

UC Berkeley School of Information

Master's Final Project 2015



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Abstract:

This paper details the procedures and results of the research carried out by Jung-Wei Chen and Molly Robison, on how students at university use technology to not only help mediate their stress, but to normalize the idea of mental health overall. Even now mental health is regarded with this stigma of something that is abnormal and should be looked down upon, when in reality it is just another part of one's overall health, just like your physical well-being. The project consisted of two phases: a research and information gathering phase and then a prototyping phase, where a working prototype of the proposed web app designed using the research results was built. The resulting prototype is meant to be a demonstration of what could be fully fleshed-out in the future, of a way to utilize technology in helping students be more aware of and manage their stress.

Introduction:

"I think mental health is important." "Yeah, we should be spending more time paying attention to our mental health." "People should take care of their mental health." All these quotes are common attitudes among the group of university students we interviewed, and yet equally common were responses of "I'm stressed by school work", "job-hunting is really stressful", or "I wish I wasn't so stressed out all the time." If we have a group of students who acknowledge that stress is a serious concern, and are in agreement that mental health is an important part of overall health, then why isn't this being addressed more openly? How is it that there are so many apps dedicated to individual aspects such as meditation, time management, and relaxation, yet it doesn't seem to be a visible or normal part of our routines? This is the question that we sought to answer and hopefully start to change with our project, "Appspirin". The name comes from the idea that taking care of your mental health

should not be complicated or scary--just as we take a simple aspirin when we have a headache, Appspirin is designed to make managing students' stress not a shameful or difficult ordeal, but rather a normal and easy thing one can do on a regular basis.

According to a study carried out in 2005 that studied help seeking behavior and mental health care among university students, while most students (95%) had health insurance available, only 32% (non-regular service users) knew where to go compared with 49% who regularly used such services (Daniel Eisenberg, et. al). Furthermore, the most common reason for not going or seeking other help was this conception that "stress is common/normal", with 51% students feeling that stress is normal, and should happen as a student (Eisenberg, et. al). There have been many studies and research attention focused on areas of depression and suicide--which are also very important aspects of mental health--but stress is just as important, and we believe it should be paid more attention. In a study published in the NASPA Journal in 2006, while depression/suicide is the top issue that both students and universities are aware of, anxiety is second, and yet there is still little research actually done to investigate this issue (Johanna Soet, Todd Sevig).

In our project, 'Appspirin', we hope to not only give better resources to help students mitigate stress, but just as importantly, to bring the topic itself into the forefront when discussing mental health; that stress and mental health in general shouldn't be something we pretend doesn't exist and is viewed as this giant unknown that brings up feelings of unease and shame. We believe that mental health is the same as physical health--two sides of the same coin, and both must be taken care of on equal levels in order to enjoy a healthy life.

Given our practical limitations on timeframe and team size as a two-member team, we are focusing our efforts on understanding this issue and bringing more awareness to it. To ensure that we can concentrate on this portion, we are going to be presenting a functional

prototype that demonstrates an example of how this app can be utilized eventually on a wider scale. To accomplish this, we split our time into half research, half practical work; the first stage involved gathering background information on just what already existed out there, and any literature that was already written on this subject. After we had an idea of what we were going for, we started to actually design out the system and then gather data through surveys and interviews, the results of which influenced the direction and design of our final product. Although we would like to eventually turn it into a full-fledged mobile app, as of now we are showcasing its functions as a mobile web app. To guide the design of this app (and its future iterations), this paper serves as both a documentation of our research process and its results, and how this issue of stress and mental health should hopefully be addressed going forward into the future.

Background Literature/Research:

While we were first brainstorming of what type of product we wanted to create, we were originally interested in looking onto “online CBT”—cognitive behavior therapy, which is a type of therapy that works to change the way someone thinks, and is more commonly being administered remotely, such as online rather than having to be an in-person visit. In addition, we were also interested in just the way technology is being used in the realm of mediating stress in general. We weren’t specifically just looking for treatments that are being used by practitioners or are deemed medical treatments, but just tasks that might seem run-of-the-mill or not necessarily related to mental health.

