some of these 24 items assessed conceptually similar experiences (e.g., “I feel lonely” and “I feel like I do not belong”). Study authors (ARS & LNF) determined 10 potential pairs/combinations of 2–3 items that might assess similar experiences (**Supplemental Table 2**). Between-person and within-person correlations were then computed for these 10 item pairs. Between-person correlations were calculated in three steps. (1) Within-person averages were calculated for each of the EMA items. (2) These within-person averages were then correlated for each participant. (3) Within-person correlations were then pooled across participants to produce an average within-person correlation for the two items. Item pairs where either the between-person correlation or the pooled within-person correlation had *r*s ≥ .50 were determined to be highly similar. Four item pairs met this criteria, bringing the item total down to *n* = 16 .

Third, within each ASAD construct, we assessed within-person (**Supplemental Table 3**) and between-person (**Supplemental Table 4**) correlations among indicators of the construct. No decisions to combine items were made at this step. Fourth, we computed within-person averages for each of the 16 items. Using the within-person averages for these 16 items, we then used the goldbricker function of the networktools package (Jones, 2021) to compare whether any two items had near-identical relations with all other potential network items (**Supplemental Table 5**). We then inspected whether items that were highly correlated (at a between- or within-person level) at step 3 emerged as “bad pairs” in the goldbricker results from step 4 (**Supplemental Table 6**). In goldbricker, a “bad pair” means that the two items in that pair have highly similar correlations with all other network items. Our cutoff was to flag item pairs that had less than 25% significantly different correlations. Based on the results of the third and fourth steps, we combined four sets of items (**Supplemental Table 1**). One item set was not a “bad pair” but had a very high correlation and had little conceptual difference, and was thus combined. Three item sets were combined given their high correlations and being a “bad pair.” Two item sets also had high correlations and were flagged as a bad pair, but we did not combine those item sets because (1) an item pair was deemed theoretically or conceptually distinct (e.g., indicators of belongingness and burdensomeness) or (2) one item of the pair had already been combined with another item in a different pair. This brought the item total down to *n* = 12.

Fifth, we wanted to ensure that all ASAD constructs were represented in the network. However, a complication was that some ASAD constructs had only a single indicator remaining, while others had up to seven indicators. For the ASAD constructs with more than two indicators, we used a combined approach to determine which items should be retained in the network. The combined approach was based on face validity and calculating between-person means for each item (i.e., calculating the mean for each individual, then calculating the mean of the individual-level means). We retained items that either had the highest mean within that construct or items that provided a face valid match to an ASAD criterion that was not already represented in the network. Brought the item total down to *n* = 8, which was the final item pool.

**Supplemental Table 1.** Process of reducing 24 ASAD-relevant items to a pool of 8 items

| **ASAD construct** | **Item #** | **Step 1. N = 24 items relevant to each ASAD construct** | **Step 2. Averaged item #s** | **Step 3-4 averaged item #s** | **Step 5. Level 2 means** | **Retained + rationale** | **Final item label** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Suicidal ideation** | 1 | I have a desire to kill myself | 1 + 2 | - | 16.4 | Yes, relevant construct | Active SI |
| 2 | I am having urges to hurt myself |
| 3 | I think about wanting to be dead | 3 + 4 | - | 27.4 | Yes, relevant construct | Passive SI |
| 4 | I think about not wanting to wake up |
| **Alienation** | 5 | I feel close to other people (reversed) | - | - | 63.8 | Yes, high mean, high face validity | Not close |
| 6 | I feel lonely | 6 + 7 | - | 47.3 | No, lower face validity | - |
| 7 | I feel like I do not belong |
| 8 | The people in my life would be better off if I were gone | 8 + 9 | - | 34.6 | No, lower mean, lower face validity | - |
| 9 | I feel like a burden to others |
| 10 | I feel useless | - | - | 41.4 | No, lower mean, lower face validity | - |
| 11 | I feel effective (reversed) | - | - | 59.2 | Yes, high mean, high face validity | Ineffective |
| 12 | I am disgusted with myself | 12 + 13 | 12/13 + 14 | 39.6 | Yes, high mean, high face validity | Shame + disgust self others |
| 13 | I am feeling ashamed |
| 14 | I am disgusted with other people | - |
| **Hopelessness** | 15 | My future seems dark to me | - | 15 + 16/17 | 34.8 | Yes, relevant construct | Hopeless |
| 16 | I might as well give up because there is nothing I can do about making things better | 16 + 17 |
| 17 | My situation is permanently hopeless |
| **Overarousal** | 18 | I have been feeling irritable | - | 18 + 19 | 34.5 | Yes, high face validity | Agitation |
| 19 | I want to crawl out of my skin | - |
| 20 | I am feeling afraid | 20 + 21 | - | 41.2 | No, lower face validity | - |
| 21 | I am feeling anxious |
| 22 | How worried/distressed are you about your sleep? | 22 + 23 | 22/23+ 24 | 46.3 | Yes, high mean, high face validity | Sleep problems |
| 23 | How much is your sleep quality interfering with your daily functioning? |
| 24 | Have you been bothered by thoughts about nightmares | - |

*Note.* Merged cells in a column to the right mean that the two items in the column to the left were now combined. For instance, column “Step 1” lists items 1–4 on individual lines. However, column “Step 2” shows that rows with items 1 and 2 have been merged into a single row, indicating that those items were combined. The empirical results of the “Steps 2–4” columns are shown in Supplemental Tables 2–4.

