Evaluation of a Therapeutic Mobile App for Depression

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TEXAS
The University of Texas at Austin

GENERAL STUDY INFORMATION	FORM: IRB Proposal - Standard Submission	
	NUMBER	VERSION DATE
	HRP-UT901	04/29/2021

Use for greater than minimal risk studies and minimal risk studies that fit into one or more expedited categories (see Section 5.3 of our Policies & Procedures for details regarding expedited research).

Do NOT submit this form if the study will qualify for exempt review, instead submit HRP-UT902 IRB Proposal – Exempt Submission Form found in the document Library.

If you are only using secondary data that will not be initially collected solely for this research project, use HRP-UT903 Template IRB Proposal Secondary Use form instead.

For studies following a multi-center or sponsor protocol, please use this guidance to assist in your completion of this form.

For questions regarding definitions, policies, or terms referenced below see the policies and procedures manual.

Please note, Word online does not support Word checkboxes. Please download the file and use your desktop version of Microsoft Word.

1 Review Type (Choose one)

*Click on the check box (or double click and type an "X" if using Google Docs) the **one** review type that applies.*

Please note: Expedited Review does not refer to the timeliness of the review of your protocol, but specific categories of research defined by ORHP. If you would like help determining which type of review is most appropriate for your study please contact the Office of Research Support and Compliance: https://research.utexas.edu/ors/about-ors/contact-us/.

☐ **Full Board Review – Greater than Minimal Risk Research**

a

☒ **Expedited Review – Minimal Risk Research**

b

2 Research Hypothesis

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The purpose of this study is to assess the utility of a gamified version of attention bias modification in reducing negative cognitive bias and depression symptoms. We hypothesize that the active version of the intervention will lead to more improvements in attention bias, and in turn, reductions in symptoms of depression.

3 Study Background

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Sustained attention to negatively valenced information is apparent in several currently defined psychiatric disorders, including depression, anxiety, substance misuse, and eating disorders. This symptom is a key feature of the negative valence systems listed in the Research Domain Criteria (RDoC), guidelines recently developed by the National Institute of Mental Health to measure, understand, and redefine psychiatric disorders. RDoC supposes that existing definitions of psychiatric disorders fail to recognize commonalities among these disorders. Discovering common aspects of psychiatric disorders is crucial in fostering a deeper understanding of these disorders and developing more effective treatments and interventions.

Attention bias modification (ABM) is a promising intervention for tempering these biases. Consistent with the experimental therapeutics approach (Insel, 2015), ABM has been shown to both reduce negative attention bias and improve symptoms of depression (Wells & Beevers, 2010; Yang et al., 2015) (although other results have been mixed, see (Baert et al., 2010)). Other forms of attentional retraining have also been shown to lead to reductions in both attention bias and rumination (Sanchez-Lopez et al., 2019). However, engagement with these tasks have been mixed, with some participants describing traditional ABM tasks as boring (Beard et al., 2012). This had led to the development of gamified versions of ABM with the intent to improve participant engagement (Dennis & O'Toole, 2014). Nevertheless, there have been very few rigorous trials of ABM for depression (Hsu et al., 2018), and very little is known about the mechanisms by which ABM can lead to improvements in depression symptoms. Further, no one has used ecological momentary assessment (EMA) to tease apart these mechanisms.

4 Design and Methodology

Provide information regarding study design or data collection methodologies. Details regarding protocol specific research procedures will be discussed in a later section.

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Following an online consent form, participants may be asked to complete a brief screening questionnaire to determine their eligibility and assess their symptomatology. This initial screening will be comprised of a series of questionnaires and/or self-report measures and demographics information (or portions thereof), all of which are described in detail in the Measure section below and uploaded to the document management page of IRB Access. This screening will be administered via protected online channels (e.g. Qualtrics, an online survey tool, Research Electronic Data Capture (REDCap), a secure, web-based application designed to support data capture for research studies, UT Web, a Linux-based shared Web hosting environment for The University of Texas at Austin, Gorilla, a software platform for conducting behavioral experiments, and/or Inquisit Millisecond Software's Inquisit, a secure online platform for conducting psychology behavioral experiments).

We will utilize questions from the Mini International Neuropsychiatric Interview for screening. Eligible participants will be provided with information about the study and will provide informed consent before participating. Participants will receive a technical call from a research assistant to help the participant download the app and ensure they know how to operate the game. Randomization will occur during this call. For our records for paying participants, we need to verify participants' ID. During this Zoom call, we will ask them to show a valid photo ID with their name and date of birth to the camera so we can confirm their identity. We will not record or take pictures of their ID, we only need to verify their identity.

Participants will be randomized to either the active or control version of the attention bias app. They will be asked to play with the app for 14 minutes, 4 times per week for 4 weeks (total dose of 16 instances of game "play"). In addition, they will be sent daily ecological momentary assessment (EMA) surveys about their depression symptoms. At the end of each week, we will ask them to complete brief assessments including behavioral tasks and questionnaires. While we will send them at the end of each week, we will give them 72 hours to complete the assessment. Participants will be compensated for these weekly assessments. At the end of the study, individuals in the control ABM group will be given suggestions for other online treatments like moodgym (https://moodgym.com.au/) and mycompass (https://www.blackdoginstitute.org.au/resources-support/digital-tools-apps/mycompass/), and resources like Koko (https://join.kokocares.org/koko-referral?source=website).

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Data Analysis

Describe the data analysis plan, including any statistical procedures or power analysis.

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Data analysis will vary by data type. However, we expect that most of the de-identified data will be analyzed through R, a free open-source software used for statistical analysis.

Descriptive statistics will be calculated, using means or medians and standard deviations for continuous variables. For categorical data, we will likely report them in the form or percentages, proportions, or counts. We may also examine data for any baseline differences between the groups to identify characteristics that may confound results and require control in the analysis. For self-report measures and interviews, we will try to report psychometric properties of the measure in our sample whenever possible (e.g. internal consistency, reliability, Kappas, etc.)

Since we are collecting lots of different types of data, specific analytical procedures may vary to fit the data type, as well as the distribution of the data collected. Analyses may include (but are not limited to) regressions (linear, logistic, multivariate, etc.), group comparisons (t-test, ANOVA), mediation/moderation analyses, machine learning analyses, computational modeling, etc.

STUDY ELEMENT IDENTIFICATION

A full description of all study procedures should be provided in the Procedures (Details) section below and/or the applicable supplement form.

Study Intervention

Click on the check box (or double click and type an "X" if using Google Docs) if you will implement any of the following interventions.

A full description of all study interventions should be provided in the Procedures (Details) section below and/or the applicable supplement form.

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☒ **Behavioral** ☐ **Device** ☐ **Drug/Biologic**

Clinical Trial

Click on the following check box (or double click and type an "X" if using Google Docs) if the research meets the below definition of a clinical trial.

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☒ **This study meets the definition of a clinical trial according to clinical trials.gov in that it involves one or more human subjects who are prospectively assigned to one or more interventions (which may include placebo or other control) to evaluate the effects of those interventions on health-related biomedical or behavioral outcomes.**

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9 Additional Oversight

Click on the check box (or double click and type an "X" if using Google Docs) each activity that requires oversight from additional UT committees.

☐ **Energy introduced to the subject (electrical, magnetic, light)**

☐ **Human embryonic, human induced pluripotent, or human totipotent stem cells; or human gametes or embryos**

☐ **Radiation exposure without direct clinical benefit**

☐ **Biological Samples, Biohazards, Recombinant DNA, or Gene Transfer**

If biological samples are used and stored on UT campus IBC approval is needed.

a ☐ b **Biological samples collected will not be stored on UT sites and another agency has responsibility for biospecimen safety.**
IBC Protocol Number

To input text, click in the light grey area below.

10 Alternatives to Participation in This Study

To input text, click in the light grey area below.

Individuals can decline to participate in the study and there will be no penalty.