From our initial research, there is a sense that the idea of using technology to help with mental health issues like depression and stress is a promising new area—but, still very new and a bit early to lead to any conclusive results. However, there are many studies already being conducted in the effectiveness of new areas like online CBT in the UK, and

other countries. For instance, the British Journal of Psychology published two articles--one examining the pragmatic uses of online self-help resources and the other looking at the pros and cons of using online CBT. In fact, in the article *Pragmatic evaluation of computer-aided Self-Help for Anxiety and Depression*, not only were the patients satisfied on about the same level as seeing a therapist in person, but by using technology to ease the burden of patient-to-therapist ratio, the clinic was able to help more patients without any noticeable loss in effectiveness of treatment or satisfaction. (Isaac M. Marks, et. al) Furthermore, it can be much more cost-effective and have a wider reach, since the widespread use of computers and internet will only continue to rise in the future.

What is important to keep in mind, however, is that this paper in particular emphasized that this type of online CBT should not be seen as a replacement or substitute for an actual therapist; but rather, a 'clinician extender'; it can help those who are just simply looking for self-help resources much faster, and allow patients to be able to do exercises on their own (with guided help from the clinician) without having to always make an appointment or seeing the therapist each time (Marks, et. al). In fact, another paper published in the British Journal of Psychology points out that online CBT, while effective for those with mild to moderate depression, still need to be guided with the help of an actual therapist: the dropout rate for completion was very high without any sort of guidance (Gerhard Andersson, Pim Cuijpers). Therefore, it was important for us to keep in mind, and emphasize throughout our research and design process, that similarly, this app is not meant to be a replacement for an actual, in-person counselor--but rather a quick, easy tool/resource in helping to maintain and keep stress levels from getting too high in the first place.

As we started talking to other people about our ideas, and just branching out our research, we realized that one of the issues is this perceived stigma around seeking help and

about mental health in general. We then started looking for research on what prevents people from seeking help, and more specifically, people's perception on mental health. In this case, we tried to find research that looked more at young people/students, since this is our current target audience. While students are only a small segment of the overall population that needs help for mental health issues, there could be specific factors for specific groups--for instance, a study of cultural and practical barriers for help-seeking among Chinese Americans showed that the top barriers were actually practical reasons like cost, limited knowledge, language barrier, and less about cultural perceptions of mental health (Winnie W. Kung). With students especially, most studies showed that cost is not the main issue--possibly due to many university's policies on mandatory health insurance--many common themes of stress being 'normal' or the students feeling ashamed to admit that they needed--routinely came up in separate studies when looking into barriers for students receiving help (Jane L. Givens, Jennifer Tjia,).

Particularly it seemed amongst graduate students (and in this study, medical students), stress is seen as a 'normal' part of their education, and seeking help indicates a sign of weakness, as well as other forms of social stigma (Carolyn A Chew-Graham, et. al). Additionally, despite efforts made by universities to improve their services, another barrier is that many students simply do not have as much knowledge as they should when it comes to being informed about available services, both in what it actually consists of and where they can even go to find such information (Chew-Graham, et. al). This gap between available services and getting the outreach into the students is troubling, especially as there has been a reported rise in students who experience distress and are seeking help, with 28% incoming freshman stating that they are feeling overwhelmingly stressed, and 60% increase in students who go to seek mental health services (Martha Anne Kitzrow). Given that there is an increase

in demand for services, but that universities often have finite resources, we also envision our app being able to mitigate this bottleneck by helping students giving students information and tips that may not require multiple visits to the health center.

While many of the papers provided valuable data on the resources available, common barriers to seeking help and the attitudes with which perceive mental health, there hasn't been much literature on the effectiveness of these new technological solutions. Given that the Internet did not become widespread until only about 10 years ago, and has only been used for mental health treatment even more recently, many of the studies are quite narrow in scope--mostly used in treating depression, rather than other mental health conditions like stress, which is just as prevalent amongst students as depression, yet less attention seems to be paid to it. Much of the papers are only just for data-gathering, and giving us some conclusions about the results--be they on how effective certain programs are, or what prevents students from seeking help--but so far there isn't a clear cut solution or suggestion on how to improve this situation, especially with regards to stress and using technology as a mediator. We want to create something that can help students with smaller issues that may not necessarily need intervention by a therapist, as well as giving them resources that will point them in the right direction should they feel the need to see someone professionally; a supplement, not necessarily a replacement.