**Supplemental Table 2.** Step 2 within-person and between-person correlations based on conceptually similar items

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Item pair** | **Item #** | **Item** | **Item label** | **Pooled within-person** | | **Between-person** | |
| **1** | **2** | **1** | **2** |
| A | 1 | I have a desire to kill myself | Active SI | - |  | - |  |
| 2 | I am having urges to hurt myself | 0.50 | - | 0.93 | - |
| B | 1 | I think about wanting to be dead | Passive SI | - |  | - |  |
| 2 | I think about not wanting to wake up | 0.47 | - | 0.92 | - |
| C | 1 | I feel close to other people (reversed) | Not close | - |  | - |  |
| 2 | I feel lonely | Low belong | 0.27 | - | 0.46 | - |
| 3 | I feel like I do not belong | 0.24 | 0.41 | 0.55 | 0.83 |
| D | 1 | The people in my life would be better off if I were gone | Burden | - |  | - |  |
| 2 | I feel like a burden to others | 0.34 | - | 0.83 | - |
| E | 1 | I feel useless | Useless | - |  | - |  |
| 2 | I feel effective (reversed) | Ineffective | 0.31 | - | 0.57 | - |
| F | 1 | I am disgusted with myself | Disgust shame | - |  | - |  |
| 2 | I am feeling ashamed | 0.40 | - | 0.87 | - |
| G | 1 | My future seems dark to me | Future dark | - |  | - |  |
| 2 | I might as well give up because there is nothing I can do about making things better | Hopeless | 0.42 | - | 0.79 | - |
| 3 | My situation is permanently hopeless | 0.44 | 0.51 | 0.85 | 0.94 |
| H | 1 | I have been feeling irritable | Irritable | - |  | - |  |
| 2 | I want to crawl out of my skin | Crawl skin | 0.20 | - | 0.53 | - |
| I | 1 | I am feeling afraid | Fear | - |  | - |  |
| 2 | I am feeling anxious | 0.36 | - | 0.66 | - |
| J | 1 | How worried/distressed are you about your sleep? | Sleep problems | - |  | - |  |
| 2 | How much is your sleep quality interfering with your daily functioning? | 0.57 | - | 0.99 | - |

*Note.* The “Pooled within-person” and “Between-person” subcolumns can be read similar to a correlation matrix. For instance, the first row of item pair A has a -, representing the diagonal of a correlation matrix. The second row of item pair A shows the correlation between items 1 (column) and 2 (row). Shaded columns within an item pair indicate that those items were combined (i.e., averaged).

**Supplemental Table 3.** Step 3 pooled **within-person** correlations among indicators within each ASAD construct

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ASAD construct** | **Item #** | **Item** | **Label** | **1** | **2** | **3** | **4** | **5** | **6** |
| Suicide intent | 1 | I have a desire to kill myself + I am having urges to hurt myself | Active SI | - |  |  |  |  |  |
| 2 | I think about wanting to be dead + I think about not wanting to wake up | Passive SI | .53 | - |  |  |  |  |
| Alienation | 1 | I feel close to other people (reversed) | Not close | - |  |  |  |  |  |
| 2 | I feel lonely + I feel like I do not belong | Low belong | .30 | - |  |  |  |  |
| 3 | The people in my life would be better off if I were gone + I feel like a burden to others | Burden | .21 | .43 | - |  |  |  |
| 4 | I feel useless | Useless | .24 | .43 | .43 | - |  |  |
| 5 | I feel effective (reversed) | Ineffective | .31 | .27 | .26 | .31 | - |  |
| 6 | I am disgusted with myself + I am feeling ashamed | Disgust shame | .19 | .39 | .42 | .40 | .25 | - |
| 7 | I am disgusted with other people | Disgust others | .13 | .25 | .22 | .20 | .08 | .23 |
| Hopeless-ness | 1 | My future seems dark to me | Future dark | - |  |  |  |  |  |
| 2 | I might as well give up because there is nothing I can do about making things better + My situation is permanently hopeless | Hopeless2 | .50 | - |  |  |  |  |
| Over-arousal | 1 | I have been feeling irritable | Irritable | - |  |  |  |  |  |
| 2 | I want to crawl out of my skin | Crawl skin | .20 | - |  |  |  |  |
| 3 | I am feeling afraid + I am feeling anxious | Fear | .35 | .29 | - |  |  |  |
| 4 | How worried/distressed are you about your sleep? + How much is your sleep quality interfering with your daily functioning? | Sleep problems | .17 | .13 | .24 | - |  |  |
| 5 | Have you been bothered by thoughts about nightmares? | Nightmare interfere | .09 | .14 | .20 | .29 | - |  |

*Note.* This table can be read as a series of correlation matrices. One correlation matrix is computed for each ASAD construct. For instance, the first row of the Suicide intent rows has a -, representing the diagonal of a correlation matrix. The second row of the Suicide intent rows shows the correlation between items 1 (column) and 2 (row).