STUDY PROCEDURE DESCRIPTION

11 Procedure Description

Describe all study procedures, including a step-by-step outline of what participants will be asked to do or how data will be used. Be sure to describe all of the following in detail, as applicable:

- Provide a description of all research procedures being performed and when they are performed, in sequential order.
- All research measures/tests that will be used and state if questions or measures are standardized or published
(upload copies of all surveys, scripts and data collection forms)
- Secondary data or specimens that will be obtained, how they will be collected, and how they will be used
- Where each activity will take place, the duration of each, and who will perform each activity
- Include time commitment of participants

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a. Location

This study is remote (i.e. online-only). Administration of the study will take place through the Mood Disorders Laboratory at the University of Texas at Austin.

b. Resources

This project will be funded internally until such time as external grants or funding become available. We will use the resources of the Mood Disorders Laboratory, which will provide the necessary equipment, staff, and materials.

c. **Study Timeline**

While it is challenging to predict how long recruitment will take, we expect that we should be able to hit our recruitment goal within 6-12 months. Once a participant is enrolled in the study, it will take them 4 weeks to complete the study. Manuscripts will be written and submitted for publication as soon as data analyses are finished. Thus, we expect the research to be completed and manuscripts to be submitted for publication within 2 years of the study start date.

1. Measures

Questionnaires and Self-report Inventories:

We will use selections from the following questionnaires and self-report inventories to measure psychiatric disorders and symptoms. Each questionnaire will be attached as an additional document. All measures are standardized and have been used in prior IRB approved research.

A **demographics** questionnaire will be used to gather basic demographic information such as age, gender, race, marital status, education, socioeconomic status, mental health treatment utilization, medication usage, etc.

The **PHQ-8** (Patient Health Questionnaire -8; Kroenke et al., 2009) is an 8-item diagnostic and severity test for depression and depressive disorders. It asks questions about depressive feelings and behaviors during the past week, but omits the question about suicidal or self-injurious thoughts. A total score of 5 to 9 represents mild depressive symptoms; 10 to 14, moderate; 15 to 19, moderately severe; and 20 to 24, severe. It is comparable to the PHQ-9 and a cutoff score of ≥ 10 indicates moderate depression.

For daily assessments, we will use the **PHQ-2,** which simply consists of the first 2 items of the PHQ-8 (assessing the frequency of depressed mood and anhedonia). It is a reasonable proxy for the full version of the measure (Bauer et al., 2018) but with less burden on the participant.

Daily assessment of rumination will be done using the **Momentary General Rumination Questions**. These 4 items ask how much someone is ruminating in a moment, and have been used in prior EMA research (Smith et al., 2021).

The **PTQ** (Perseverative Thinking Questionnaire; Ehring et al., 2011) is a fifteen-item self-report measure of repetitive negative thinking. The PTQ measures three process characteristics of repetitive negative thinking, including (1a) repetitive, (1b) intrusive, (1c) difficult to disengage from, (2) unproductive, and (3) capturing mental capacity. The PTQ has been found to be internally consistent and reliable, to have high convergent validity with the Respone Style Questionnaire, the Penn State Worry Questionnaire, and the Rumination Scale, and to have high predictive validity for depression and anxiety.

The **RRS** (Ruminative Responses Scale) is a 22-item measure of the tendency to ruminate in response to expressions and symptoms of negative emotion (Nolen-Hoeksema & Morrow, 1991), tendencies that are concurrently associated with depression severity (Nolen-Hoeksema et al., 2008) and predictive of depression course (e.g., Burwell et al., 2007; Nolen-Hoeksema et al., 2007). It has been found to be reliable and well validated with depressed populations (Treynor et al., 2003) and related to attention bias (Donaldson et al., 2007).

The **IDAS** (Inventory of Depression and Anxiety Symptoms) assesses specific symptom dimensions related to anxiety disorders and general well being. The IDAS is a psychometrically sound 64-item self-report scale that covers 10 symptom dimensions that underlie both depression and related anxiety (Watson et al., 2007; Watson et al., 2008).

The **CEQ** (Credibility and Expectancy Questionnaire) is a 6 item self-report survey used to measure participant perceived treatment expectancy and credibility of clinical outcome studies (Borkovec & Nau, 1972). Research has shown these two constructs have significantly predicted therapy outcome (Chambless et al., 1997; Borkovec & Costello, 1993).

We will assess participant's subjective perception of their change in attention, along with their perception of which condition they were in using the items listed in **"Questions for final assessment session".**

Screening:

The **MINI** (Mini International Neuropsychiatric Interview; Sheehan et al., 1998) is a brief structured interview intended for verbal interview that enables accurate diagnosis of a broad variety of mental illnesses. The MINI may be used for screening purposes and select questions from the MINI will be administered in the online screening survey. The MINI has been validated against the Structured Clinical Interview for DSM-IV diagnoses and against the Composite International Diagnostic Interview for ICD-10 (Lecrubier et al., 1997; Sheehan et al., 1998).

The **PDSQ** (Psychiatric Diagnostic Screening Questionnaire; Zimmerman, M., & Mattia, J.I., 2001) is a 125-item self-report scale designed to screen for the most common psychiatric disorders of the DSM-IV. The PDSQ is broken into 13 subscales.

Tasks:

Participants will be asked to perform several related behavioral tasks that may also include eye tracking. These tasks will all be similar in their makeup, with participants viewing a variety of images, video clips, or words from the stimuli sets listed below. All tasks involved in the protocol will follow similar parameters, with participants either passively viewing or responding to simple questions about the images/video clip.

Scrambled Sentences Task (SST)

In this task, participants are presented with scrambled sentences composed of six words and instructed to form grammatically correct sentences utilizing only 5 of the 6 words. Sentences can be unscrambled to form either positively or negatively valenced sentences (i.e., "the future looks very bright" or "the future looks very dismal"). Negative interpretation bias will be indexed as the proportion of negative sentences to total grammatically correct sentences formed.

Passive viewing

In this task, participants will be asked to view images/videos from the stimuli listed below passively and naturally. Circles may be used indicate which portion of the image participants should attend to. Participants may also be asked to rate how pleasant/unpleasant they found the stimuli. We will use mouse tracking to track how participants interact with the stimuli on the screen during the passive viewing.

Platforms:

REDCap: REDCap (Research Electronic Data Capture) is a secure, web-based application designed exclusively to support data capture for research studies. Data is stored and backed up on PRC servers, which are approved for Category I data. Our plan is to consent participants through REDCap (for both online screening and prior to enrollment), as well as administer questionnaires and demographic forms via REDCap. We will also use the Gorilla platform during the study to administer questionnaires and behavioral tasks. We will use REDCap to collect IP addresses automatically from participants in the screening survey. This is only to ensure the same participants do not make multiple attempts at entering the study, or changing answers on their screening survey. IP addresses will not be used as data.

UT Web

Participants may complete tasks through UT Web, a secure server hosted through and moderated by The University of Texas at Austin. No personal data will be collected through UT Web, and only research personnel will have access to data through UT Web. WebGazer.js is supported by UT Web. WebGazer.js, an eye tracking platform that uses common computer webcams to estimate eye gaze locations, collects eye tracking data from participants who allow the task to access the webcam. Before accessing the task, participants will be prompted to allow or deny the task access to the webcam. Only participants who actively allow access will have eye-tracking data collected, and the webcam will not be used for participants who do not make a selection. This form of eye tracking is based on estimates of eye gaze locations, and participants will not be video or audio recorded during this task. Tasks hosted on UT Web may collect general information about the participant's computer such as screen resolution, behavioral responses, and operating system to help researchers determine outcome metrics such as gaze location and participant

engagement with the task. This data will not include identifying information. All data will be encrypted and hosted on UT Web.

Behavioral and eye tracking data are available to the participant as a download if the task loses Internet connection during the course of the experiment. The participant is not required to download this, and if the browser window is closed, the data are deleted. These data only exist on the participant's computer while the experiment is running.

The webcam will automatically turn off once the experiment is finished. If the participant allows the program to access the webcam and then decides they no longer want the program to have access to the webcam, they can end webcam access by closing the window.

Gorilla

We may use Gorilla (www.gorilla.sc) to collect data for our study. Gorilla is a cloud software platform specifically for the behavioural sciences. Here are some key facts about their data security:

- Cyber Essentials: Certificate of Assurance - IASME-CE-004228
- Hosting: Gorilla is hosted on Microsoft Azure within the EU (Republic of Ireland) which is compliant with ISO/IEC 27001:2005
- Traffic Encryption: All traffic to and from Gorilla is encrypted (TLS/SSL)
- Database Encryption: The database is encrypted using industry-standard cryptography
- Data Ownership: The experiment owner owns the research data that has been collected using Gorilla and has complete control over it
- Data Protection: Gorilla is fully compliant with data protection legislation
- BPS: Gorilla is fully compliant with BPS guidelines.
- GDPR: Gorilla is fully compliant with GDPR.
- IP Address: IP addresses are not provided in the data download.