Methods (What We Did):

Although we had an initial idea of what our final product would end up being, and the general area we wanted to tackle, we weren't sure exactly what the contents of this product would be--an all around app with resources to mental health services at the university, an app that guided you through exercises to reduce anxiety and stress, or a combination of both. Since we knew that our initial audience would be students at UC Berkeley (and eventually,

applicable to students at all universities), we wanted to gain at least a base understanding of a) what students generally do to relieve stress, and if it involved any form of technology, b) what they thought about UC Berkeley's Tang Center (mental health services), and c) what they felt about hearing the term 'mental health' in general. Because this was in the early stages of information gathering, we wanted to cover all our bases and so included finding out about existing resources, in this case the university's Tang Center.

Initially, we sought out IRB approval because we knew that talking about mental health issues, even though we weren't going to be focusing on depression specifically, might trigger sensitive issues and feelings amongst the people we planned on interviewing. However, due to the time constraints and having to go through several revisions, we eventually decided that the time it took for us to wait for the approval wasn't going to be worth the wait, so we changed our methods to no longer need IRB approval--in this case, not collecting any identifying information or keeping any recordings (audio, video), instead taking notes by hand and keeping survey data entirely anonymous. We chose to use survey and interview methods, since the type of data we were interested in are more of people's thoughts and opinions, from both students and professionals who work in this field (clinicians, therapists, doctors). While we want our app to be eventually applicable to all students, we knew that would be a huge undertaking in trying to match up resources with every single available university, and so made the decision for the initial prototype to just focus on the UC Berkeley population. This is also due to the fact that, as students at UC Berkeley, it would ease the issue of finding potential interview candidates and usability testers, as we have access to mailing lists and other resources that would allow us to recruit people.

Research Findings:

In this section, we will be discussing the actual methods that were employed and what we learned from each type of research. The data we gathered from here is what informed us of what the students want/need, the design, and the content that our app should include.

Survey

To gain an understanding of what students already do to mitigate stress and their perspectives on mental health, we decided to start with a general survey that covered a wider range of topics: we wanted to know how they usually dealt with stress (with or without technology in any form), any specific sources of stress (school work, personal relationships, job hunting), and included a series of statements to see how they felt about seeking help for mental health and how they perceived mental health in general. Since we were interested in seeing what kinds of stigmas and barriers that people may have that prevent them from seeking help, we also had a free-response section at the end that just asked very generally, what they thought of off the top of their head when they hear the term ‘mental illness’.

Much of our initial background research pointed out that while students have access to help (services are available, they have the financial capability), one of the common reasons for not actually utilizing them is due to a fear or stigma of shame that they actually need it. For this reason, we wanted to dive deeper and see just exactly what causes this stigma. In addition, because we were still in the early stages of gathering information at this point, there were also a number of questions relating specifically to the survey takers’ knowledge and experience with the university’s health services (The Tang Center), although most of this data was later excluded from the final design choices, due to the fact that we ultimately decided to not focus on improving existing university services, but instead to incorporate into our app and make the information that they have more accessible.

By the end of the survey period, which was about two weeks (2/19 - 3/6), we had 89 responses, most of them students and in the graduate division. As we hypothesized, most people do use technology in some form as a way to cope with their stress--entertainment is the most popular form, with 81.2% followed by using technology as a way to schedule and prioritize their time at 67.1%. Apps for meditation and yoga or other forms of relaxation were surprisingly on the lower end, at 11.8%. This means that either most of the respondents don't prefer such activities for reducing stress, or they simply may not have thought to try them out before. Although there is no doubt that many people, including the survey takers, have forms of stress-reduction that do not involve technology (yoga, exercise), we do see from the data that, especially in our technology-rich world today, even if technology might be a source of stress, it is also something that allows us access to resources that help us to control it.

| For each of these statements, please indicate how much you agree or disagree with them. | | | | | | |
|--|----------------|-------|---------|----------|-------------------|----------------------|
| Answer Options | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree | Response Count |
| Therapy is only for mentally ill people. | 0 | 5 | 12 | 31 | 36 | 84 |
| It would be easy for me to call a therapist's office and make an appointment. | 6 | 30 | 16 | 24 | 8 | 84 |
| I wouldn't want other people to find out if I had been in therapy. | 12 | 35 | 19 | 15 | 3 | 84 |
| When I'm feeling stressed out, it's usually easy to work through whatever's bothering me. | 5 | 30 | 25 | 22 | 1 | 83 |
| When I'm stressed, I like to talk to other people about it. | 14 | 34 | 17 | 17 | 2 | 84 |
| When I'm stressed, I want to distract myself from whatever's stressing me out. | 13 | 52 | 9 | 7 | 2 | 83 |
| Therapy wouldn't be something to get stressed out over. | 12 | 36 | 19 | 15 | 1 | 83 |
| I prefer to talk about my problems to people who know me well, as opposed to strangers or acquaintances. | 22 | 38 | 18 | 5 | 0 | 83 |
| I like talking about my feelings and experiences online (like through forums, Facebook, Tumblr, Twitter, etc). | 2 | 6 | 5 | 27 | 44 | 84 |
| | | | | | | answered question 84 |
| | | | | | | skipped question 3 |

Survey results for respondent's thoughts on various facets of mental health.