**Supplemental Table 4.** Step 3 **between-person** correlations among indicators within each ASAD construct

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ASAD construct** | **Item #** | **Item** | **Label** | **1** | **2** | **3** | **4** | **5** | **6** |
| Suicide intent | 1 | I have a desire to kill myself + I am having urges to hurt myself | Active SI | - |  |  |  |  |  |
| 2 | I think about wanting to be dead + I think about not wanting to wake up | Passive SI | .77 | - |  |  |  |  |
| Alienation | 1 | I feel close to other people (reversed) | Not close | - |  |  |  |  |  |
| 2 | I feel lonely + I feel like I do not belong | Low belong | .50 | - |  |  |  |  |
| 3 | The people in my life would be better off if I were gone + I feel like a burden to others | Burden | .26 | .65 | - |  |  |  |
| 4 | I feel useless | Useless | .31 | .75 | .90 | - |  |  |
| 5 | I feel effective (reversed) | Ineffective | .67 | .42 | .49 | .56 | - |  |
| 6 | I am disgusted with myself + I am feeling ashamed | Disgust shame | .17 | .63 | .63 | .68 | .32 | - |
| 7 | I am disgusted with other people | Disgust others | .18 | .60 | .47 | .59 | .30 | .65 |
| Hopeless-ness | 1 | My future seems dark to me | Future dark | - |  |  |  |  |  |
| 2 | I might as well give up because there is nothing I can do about making things better + My situation is permanently hopeless | Hopeless2 | .83 | - |  |  |  |  |
| Over-arousal | 1 | I have been feeling irritable | Irritable | - |  |  |  |  |  |
| 2 | I want to crawl out of my skin | Crawl skin | .53 | - |  |  |  |  |
| 3 | I am feeling afraid + I am feeling anxious | Fear | .55 | .55 | - |  |  |  |
| 4 | How worried/distressed are you about your sleep? + How much is your sleep quality interfering with your daily functioning? | Sleep problems | .38 | .32 | .42 | - |  |  |
| 5 | Have you been bothered by thoughts about nightmares? | Nightmare interfere | .42 | .42 | .55 | .66 | - |  |

*Note.* This table can be read as a series of correlation matrices. One correlation matrix is computed for each ASAD construct. For instance, the first row of the Suicide intent rows has a -, representing the diagonal of a correlation matrix. The second row of the Suicide intent rows shows the correlation between items 1 (column) and 2 (row).

**Supplemental Table 5.** Step 4 goldbricker results showing “bad pairs”

|  |  |  |
| --- | --- | --- |
| Item 1 | Item 2 | % different corr |
| Crawl skin | Disgust others | 0 |
| Crawl skin | Irritable | 0 |
| Fear | Crawl skin | 0 |
| Future dark | Active SI | 0.07 |
| Low belong | Disgust shame | 0.07 |
| Fear | Low belong | 0.07 |
| Crawl skin | Disgust shame | 0.07 |
| Fear | Disgust shame | 0.07 |
| Disgust others | Irritable | 0.07 |
| Night interfere | Sleep problem | 0.07 |
| Crawl skin | Active SI | 0.14 |
| Future dark | Passive SI | 0.14 |
| Hopeless2 | Passive SI | 0.14 |
| Disgust shame | Disgust others | 0.14 |
| Crawl skin | Future dark | 0.14 |
| Fear | Irritable | 0.14 |
| Future dark | Burden | 0.21 |
| Future dark | Disgust others | 0.21 |
| Crawl skin | Hopeless2 | 0.21 |

*Note.* % different corr indicates the percent of correlations that are significantly different for that item pair

**Supplemental Table 6.** Highly correlated items that are or are not bad pairs (combination of Supplemental Tables 3–5)

|  |  |  |  |
| --- | --- | --- | --- |
| **Not** bad pairs | | **Are** bad pairs | |
| Item 1 | Item 2 | Item 1 | Item 2 |
| Active SI | Passive SI | Low belong | Disgust shame |
| Close | Low belong | Disgust others | Disgust shame |
| Low belong | Burden | Irritable | Crawl skin |
| Low belong | Useless | Fear | Crawl skin |
| Low belong | Disgust others | Sleep problems | Nightmare interfere |
| Burden | Useless | Irritable | Fear |
| Burden | Disgust shame |  |  |
| Useless | Ineffective |  |  |
| Useless | Disgust shame |  |  |
| Useless | Disgust others |  |  |
| Fear | Nightmare interfere |  |  |
| Future dark | Hopeless |  |  |
| Ineffective | Not close |  |  |