Recruitment

- Data Collection: Participants will take part via a desktop computer, laptop, tablet or phone from [anywhere in the world]
- Consent: Participants can give consent within Gorilla [see supporting documentation]. Participant can opt to not give consent.
- Recruitment Policy:
    - We need to collect data from participants over several days and therefore want Gorilla to email participants to remind them to take part. Consequently, participant email addresses will be uploaded to Gorilla.
    - To ensure complete confidentiality and data security, participants are first given a Public ID (ABC123456) which they can use to log in with.
    - Performance data is stored against a Private ID (X1Y2Z345).
    - The relationship between the email address and Public ID is stored separately from performance data.
    - The relationship between the Public ID and Private ID is stored separately from performance data.

Twilio:

In order to streamline and schedule survey reminders, we will use Twilio (twilio.com), a secure, cloud communication platform, to send participants links to REDCap, Qualtrics, or Gorilla (or other similar platforms) surveys and/or tasks. Twilio has integration features with REDCap and Qualtrics and is the default integrated SMS provider for both platforms. Surveys will not be initiated or conducted as SMS

conversation, but rather sent as survey invitations via survey links. Once participants click on the survey link, they will fill out the survey in a secure environment (https) just as they would if they had clicked on the link in an email. While SMS messages will be routed through Twilio, survey data is never stored in Twilio, survey data does not go through Twilio servers, nor is a Twilio log kept of user actions or responses. Survey data will remain securely in the survey platform (REDCap, Qualtrics, Gorilla, etc.). Participants will be advised that charges may apply, participants will be asked to confirm they agree to being contacted by text, and they will be able to opt out of SMS communication at any time.

Therapeutic Mobile Game (TMG):

Therapeutic Mobile Game is the name of the gamified attention bias app we will use for this study, owned by Arcade (previously Wise) therapeutics.

A detailed example (including images) of the app can be found on page 8 of the TMG Instructions. In the control/placebo version of the game, the trail of stars appears behind the sad moon/sun and the happy moon/sun equally. In the active version of the app, the game is identical except the trail of stars appears behind the happy moon/sun for the majority of trials.

Data collected from the app (from https://arcadetherapeutics.com/legal/):

- **"Contact information**, your email address
- **Technical data**, which is not itself personal data. The technical data will be associated and affiliated with the contact information you provide (i.e. your email address). Technical data includes, for example, information about your app usage (e.g., when a Study App was first launched), app version and installation ID, device identifier, and technical data about your device, such as operating system and model

How We Use and Disclose Personal Information Collected

Your email address may be used for the following purposes including:

- To register and provide you with your verification code to register with the Study App
- To send push notifications by using device tokens
- To support the Clinical Study
- Push notifications based on Study App usage

Your non-personal information may be used for purposes including, but not limited to:

- To conduct and support the Study
- To develop therapeutic and health-related products, including improving the usability of the application

Service Providers

Arcade Therapeutics/WiseDTx may share your information with companies who provide services for or on behalf of the Study App such as data storage or interpretation of de-identified analytical data. These companies are obligated to protect your information."

Detailed information about the apps privacy policies can be found here:
https://arcadetherapeutics.com/legal/
Additionally, there may be tools used as part of this study that will collect specific digital data about participants' use of the app (i.e., when and how long the app was used, speed of reactions during gameplay in the app), such as those from Arcade Therapeutics Inc. (Wise Therapeutics, Inc.), the creator of the app. This data is crucial for monitoring participant TMG app use during the 30-Day Treatment Phase and will allow research assistants to identify participants who may need reminders to complete the four 12-minute TMG sessions per week to maintain study enrollment. This data will only be accessed by study-approved research personnel.

Please find below the information requested in Mobile App Research guidance:

Purpose of the app:

1. **What is the purpose of the app and how is it being utilized in the research?**

The purpose of this study is to assess the utility of a gamified version of attention bias modification in reducing negative cognitive bias and depression symptoms. We hypothesize that the active version of the intervention will lead to more improvements in attention bias, and in turn, reductions in symptoms of depression.

2. **Is the app appropriate for the study population (e.g., content, age appropriateness, font size/color)?**

The app is appropriate for the study population.

App functionality:

1. **What is the plan to address issues related to the app not working?**

Prior to starting the study, participants will receive a tech support call via Zoom with study personnel to ensure they know how to operate and use the app, and give them an opportunity to ask questions. They can contact us by email if they have trouble later in the study and we will help troubleshoot.

2. **Will downloading or using the app cost the participant anything?**

Using the app will be free to participants during the study.

3. **Will the app only work on certain devices (e.g. iOS, Android)?**

Participants will use their own devices; the app works with both iOS and Android

4. **When a device's operating system is updated, how will the app's functionality be impacted?**

We ensure that the app is compatible with updates, and would stipulate which OS versions are supported.

5. **When the study is over or when a participant withdraws, what is the process to ensure the removal of the app from the participants' phones?**

The participant can delete the app, and even if they don't, access will expire after 4 weeks.

Participant/user support:

1. **How are participants being trained to use the app?**

Prior to starting the study, participants will set up a tech support call via Zoom with study personnel to ensure they know how to operate and use the app, and give them an opportunity to ask questions.

2. **How will participants get support if they need help with the app?**

They can contact us by email if they have trouble later in the study and we will help troubleshoot.

3. **How is the app being monitored to ensure it is working properly? How often and when and by whom?**

We use a dashboard as part of this study that collects specific digital data about the use of the app (i.e., when and how long the app was used, speed of reactions during gameplay in the app), such as those from Arcade/Wise Therapeutics, Inc., the creator of the app. This data is crucial for monitoring participant TMG app use during the 30-Day Treatment Phase and will allow research assistants to identify participants who may need reminders to complete the four 12-minute TMG sessions per week to maintain study enrollment. This data will only be accessed by study-approved research personnel.

Obtaining consent and the app's Terms of Service:

1. **How are you obtaining consent?**
    a. **Written consent? Consent via the app?**

Consent is obtained outside of the app, during the standard consent procedures for the study. We will use written consent via an online consent form. Additionally, there are 2 acknowledgement/consent boxes within the app: 1) agree to privacy policy, 2) consent to use app as part of the Study and have certain data shared with Arcade (Wise) Therapeutics.

2. **The app's Terms of Service may need to be uploaded in the IRB application.**

The terms of service and privacy policy can be found here https://arcadetherapeutics.com/legal/and have also been uploaded into the IRB application.

4. Is the consent form in-line with the Terms of Service for the app, if applicable?

i. **Do the Terms of Service indicate data ownership? yes**
i. **Does the owner of the app own the data?**
ii. **Does the researcher own the data?**
iii. **Does the user own the data?**

For data collected from the app, the Terms of service read:
"While We own the Pipeline Products, and all data associated with the use of the Pipeline Products, You own your data. Any personal or identifiable data input into the Pipeline Products is and shall remain the property of the patient or study participant (i.e. the person who input the data). You grant Arcade/Wise a perpetual, nonexclusive, world-wide license to use that data to understand and improve the Pipeline Products, subject to any requirements under Our Privacy Policy.
Arcade (Wise) also collects usage data and other analytical data ("Use Data") it derives from your use of the Pipeline Products. Use Data is solely and exclusively the property of Arcade (Wise)."

iv. **Are all of the above communicated to the participant, as appropriate (e.g., via consent form, other study documentation)?**

Yes – a link to the full terms of service is included in the consent form. Given that the consent form is administered online, participants will be able to access the link through the consent form. Moreover, at the time of enrollment, participants will have to click on 2 acknowledgement/consent boxes within the app: 1) agree to privacy policy, 2) consent to use app as part of the Study and have certain data shared with Arcade Therapeutics (Wise Therapeutics).

2. **How are the Terms of Service being explained to participants?**

See above

3. **Are the Terms of Service compliant with research regulations, local/state/federal law, etc.?**

Yes.