Many of the activities that people responded with did not necessarily involve the conventional imagery of yoga mats, meditation chants and soothing candles--in fact, those types of activities and apps actually ranked second-to-lowest in terms of response. Using technology for entertainment, like watching videos or movies, gaming, and chatting with friends on social media ranked high among the responses, along with using technology as a tool to help manage time and tasks. It seems, that technology is often used as a supporting

factor that might help to distract or prevent stress in the first place, instead of having ‘stress reduction’ as the main point; watching a funny video, or browsing a blog can help to distract the feelings that come from stress, or being able to parcel out your time and think through your tasks and prevent yourself from becoming too stressed in the first place. The results from this survey have led us to make sure to incorporate perhaps some non-traditional strategies into the app--to clarify, by this we mean that not only are we including more conventional methods like yoga and meditation, but other activities that students personally find helpful.

In the section that asked for respondent’s opinions and thoughts on mental health and seeking help, the majority of the students seem to have a fairly positive, or at least neutral view when it comes to the topic of seeking help and mental health in general. When asked statements such as “therapy is only for mentally ill people”, the majority of respondents (72%) answered with ‘strongly disagree’ or ‘disagree’, showing that the topic of seeing a therapist is no longer a considered a taboo or negative thing to participate in. The free responses held similar sentiments; when asked how they would feel if they learned someone close to them had been to therapy, most responses were mostly supportive--“I would think it’s great he is getting the help he needs”, “I would be concerned, yet glad they were brave enough to reach out for help,” or otherwise indifferent, in the sense that it’s not something worth making a fuss over: “No big deal. We all have problems that a professional can help us with.”, “Wouldn’t be phased. I know a lot of people in therapy (myself included).”, “i would not particularly care”.

Yet, conversely, when asked about whether or not they would seek help, and how they would feel, a higher percentage of people responded that they would not want others to know that they had been through therapy, with 55% saying ‘strongly agree’ or ‘agree’ to the statement “I wouldn’t want others to know that I had therapy”. This is an interesting contrast from their earlier sentiments that therapy should not be considered a big deal and that

anybody who wants to should be able to see a therapist about any issue. Even though our concept of going to therapy, and having mental health concerns like depression is something that comes up more often in everyday life, there is still this stigma attached of letting others know that you needed help, or experienced this.

Man-On-The-Street Interviews

We wanted to get a broader understand of what the students of UC Berkeley felt about mental health and the services that were offered by the Tang Center, and not just those who volunteered to answer our survey on the email lists. Therefore, in order to gain an adequate number of responses within a short amount of time, we decided to try the man-on-the-street approach. Due to the spontaneity of this method, we only chose to ask three questions, which would be very simple and give us a broad overview of what the general student population thought on these topics. For demographics, and just to make sure we were getting a fair variety among the student population, we simply asked them for their year--no names or any other identifiable information was recorded. Since this information was gathered before we started finalizing our product design, the there was more focus on the Tang Center's existing resources and whether or not students actually took advantage of them. The questions (aside from what year they were in) we were interested in were: 'What do you think goes on in therapy?' and 'If you decided to make an appointment with a therapist, how would you figure out where to go?' We were able to survey 35 students in roughly 1 hour, just by walking around UC Berkeley's Sproul Plaza and asking passing students if they'd be willing to answer some very short questions in exchange for a cookie.