4. **What is the plan for monitoring the Terms of Service for updates or changes?**

They are dynamically updated in the app with a link to the terms and privacy policy online.

Privacy and confidentiality protections:

1. **What data will be collected?**
    a. **Research data? Other data captured from the device the app is installed on (e.g., GPS, text messages, phone calls, device information such as serial number)?**

Research data, device ID for user registration and data tracking

We (the research team) will be getting data about app usage (e.g. how many sessions someone completed). The research team will be assigning participants randomly to conditions, so we will already have that information. Sensitive information for research purposes (mood symptom questionnaires, etc.) will not be collected for research purposes through the app – we will collect these using the weekly assessments and daily EMA surveys described elsewhere in the study.

2. **Will the data being captured be identifiable?** Yes
3. **How is the data obtained? Data sent from the app or device via the internet or will it be a manual export of data?**

Data is sent from the app or device via the internet

4. **Where is the data being stored and how?**
    a. **Is encryption utilized?**
    Yes. Arcade (Wise) Therapeutics stores PII in an Amazon Web Services database where it is encrypted at rest.
    b. **Are university devices, firewalls, etc. utilized?** No
5. **Is data from the app shared? If so how? Is it identifiable?**

Data from the app is shared with third parties through APIs. Arcade (Wise) Therapeutics shares identifiable data with Amazon Web Services and customer.io and have a BAA (Business Associate Agreement) in place with these vendors, and we share non-PII data with other 3rd parties.

6. **If the app is a commercial app, will the app have access to the research data? Will user/phone information be accessed by commercial app owner?** No
7. **Do the apps require usernames and passwords?** Yes
    a. **Are they generated by the user or by the researcher?** User
    b. **What if a participant forgets their username and/or password?**

Participants can follow prompts for "forgot password" within the app, and if they forgot the email they used to sign up, they can contact Arcade (Wise) Therapeutics directly

Risks related to app use:

1. **What are the privacy and confidentiality risks?**

Arcade (Wise) Therapeutics takes reasonable measures related to data security. However, despite even our best efforts, the security of data transmission over the Internet cannot be completely guaranteed. Participants should always take precautions regarding how they handle and disclose personal information and should avoid sending it through unsecure channels.

2. **What if the app does not work as intended or malfunctions? Whom will participants contact?**

Prior to starting the study, participants will receive a tech support call via Zoom with study personnel to ensure they know how to operate and use the app, and give them an opportunity to ask questions. They can contact us by email if they have trouble later in the study and we will help troubleshoot. Alternatively, they can contact Wise Therapeutics directly if they prefer.

3. **Who is monitoring the app for potential risks and how often (e.g., questions or functionality within the app that monitors for emotional distress, such as suicidality)?**

We are not assessing for suicidality in our study.

4. **What about risks to third parties (e.g., social media engagement app that encourages communication between participants in the study and non-participants)?**

Not applicable.

Stimuli:

ANEW (Affective Norms for English Words: Instruction Manual and Affective Ratings; Bradley, M.M. & Lang, P.J., 1999) has a list of frequently used words as well as the ratings of pleasure, arousal, and dominance of each word. We will use a sample of positive and negative words from the ANEW, which have been previously used (Auerbach, R.P., Stanton, C.H., Proudfit, G.H., & Pizzagalli, D.A., 2015). Samples of the ANEW words are included in this proposal.

The Karolinska Directed Emotional Faces (The Karolinska Directed Emotional Faces (KDEF); Lundqvist, D., Flykt, A., & .Ohman, A., 1998) set, a well-validated set of emotional images (example stimuli included).

FACES stimuli set: FACES is a set of images of naturalistic faces of 171 young (n = 58), middle-aged (n = 56), and older (n = 57) women and men displaying each of six facial expressions: neutrality, sadness, disgust, fear, anger, and happiness. The database comprises two sets of pictures per person and per facial expression (a vs. b set), resulting in a total of 2,052 images. The database was developed between 2005 and 2007 by Natalie C. Ebner, Michaela Riediger, and Ulman Lindenberger at the Center for Lifespan Psychology, Max Planck Institute for Human Development, Berlin, Germany.

2. Participants a. Target Population

Participants will be adults recruited from the University of Texas at Austin campus and the greater Austin community. The study will screen up to 5000 individuals, recruit up to 200, and will ultimately enroll approximately 150 study participants based on eligibility. We aim to recruit individuals with elevated symptoms of depression and elevated levels of attentional bias.

SUBJECT POPULATION

12 **Protected Subject Populations**

Click on the check box (or double click and type an "X" if using Google Docs) each population, if they are specifically studied for this research.

☐ Active military personnel	☐ Children	☐ Decisionally impaired adults
☐ Emancipated minors	☐ Fetuses	☐ Individuals with limited English proficiency
☐ Neonates	☐ Pregnant Woman	☐ Prisoners
☒ UT Students	UT or Seton Staff/Employees	

13* **Research Participant Information**

Describe the research population.

**For multiple research populations (e.g., teachers, students, and parents), copy this section as necessary to describe your population.*

Participant Group Name

To input text, click in the light grey area below.

Adults in the greater United States

a

Minimum Age

To input text, click in the light grey area below.

18

b

Maximum Age

To input text, click in the light grey area below.

45

c

Inclusion Criteria

To input text, click in the light grey area below.

Inclusion criteria will include: 1) between the ages of 18 and 45 years; 2) fluent in English; 3) are able and willing to provide informed consent; 4) have normal or corrected-to-normal vision; 5) able to complete all study tasks; 6) moderate depression symptoms (defined as greater than or equal to 10 on the PHQ-8); 7) greater than moderate attention bias, operationalized as greater than an average of 6500 ms of dwell time on sad faces in an attention bias task; 8) access to a smartphone for downloading the app and a laptop or desktop to complete the weekly assessments; 9) stable psychiatric and neurological medication usage (no changes 4 weeks prior to enrollment and no immediate plans to change medications within next four weeks).

d

Exclusion Criteria

To input text, click in the light grey area below.

Exclusion criteria will include: 1) recent heavy alcohol use defined as a score of 2 or higher on the PDSQ; 2) past or present comorbidity of other serious mental illness (e.g., schizophrenia, substance use disorder, bipolar disorder, etc.) may also constitute an exclusionary criterion; and 3) previous participation in research using this app.

e

Additional Population Information

To input text, click in the light grey area below.

f

14 **Total Sample Size**

To input text, click in the light grey area below.

We will recruit up to a sample size of n = 200, but ultimately enroll no more than n = 150.

15 **Sample size rationale**

To input text, click in the light grey area below.

Because many of these experiments will be conducted online, we expect that only a portion of the data will be complete and useable. Therefore, while our target sample size is n = 100 for the whole study, we will recruit for a larger sample to compensate for incomplete data, drop-outs etc.

We expect to screen 5000 people for the study, and recruit up to n = 200. However, we will stop recruitment when we have had n = 100 people complete the study. We anticipate that some people will begin the study and drop out/ fail to complete the minimum requirement.

SCREENING AND RECRUITMENT

16 **Identification and Screening**

Click on the check box (or double click and type an "X" if using Google Docs) if true.

☒ **This study involves obtaining information or biospecimens for the purpose of screening, recruiting or determining eligibility of prospective subjects prior to informed consent by either:**

1. Oral or written communication with the prospective subject or LAR
2. By accessing records containing identifiable private information or stored identifiable biospecimens.

17 Identification and/or Screening Procedures

Describe the identification and/or screening procedures below. To input text, click in the light grey area below.

We will use a number of different recruitment procedures, described below. A screening survey will be linked in recruitment materials (through a URL link or QR code) for prospective participants to complete. Following completion of the screening survey, if participants are potentially eligible, they will be invited to complete a brief baseline assessment. During this assessment, they will complete mood questionnaires and behavioral tasks that measure cognitive biases. If they are eligible after this stage, they will be invited for participation in the study.

18 Recruitment Overview

Click on the check box (or double click and type an "X" if using Google Docs) all recruitment methods utilized for this research.

☐	E-mail	☒	Flyer
☐	In-Person	☐	Letter
☒	Social Media	☒	Research Pool
☐	Telephone/Text	☐	Snowball Sampling
☒	Web-post	☐	Word of Mouth

19 **Describe the recruitment process, including where recruitment will take place.**

Describe the recruitment procedures below.
To input text, click in the light grey area below.

We will utilize a number of online advertisement forums such as craigslist.com, facebook.com, google.com/adwords, Internet forums such as those on Reddit related to psychiatric disorders and research participation, "Known Events" on the University of Texas at Austin's Events Calendar, and list-serves, such as campus-wide distribution announcements via UT's group email service (https://utdirect.utexas.edu/apps/group_email/gateway/), Berkeley Parents Network (https://www.berkeleyparentsnetwork.org/announcements?type%5B0%5D=330), and other similar sites. We will also post study advertisements on websites such as the Mood Disorders Lab at UT, the Institute for Mental Health Research, and other mental health sites that offer to advertise research studies (e.g., National Alliance on Mental Illness, and http://bbrfoundation.org, The Brain and Behavior Research Foundation).

We may also recruit through the PSY 301 subject pool (SONA) at The University of Texas at Austin. This allows students enrolled in introductory psychology classes to obtain credit towards a research requirement through participation in research as subjects. (As an alternative, students may also complete a research paper that involves a similar amount of time and effort.)

In each case, we will use an IRB approved advertisement.

OBTAINING INFORMED CONSENT

Consent Overview

Click on the check box (or double click and type an "X" if using Google Docs) all applicable items.

☒ **Obtaining Written Informed Consent**

☐ **Requesting a Waiver of Documentation of Informed Consent**

☐ **Requesting a Waiver of Informed Consent**

☐ **Requesting an Alteration of the Required Elements of Informed Consent**

☐ **Obtaining Child Assent**

☐ **Obtain Consent Using a Short Form with a**

Consent and Assent Processes

Provide a detailed description of the consent process including who will obtain consent, where, and when consent will occ time for adequate consideration.

To input text, click in the light grey area below.

We will obtain informed consent from everyone who participates in our study online. Participants will provide online informed consent before participating in the online eligibility screening of inclusion/exclusion criteria, as well as before enrollment into the study. They can contact us via email if they have any questions about the consent form. Participants will give signed informed consent through either REDCap using their finger or a mouse, or through the Gorilla platform if they agree to participate.

Consent and Translation

Click on the check box (or double click and type an "X" if using Google Docs) to indicate that consent will be translated.

☐ **The study population will likely include participants whose limited English speaking status requires translation of the consent form.**

Translation Process

Click on the check box (or double click and type an "X" if using Google Docs) that best describes the translation process, either 21 or 22.

☐ **The consent documents will be translated by a certified translator.**

☐ **A non-certified translator will translate the consent documents.**

If selected, complete the next two questions below.

23 ☐ **24** ☐

i **Describe the translator's qualifications**

To input text, click in the light grey area below.

ii ☐ **Another individual will confirm that the translation is accurate and appropriate.**

Waiver of Documentation of Informed Consent

To approve a waiver of documentation of informed consent, one of the following options below must be justified by the researcher.

Only complete the sections below if requesting a waiver of documentation of informed consent. *If not requesting a waiver of documentation of consent, skip to 27.*

Please choose one waiver option and provide additional information as prompted. The Office of Research Support and Compliance recommends using Waiver Option 2 in most cases.

25 **Waiver Option 1**

Provide confirmation for the following criteria and follow the additional instructions.

Additional Instructions:

1. Include this choice in the informed consent form.

2. Articulate the destruction process for signed consent forms in the privacy and confidentiality section.

Click on the check box (or double click and type an "X" if using Google Docs).

☐ **The only record linking the subject and the research would be the consent document.**

☐ **The principal risk would be potential harm resulting from a breach of confidentiality.**

☐

a Each subject will be asked whether the subject wants documentation linking the subject with the research, and the subject's wishes will govern.

b c

26 Waiver Option 2

Provide confirmation for the following criteria and follow the additional instructions.

Click on the check box (or double click and type an "X" if using Google Docs).

a ☐ The study is minimal risk.

b

☐ Written consent would not be required outside the research context.

27 Waiver Option 3

Provide confirmation for the following criteria and provide additional information as requested.

Click on the check box (or double click and type an "X" if using Google Docs).

a

☐ The subjects or legally authorized representatives are members of a distinct cultural group or community in which signing forms is not the norm

Describe the cultural group or community.

To input text, click in the light grey area below

b

c

☐ The research presents no more than minimal risk of harm to subjects.

☐ There is an appropriate alternative mechanism for documenting that informed consent was obtained.

d

Describe mechanism for documenting that informed consent was obtained

e *To input text, click in the light grey area below*

Waiver or Alteration of Informed Consent

To approve a waiver or alteration of informed consent all of the following criteria below must be justified by the researcher.

Only complete the sections below if requesting a waiver of informed consent. *If not requesting a waiver or alteration of consent, skip to 31.*

28 **The research involves no more than minimal risk to the subjects.**

To input text, click in the light grey area below

29 **The waiver or alteration will not adversely affect the rights and welfare of the subjects.**

To input text, click in the light grey area below

30 **The research could not practicably be carried out without the waiver or alteration (it is impracticable to perform the research if obtaining informed consent is required and not just impracticable to obtain consent).**

To input text, click in the light grey area below

31 **If the research involves using identifiable private information or identifiable biospecimens, the research could not practicably be carried out without using such information or biospecimens in an identifiable format.**

To input text, click in the light grey area below.

Deception and Debriefing

Only complete the sections below if requesting an alteration of informed consent that involves deceiving research participants. *If this study does not involve deception, skip to 35.*

See IRB Policies and Procedures Section 15 for a description of deception.

Click on the check box (or double click and type an "X" if using Google Docs).

☐ **It is appropriate to provide additional pertinent information to the subject after research activities are complete (e.g., the researcher needed to deceive to subject to the nature of the study).**

30

☐ **Research participants will have the opportunity to withdrawal their data during the debriefing.**

31

Describe the nature of deception and why it is necessary to conduct the research.

To input text, click in the light grey area below.

Describe debriefing procedures.

To input text, click in the light grey area below.

32

BENEFITS

Benefits to Society

Describe the scientific and societal benefit(s) below.

To input text, click in the light grey area below.

33

34 Attention bias modification is an accessible, disseminable, and effective treatment for depression symptoms. If
35 this gamified version of an attention bias modification app is successful in reducing symptoms of depression,
36 it could be used as a first-line treatment for helping reduce depression symptoms. It also might be used
37 adjunctively with other treatments. Moreover, very few rigorous trials of attention bias modification have been
38 done, and none to our knowledge have used ecological momentary assessment to tease apart mechanisms of
39 change. Insight into these mechanisms can help inform and tailor future interventions.

Benefits to Participants

Click on the applicable check box (or double click and type an "X" if using Google Docs).

40

37

☐ There is no anticipated direct benefit to participants.

☒ There are anticipated benefits to participants.

If applicable, describe the potential direct benefits to participants.

To input text, click in the light grey area below.

38 39

This study is a randomized controlled trial of an attention bias modification "app" for improving negative attention bias. While we are assessing the impact of this app on improving symptoms of depression, it is possible that participants may experience some improvement in depression symptoms. Participants in the "control" condition will be given additional options for digital interventions after the culmination of the study.

RISKS

40 **Describe the risks associated with each activity in this research**

To input text, click in the light grey area below.

The potential risks associated with participation in this study appear to be minimal (see below). Although study participants are at risk for loss of confidentiality and emotional and/or physical discomfort, employing careful informed consent procedures, ensuring that all study personnel are trained to handle sensitive clinical information, and are attuned to participants' emotional and physical experience of the study minimizes these risks. If at the end of the study, we will provide information on accessing treatment for depression in the event individuals are still experiencing residual symptoms.

There are two major areas of risk:

a) *Confidentiality and loss of privacy*. We will be collecting information about the participant that could cause social and psychological risk if released inappropriately.
b) *Emotional discomfort.* It is possible that assessments regarding symptoms of psychiatric disorders could lead to emotional discomfort for some participants. It is also possible, though unlikely, that negatively affective stimuli could lead to emotional discomfort for some participants.

41 **Describe how each risk is mitigated/minimized.**

To input text, click in the light grey area below.