While the Tang Center accessibility wasn't a feature we ended up focusing on, we still kept in mind that most people we asked were aware of what they offered--although many didn't know much about the exact details of what they would do after going to the Tang

Center. The question of what they thought happened in therapy was to help us try and understand if lack of knowledge about the process itself was a barrier to getting help--too often, our first and most prevalent imagery when talking about counseling or therapy help is (as the respondents answered) "lying on a couch and talking to someone about your problems". This stereotype carries with it the unfortunately-common mass media portrayal of the session usually not being very helpful; perhaps this is why the reasoning that "therapy will not help" or "lack of faith in mental health services" is among the most common reasons why students don't seek help (Givens, Tija).

| What's your year in school? | What do you think goes on in therapy? (mental type, not like physical therapy) | If you decided to make an appointment with a therapist, how would you figure out where to go? |
|-----------------------------|--|---|
| second | they just kind of ask you what you're feeling figure ou | tang center |
| junior | the specialist, and they'd be lsitening to the person w. | tang center |
| first year | talk things through, talk about past traumas/experien | tang center |
| freshman | talking, | google first |
| junor | talk about feelings, what's on your mind, relieve stree | google or ask around |
| freshman | ask questions, talk about feelings, try to understand | tang center |
| freshman | therapist talk to patients and see how they react/talk | tang center |
| 4th year | patient tries to understand what's going on with them | tang center, but don't know how easy it is to get an appt, so |
| sophomore | listening to what the patient has to say | tang center |
| freshman | therapist will ask to tell my story and help find solutio | tang center |
| 5th year | a lot of talking for the person who's coming in, a lot o | ask RA, then CPS /tang center..... |
| 1st year | guessing ask a couple questions, see what's going o | through tang |

Results table for man-on-the-street interviews.

The responses we got were helpful in letting us gain a better understanding of what people typically think of when discussing the issue of counseling; even though most of the responses were not particularly negative, there was clear message that, beyond just the very, surface basics of what we're presented with in everyday media. Most people knew that it involved talking, and maybe talking a lot, but beyond that, there was quite a bit of confusion as to whether the therapist was supposed to give you answers, or help you with solutions, or even just listen to you. After looking at the data we gathered, we decided that in order to help

de-mystify this process of seeking help and just giving people more information, to include a section that described, in easy-to-understand language, what actually happens in counseling/therapy, in order to hopefully dispel some of the misunderstandings. This is also recommended by the study on seeking help and access for mental health services among university students:

[E]ducational and awareness campaigns may be especially effective for reducing unmet needs for mental health services, because factors related to knowledge and beliefs were strongly associated with perceived need and service use and were also commonly reported as reasons for not using services. (Eisenberg, et. al)

Interviews

We conducted two types of interviews: one with students in order to gain a better understanding of what our target audience does in terms of dealing with stress, and also expert interviews, to learn about this issue of technology and stress mediation from a professional perspective and see if there are currently any advances or research in this particular area. The students were volunteers we recruited through sending out emails on UC Berkeley's email lists, asking for people who were willing to share their thoughts and experiences of dealing with and managing stress as a student. Each person who volunteered was assured that none of their personal information, or anything that could be used to identify them would be used (they are simply labeled as "Person 1, Person 2, etc.) and after this project is over, all the notes we took will be deleted from our computers and the cloud. All volunteers were also notified that they could stop the interview at any time, and they only had to share as much information as they felt comfortable.

Each interview took approximately half an hour, and the participants were asked questions on their thoughts about mental health overall, as well as how they usually managed their stress. Usually both team members were at the meeting, one to help guide and ask the questions ,and the other person took notes; however, we made sure that both team members

had a chance to ask for clarifications and make sure we were getting the information we needed. To ensure privacy for both our volunteers and our results, the interviews were conducted in a privately reserved room to make sure we would not be overheard or interrupted. At the end of each interview, they were given a cookie as thanks for their time and giving their thoughts and opinions on a potentially sensitive subject.

Interestingly, most of the students we talked to were actually quite open in admitting that mental health is something that we should all pay more attention to, and just as important in maintaining as physical health. Even so, this would not really be an issue that they would just talk about openly in a public scenario, or with someone they weren't very familiar with. Many of them associated the term 'mental health' with the more widely-broadcasted illnesses of depression, schizophrenia, amongst other more serious disorders. However, there is also a noticeable distinction between an actual serious condition and mental health as simply being a state of your mind--"nothing negative just like health of your mind" (Person 1), "ability to keep consistent with yourself...have a sense of yourself" (Person 3). Perhaps it was because the interviewees were aware of our topic being stress, they knew we weren't looking at conditions like depression or bipolar disorder; but we can say that at least with this population of graduate students, mental health is not a topic that immediately invites imagery and comparisons to an insane asylum, or is a topic that we cannot talk about in a candid manner.