The above areas of risk will be minimized by the following procedures:

Breach of confidentiality is highly unlikely. The risk of breach of confidentiality will be handled by emphasizing that information obtained during the study is confidential and will be used solely by research and clinical staff for research purposes. For data collection, we will use REDCap as well as Gorilla, a cloud software platform specifically for the behavioural sciences. Here are some key facts about their data security:

- Cyber Essentials: Certificate of Assurance - IASME-CE-004228
- Hosting: Gorilla is hosted on Microsoft Azure within the EU (Republic of Ireland) which is compliant with ISO/IEC 27001:2005
- Traffic Encryption: All traffic to and from Gorilla is encrypted (TLS/SSL)

- Database Encryption: The database is encrypted using industry-standard cryptography
- Data Ownership: The experiment owner owns the research data that has been collected using Gorilla and has complete control over it
- Data Protection: Gorilla is fully compliant with data protection legislation
- BPS: Gorilla is fully compliant with BPS guidelines.
- GDPR: Gorilla is fully compliant with GDPR.
- IP Address: IP addresses are not provided in the data download.

a) No names will be used in presenting the data in lectures, seminars, and papers. Information will be released only with the written consent of the participant. Having all information collected and handled by research staff trained to deal appropriately with sensitive clinical issues will minimize potential risk of loss of confidentiality. All information will be treated as confidential material and will be available only to research and clinical staff. We have used this approach with hundreds of participants in the past and have never had any problems with a breach of confidentiality.

b) There are no known risks to neuropsychological or experimental behavioral testing of learning, attention, and perception. Sometimes people become frustrated with their performance but they are assured that the tests are designed to assess natural abilities and they should just do their best. There are no known risks involved with collecting eye tracking and pupil dilation data.

Moreover, information about how Arcade (Wise) Therapeutics handles privacy and confidentiality can be found at: https://arcadetherapeutics.com/legal/

We are not assessing suicidal ideation in this study. However, if we become aware that a participant is suicidal, we will follow our lab's suicide safety protocol to assess risk and refer them to the appropriate resources.

Data Safety Monitoring

For additional information regarding data safety monitoring boards and data safety monitoring plans, please see Section 21 of our Policies and Procedures.

Click on the check box (or double click and type an "X" if using Google Docs).

42 ☒ **This study is minimal risk and does not require a Data Safety Monitoring Plan (DSMP) or a Data Safety Monitoring Board (DMSB).**

43 ☐ **This study does not have a Data Safety Monitoring Board, but researchers have an internal plan/policy to monitor for safety.**

Complete Data Safety Monitoring Details (44-51).

44 ☐ **This study has a Data Safety Monitoring Board (DSMB).**

Complete Data Safety Monitoring Details (44-51) or upload this study's Data Safety Monitoring Board's charter.

45 **How is safety information collected?**

To input text, click in the light grey area below.

When will safety data collection start (for each participant or for the whole study, as applicable)?

To input text, click in the light grey area below.

0

How frequently will safety data be collected?

To input text, click in the light grey area below.

1

Who will review the data for safety?

To input text, click in the light grey area below.

2

How frequently will data be monitored for safety concerns?

To input text, click in the light grey area below.

3

What data will be reviewed?

To input text, click in the light grey area below.

4

State the frequency or periodicity of the review of cumulative data?

To input text, click in the light grey area below.

5

State any conditions that would trigger an immediate suspension of the research.

To input text, click in the light grey area below.

6

Early Withdrawal

Only complete this section if there are planned conditions under which a participant will be withdrawn from the study. *If not applicable, skip to 56.*

Include this information in your consent form.

List the criteria for withdrawing individual participants from the study (e.g., safety or toxicity concerns, emotional distress, inability to comply with the protocol, or requirements from study sponsor).

To input text, click in the light grey area below.

If participants do not complete the optimal dose of the intervention, they will be removed from the trial. This efficacy trial necessitates participants completing a minimum number of sessions, and they will be removed if they miss 4 of the 16 "doses" of the intervention. We will give reminders to complete the doses and participants will be informed of this requirement at the start of the study.

Describe any necessary procedures for ensuring the safety of a participant who has withdrawn early.

To input text, click in the light grey area below.

N/A

Describe any pre-specified criteria for stopping or changing the study protocol due to safety concerns.

To input text, click in the light grey area below.

Participants will be removed if they miss 4 of the 16 doses of the intervention.

REQUIRED DISCLOSURES

Required Consent Disclosures

Identify each element below that may require additional information to be disclosed in the consent form.

Click on the check box (or double click and type an "X" if using Google Docs).

☒ **It is reasonable that researchers could discover or suspect child or elder abuse.**

16

☒ **It is reasonable that researchers could learn of an incident that could require reporting under Title IX.**

17

58 ☐ **It is reasonable that researchers could discover incidental findings or other information of medical interest about a participant's previously unknown condition.**

59 **Articulate methods for addressing and reporting incidental findings, if applicable.**

To input text, click in the light grey area below.

If during the study we learn about child neglect, child or elder abuse, or that someone is a clear, serious, and direct harm to self or others, we may report the information to appropriate authorities, including the police, the Texas Department of Family and Protective Services (or other appropriate state agency), and/or an emergency medical facility. If we learn of any incidents of sexual assault, sexual harassment, dating violence, or stalking, we will report them as census-level data to the Title IX office in the fashion outlined for confidential research employees. These possibilities are therefore explicitly stated in the consent documents. All data and paperwork will be protected to the extent provided by law.

PRIVACY AND CONFIDENTIALITY

60 **Privacy**

Describe how you will protect the identity and privacy of study participants during each phase of research. Privacy focuses on the individual participants rather than data. In this section, researchers should focus on issues such as where research activities take place and how participant involvement is protected from nonparticipants.

Describe methods to ensure participants' privacy during identification, recruitment, screening, the consent process, the conduct of the study, and dissemination of data.

To input text, click in the light grey area below.

We will use REDCap and Gorilla (www.gorilla.sc) to collect data for our study. Gorilla is a cloud software platform specifically for the behavioural sciences. Here are some key facts about their data security:

- Cyber Essentials: Certificate of Assurance - IASME-CE-004228
- Hosting: Gorilla is hosted on Microsoft Azure within the EU (Republic of Ireland) which is compliant with ISO/IEC 27001:2005
- Traffic Encryption: All traffic to and from Gorilla is encrypted (TLS/SSL)
- Database Encryption: The database is encrypted using industry-standard cryptography

- Data Ownership: The experiment owner owns the research data that has been collected using Gorilla and has complete control over it
- Data Protection: Gorilla is fully compliant with data protection legislation
- BPS: Gorilla is fully compliant with BPS guidelines.
- GDPR: Gorilla is fully compliant with GDPR.
- IP Address: IP addresses are not provided in the data download.

Confidentiality and Data Security Plan

Click on the check box (or double click and type an "X" if using Google Docs) that best describes the confidentiality and data security plan and provide additional details regarding how you will protect the confidentiality of data or address confidentiality concerns.

61 ☒ 61a **Identifiers will be coded to protect confidentiality.**

If true, state how data is coded and where identifiers are stored.

To input text, click in the light grey area below.

Data obtained from completion of study tasks will be stored confidentially, identified only by a codified participant ID number- no identifying information will be included, with the exception of a single form linking subject ID and identifying information (Master Key).

Master "Key": The Master Key will contain identifying information (e.g., subject name, contact information) and study code numbers. This list will be kept separately from all other data collected as part of this study. This will be stored on Gorilla's software platform.

62 ☒ 62a **Identifiable data will be destroyed.**

If true, describe destruction plan and timeline

To input text, click in the light grey area below.

Digital consent forms will be kept for at least 3 years and then deleted. We plan to delete the Master Key file at the end of data analysis.

Only de-identified data will be kept. Once the identifiable data has been removed, we will be unable to link participants to their data.

Participants will be informed that there are certain situations in which we may break confidentiality. If during the study we learn about child neglect, child or elder abuse, or that someone is a clear, serious, and direct harm to self or others, we may report the information to appropriate authorities, including the police, the Texas Department of Family and Protective Services (or other equivalent state agency), and/or an

emergency medical facility. Such a possibility is therefore explicitly stated in the online consent document. All data and paperwork will be protected to the extent provided by law.

63 ☐ 63a **Identifiable data will not be destroyed.**

If true, provide rationale for retaining identifiable data indefinitely.

To input text, click in the light grey area below.

64 **Data Access**

Click on the check box (or double click and type an "X" if using Google Docs) for each group of individuals that will have access to study data.

If you plan on creating a repository, complete the repository form as well.

☒ Study Team Members	☒ External Collaborators	☐ Data coordinating center
☐ Sponsor	☒ Future Sharing with other researchers	

☐ **Others**

Describe below. To input text, click in the light grey area below.

65 **Describe data sharing plan for each group checked above and state whether researchers plan on sharing identifiable, coded, or de-identified data**

To input text, click in the light grey area below.

We will share data with our external collaborators who are developing the attention bias app. Only deidentified data will be shared. De-identified study data may be utilized for future research purposes not detailed in this study. No data will ever be shared for purposes other than research.

Certificate of Confidentiality

Click on the check box (or double click and type an "X" if using Google Docs) to identify each element below that may require additional information to be disclosed in the consent form.

If a Certificate of Confidentiality is not applicable for this study, skip to 68.

66 67 ☐ **The study requires a Certificate of Confidentiality.**

68 ☐ **NIH has issued a Certificate of Confidentiality for this study.**

☐ **A Certificate of Confidentiality has not been obtained, but there are plans to apply for one.**

18

COMPENSATION AND COSTS

Compensation

Click on the check box (or double click and type an "X" if using Google Docs).

19

☒ **Subjects receive compensation.**

☐ **Subject will not receive compensation.**

Skip to question 74 if subjects will not receive compensation.

Total Amount of Compensation

To input text, click in the light grey area below.

Compensation will depend on how participants engage with the study.

Participants will receive $5 for each weekly assessment they complete. However, they can receive additional bonuses for completing multiple assessments.

At the end of the study, if participants have completed 2 assessments total, they will receive a $5 bonus.
If they have completed 3 assessments total, they will receive a $10 bonus.
If they complete 4 assessments, they will receive a $25 bonus.
If they complete all 5 assessments, they will receive a $25 bonus

Thus, the maximum amount someone can earn through the study is $50 ($5 x 5 assessments = $25, plus a $25 bonus for completing all 5).

20

Type of Compensation

Click on the check box (or double click and type an "X" if using Google Docs) for each form of compensation that will be provided.

21

☐	Cash	☐	Check	☒	Gift Card
☐	Course Credit	☐	ClinCard	☐	Tango Card
☐	Other				

Describe, To input text, click in the light grey area below.

Proration Schedule

To input text, click in the light grey area below.

22

☒ Amount of compensation and its form is reasonable for this population for the activities requested of them.

74

Costs

Click on the check box (or double click and type an "X" if using Google Docs) each applicable item regarding costs.

75

☒ Participants will have no costs associated with this study

☐ Standard of care procedures contributing to study data

☐ Research procedures not associated with standard of care

☐ Administration of drugs / devices

☐ Study drugs or devices

☐ Transportation and parking

Describe all costs below.

To input text, click in the light grey area below.

76

UT Austin IRB Approved
Submission ID:STUDY00003315-MOD03
Date Approved:6/2/2023

Consent to Participate in Online Research

Identification of Investigator and Purpose of Study

You are invited to participate in a research study, entitled "Evaluation of a Gamified Therapeutic Mobile App for Depression Symptoms." This consent form will help you choose whether or not to participate in the study. Feel free to ask if anything is not clear in this consent form.

The study is being conducted by Dr. Christopher Beevers through the Mood Disorders Laboratory at the University of Texas at Austin.

Preferred method of contact: mdl@utexas.edu
Institute for Mental Health Research
Department of Psychology
108 E Dean Keeton St
Austin, TX 78712
(512) 232-4750

Consent to Participate in Screening Survey: The purpose of this survey is to determine whether you are eligible for a research study that test the efficacy of a mental health app as a treatment for symptoms of depression. Feel free to contact the research team at mdl@utexas.edu if you have any questions about this study or the consent form.

Below is the procedure for the screening and eligibility procedure for this study:

1. After this consent form, we will invite you to complete general demographics, mood surveys, and screening questionnaires so we can assess whether it looks like you're a good candidate for the study. You will not be compensated for completing this screening survey. If you are not eligible, you should be notified by the end of the survey, or we will follow up by email. Please note that we are unable to provide individualized feedback on why people are not eligible for the study.

   ___ Please initial here to indicate you understand that if you are not eligible, we are not able to provide you with feedback on why.

2. If you look potentially eligible, we will review your screening questionnaire within a few days of completion. We will then send you a link to complete a baseline assessment for the study within 2 weeks of your screening survey. This assessment should take about 30 minutes and will consist of a few questionnaires and computer tasks. We will review this assessment as soon as possible (i.e. within a few days at most) and will email you to inform you of your eligibility status.

3. If you are eligible, we will invite you to participate in the study. If you want to participate, we will send you another consent form and set up a Tech Onboarding zoom call with one of our research assistants. During this 15-20 minute call, the research assistant will verify your identity, show you how to download the app, login to the app, and officially enroll you in the study.

Please note that because of the dynamic nature of some of the eligibility criteria we are assessing, we try to keep the turnaround window between steps 1 and 2, and 2 and 3 within two weeks. If more than two weeks pass between steps, we might ask you to restart the eligibility process to confirm that you are still a good fit for this study.

Below is further information about the study you are completing a screening form for.

Study Overview:

This research study is a randomized controlled trial testing the efficacy of a mental health app as a treatment for symptoms of depression. The app uses game-based training exercises designed to target key emotional and attentional patterns associated with depression. If you choose to participate, you will be randomly assigned to one of two versions of the app: a version that includes these training exercises at a high frequency and a version that includes them at a lower frequency. You will not know which version you are assigned to.

Your participation in the study will contribute to a better understanding of the cognitive mechanisms involved in depression, and how they might be impacted by a digital therapeutic app. You are free to contact the investigator at the above email address to discuss the study. You must be at least 18 years old to participate.

If you agree to participate, below is the overall time commitment of the study:

- At the beginning of the study, you will be asked to schedule a 15-minute tech onboarding Zoom call with a research assistant. They will walk you through downloading and registering the app and troubleshoot any technology issues.
- Once daily, you will be sent a very brief (~5 question) survey to your phone to ask about your mood symptoms.
- Four times a week, you will be asked to complete 1 session of game play on the app that will take approximately 14 minutes each. The study will last for 4 weeks (4 times per week x 4 weeks = 16 sessions of game play total).
- Once weekly, you will be asked to fill out a questionnaire about your mood and symptoms, as well as complete computer tasks in which stimuli (e.g. words, or images of faces, scenes, or objects) will be presented and you will respond according to the instructions.

Weekly time commitment: ~ 56 minutes of game play, 30 minutes of assessment total for the week (for 4 weeks). You will be compensated for the assessments (see **Compensation** below).

Benefits/Risks/Confidentiality of Data

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Possible risks associated with this study include emotional discomfort, as some of the survey questions are of a personal nature and some of the stimuli are negative and therefore may make some participants uncomfortable. You may skip any questions that make you uncomfortable. You

may contact the researchers with the contact information listed on this sheet to request mental health resources if you wish. There will be no cost to you for participating.

Please note that while we check our email during normal business hours (9 am – 5 pm CST), we do not monitor our email constantly. If you are experiencing feelings of discomfort and wish to discuss them or seek help, we encourage you to either call a local counseling center, call the National Suicide Prevention Lifeline by dialing 9-8-8, or go to your nearest emergency room.

In the case that contact is made with us and your discomfort is related to a personal concern that arose through participation and you are contacting us because you are in distress, we will be happy to briefly discuss your experience at mdl@utexas.edu. If your distress endures, we can refer you to several supportive resources, depending on the specific nature of your concern.

If you consent and elect to continue with this screening survey, REDCap will automatically collect your IP address. We do not use this for data; it is only used for data security purposes. Your name and email address will be kept during the data collection phase by our study personnel for study support and tracking purposes only. It is possible, but very unlikely, that a breach of confidentiality could occur. We will minimize this risk by storing data securely, identifying data only with a numeric code, and only allowing research personnel to access the research. A limited number of research team members will have access to the final data during data collection. Identifying information will be stripped from the final dataset.

For our records and to be able to pay you for the assessments, we do need to verify your identity. During the tech onboarding call, we will ask you to hold up a photo ID to the camera so we can verify your name and date of birth. We only need to confirm your identity with our records, and will not record or photograph your ID.

The app (Therapeutic Mobile Game) collects your contact information (email address) and technical data. Your email is used by the app to provide you with a verification code to register, to send you notifications, and for technical support for the clinical study. We also use an online behavioral experiment platform, Gorilla, for conducting part of the study. Gorilla collects your email address to send you reminders to complete the weekly assessments.

The technical data is not itself personal data and is associated and affiliated with the contact information you provide (i.e. your email address). Technical data includes, for example, information about your app usage (e.g., when a Study App was first launched), app version and installation ID, device identifier, and technical data about your device, such as operating system and model. The non-personal technical information may be used for purposes including, but not limited to:

- To conduct and support the Study
- To develop therapeutic and health-related products, including improving the usability of the application

Arcade Therapeutics Inc. (previously WiseDTx) may share your information with companies who provide services for or on behalf of the Study App such as data storage or interpretation of de-identified analytical data. These companies are obligated to protect your information. Detailed information about the apps privacy policies can be found here:

https://arcadetherapeutics.com/legal/. Additionally, there may be tools used as part of this study that will collect specific digital data about participants' use of the app (i.e., when and how long the app was used, speed of reactions during gameplay in the app), such as those from Arcade Therapeutics Inc. (Wise Therapeutics, Inc.), the creator of the app. This data is crucial for monitoring participant TMG app use during the 30-Day Treatment Phase and will allow research assistants to identify participants who may need reminders to complete the four 12-minute TMG sessions per week to maintain study enrollment. This data will only be accessed by studyapproved research personnel.

To make the most of these valuable data resulting from your participation, we will make deidentified data available to the research community. In these cases, the data will contain no identifying information that could associate it with you, or with your participation in any study.

There are certain situations in which we may break confidentiality. If during the study we learn about child neglect, child or elder abuse, or that someone is a clear, serious, and direct harm to self or others, we may report the information to appropriate authorities, including the police, the Texas Department of Family and Protective Services (or relevant state agency if outside of Texas), and/or an emergency medical facility.

Texas Education Code, Chapter 51, Subchapters E-2 and E-3, requires reporting incidents of sexual assault, sexual harassment, dating violence, or stalking committed by or against a person who was a student enrolled at or an employee of UT Austin at the time of the incident. However, the researchers working on this study have been designated as confidential employees. This means that if we learn about any incidents of sexual assault, sexual harassment, dating violence, or stalking, we are only required to report the type of incident reported and the date we learn about the incident. We will not report any information that could identify you.

If it becomes necessary for the Institutional Review Board to review the study records, information that can be linked to you will be protected to the extent permitted by law. Your research records will not be released without your consent unless required by law or a court order. The data resulting from your participation may be made available to other researchers in the future for research purposes not detailed within this consent form. In these cases, the data will contain no identifying information that could associate it with you, or with your participation in any study

A description of this study will be available on http://www.ClinicalTrials.gov as required by U.S. law. This web site will not include information that can identify you. At most, the web site will include a summary of the results. You can search this web site at any time.

Compensation

___Please initial here to indicate you understand there is no compensation for completing this screening survey. The description of compensation below only applies to the study you are completing the screening survey for.

There is no compensation for using the app. Compensation is offered in the form of gift cards only for completing the weekly assessments and will depend on how participants engage with the

study. You will receive $5 for each weekly assessment you complete. However, you can receive additional bonuses for completing multiple assessments.

- At the end of the study, if you have completed 2 assessments total, you will receive a $5 bonus ($5 x 2 assessments = $10 + $5 bonus = $15).
- If you have completed 3 assessments total, you will receive a $10 bonus. ($5 x 3 assessments = $15 + $10 bonus = $25).
- If you complete four assessments, you will receive a $15 bonus. ($5 x 4 assessments = $20 + $25 bonus = $45).
- If you complete all five assessments, you will receive a $25 bonus. ($5 x 5 assessments = $25 + $25 bonus = $50).

Thus, the maximum amount someone can earn through the study is $50 ($5 x 5 assessments and a $25 bonus for completing all 5).

If you are an undergraduate student and want to receive course credit through the SONA 301 Research Pool, you will receive course credit instead of financial compensation. You will receive one hour of credit for each week you complete, and your course credit will be prorated for the amount of time you spend on the study. For instance, if you complete the study through week 4, you can earn 5 credit hours. If you only complete the baseline assessment, you will receive only 1 credit hour. If you do not want to complete the study, you may sign up for other studies or complete a research paper that involves a similar amount of time and effort to fulfill your class requirements. Discontinuing this study will have no bearing on your relationship with the University of Texas.

Participation or Withdrawal

Your participation in this study is voluntary. You may decline to answer any question and you have the right to withdraw from participation at any time. Withdrawal will not affect your relationship with The University of Texas in any way. If you do not want to participate either simply stop participating or contact a study coordinator at mdl@utexas.edu.

To ensure that we can test the efficacy of this intervention, we require that participants receive a minimum amount of training sessions in this study. If you miss 4 or more of the total 16 trainings, you will be withdrawn from the study. At this point, you will not be able to complete additional trainings or additional assessments for compensation.

Contacts

If you have any questions about the study or need to update your email address contact the researcher at (512) 232- 4750 or send an email to mdl@utexas.edu. This study has been reviewed by The University of Texas at Austin Institutional Review Board and the study number is **STUDY00003315.**

Questions about your rights as a research participant.
If you have questions about your rights or are dissatisfied at any time with any part of this study, you can contact, anonymously if you wish, the Institutional Review Board by phone at (512) 232-1543 or email at irb@austin.utexas.edu.

If you agree to participate, click "Yes" below.

Please type/sign your full name in the box below if you consent to participate in this study.

Thank you.

Please print a copy of this document for your records.

Consent to Participate in Online Research

Identification of Investigator and Purpose of Study
You are invited to participate in a research study, entitled "Evaluation of a Gamified Therapeutic Mobile App for Depression Symptoms." This consent form will help you choose whether or not to participate in the study. Feel free to ask if anything is not clear in this consent form.

The study is being conducted by Dr. Christopher Beevers through the Mood Disorders Laboratory at the University of Texas at Austin.

Preferred method of contact: mdl@utexas.edu
Institute for Mental Health Research
Department of Psychology
108 E Dean Keeton St
Austin, TX 78712
(512) 232-4750

Study Overview:

This research study is a randomized controlled trial testing the efficacy of a mental health app as a treatment for symptoms of depression. The app uses game-based training exercises designed to target key emotional and attentional patterns associated with depression. If you choose to participate, you will be randomly assigned to one of two versions of the app: a version that includes these training exercises at a high frequency and a version that includes them at a lower frequency. You will not know which version you are assigned to.

Your participation in the study will contribute to a better understanding of the cognitive mechanisms involved in depression, and how they might be impacted by a digital therapeutic app. You are free to contact the investigator at the above email address to discuss the study. You must be at least 18 years old to participate.

If you agree to participate, below is the overall time commitment of the study:

- At the beginning of the study, you will be asked to schedule a 15-minute tech onboarding Zoom call with a research assistant. They will verify your identity, walk you through downloading and registering the app, and troubleshoot any technology issues.
- Once daily, you will be sent a very brief (~5 question) survey to your phone to ask about your mood symptoms.

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Submission ID:STUDY00003315-MOD03
Date Approved:6/2/2023

- Four times a week, you will be asked to complete 1 session of game play on the app that will take approximately 14 minutes each. The study will last for 4 weeks (4 times per week x 4 weeks = 16 sessions of game play total).
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___ I confirm that I understand the maximum I can earn is $50

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___ Type your initials here to indicate you understand that if you miss 4 or more of the 16 trainings, you will be withdrawn from the study and will not be able to continue further, including completing additional assessments.

If you do not want to receive any more study reminders, you may email us at mdl@utexas.edu.

Contacts

If you have any questions about the study or need to update your email address contact the researcher at (512) 232- 4750 or send an email to mdl@utexas.edu. This study has been reviewed by The University of Texas at Austin Institutional Review Board and the study number is **STUDY00003315.**

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