Everybody who was interviewed agreed and some even stressed that it is an important aspect of our overall health, on par with taking care of our physical self: "Oh yeah, on par with physical health. Very linked - physical health issues affect mental health"; for instance, when you're sick in bed, you're likely to feel more depressed. (Person 2) Others wished that there were more people who talked about mental health as opening as physical health; that the two could be more 'linked', since we have such an established culture of being able to discuss our

health problems more openly, but not so much mental health. Even within the medical system, sometimes it feels like the two are isolated from one another when in reality the two are more often than not linked very closely (Person 3). Again, there is the factor to keep in mind that the interviewees were aware of our topic of research and may perhaps have answered a little more strongly or positively when asked on their opinions of mental health and its importance. Many interviewees also expressed their opinion on how mental health issues overall seem to have lost a portion of the stigma that they used to carry just even a few years ago, and that that it's a part of ourselves that we should start paying more attention to. (Person 7).

We were also very interested in what people usually did to de-stress; although our end product goal is a mobile app, there are many ways that activities that don't exclusively use technology can be incorporated--not just through the typical meditation and yoga apps, but even a daily reminder using a phone to notify you that maybe you would like a walk--could be effective in getting people to try methods they hadn't thought of before. While all the students we interviewed mentioned that they used technology, only a two mentioned that they actively had tried using specific mediation apps/apps geared towards stress relief (Person 4, Person 8). However, most respondents said that while they wouldn't discount meditation's effectiveness, most of them either were not interested in this particular method (Person 9), or had tried it before and did not find it very helpful (Person 5). There were also people who had heard of it, but hadn't tried it before, either due to not knowing how or else just not having any reason to do so (Person 2). Many answered that instead of actively seeking ways that target stress particularly, most did other tasks that reduced the stress, but perhaps not in an obvious way. As with the results of the survey, most people liked to use technology for entertainment, such as watching videos or browsing online social media, which offered a distraction from

thinking about things that were bothering them and helped them to relax and enjoy something else for a change.

Many people also mentioned that much of their stress (likely because of being students) came from managing their time--school work, job hunting, outside commitments--lead them to also try to manage this particular source of stress with time/task management tools. Not everybody used fancy apps or tools, but even just writing down to-do lists and visually seeing what they had to do, and what they did do, helped to give them a better perspective on where they were and therefore actually helped them feel less stressed. Another method that commonly stood out was simply just talking to someone--be it someone they knew well and trusted such as family and close friends, or seeking professional help from a therapist, counselor, or spiritual leader; many times, the students repeated that simply talking out their issues with someone made it seem less severe than it actually was, and they felt better afterwards.

The expert interviews were a little more difficult to obtain, as we had to figure out which connections we could use first. Molly volunteered to ask her therapist if there was someone whom we could talk to, and not be at risk of breaking confidentiality or patient privacy. We were referred to another practitioner that we were able to get in contact with, and was willing to work with us and answer any questions we had in this area. We were also able to get in touch with another professor from Michigan State University who is doing research in this area of specifically using apps to help people relax and improve their mental state, Dr. Carrie Heeter. Due to the distance and scheduling, the expert interviews were conducted remotely via Google Hangouts; these interviews were a bit longer than the student ones (about one hour) due to the fact that we were more interested in finding out what was

happening in the field of mental health at the moment, and specifically if technology was increasingly being utilized as a viable solution.

Our first interview was with Dr. Heeter, who specifically researched into the area she called ‘cybermeditation’, which focused on using technology to mediate, as well as technology that supported meditation. Her research was mostly on meditation, but she also provided very valuable feedback and insight into the area of mental wellness overall, and the importance of using various strategies, not just meditation, to help achieve and maintain that healthy state. It was through discussing with her that we really began to think about and cement on the idea of ‘normalizing’ mental health, and to start thinking about it as a parallel with physical health and not just an abnormal part that we tack on:

If you’re feeling poorly you take a pill, stay home, take a nap, go to a doctor, and that’s normal. But we don’t think about mental health in the same way [as physical health]: there’s crazy people and the rest of us. Like, not everyone has mental health but everyone has physical health, but people can answer how stressed they are. (Dr. Carrie Heeter)

This idea of trying to bring mental health onto the same level as physical health was what helped us to narrow down our final scope, in addition to simply discussing back and forth what exactly mental health means to most people, versus what is actually is. We constantly kept going back to this idea of how mental health should not have these negative associations about being ill or abnormal when it comes to keeping ourselves mentally healthy; instead of thinking it as something that only appears when something bad happens, think of it like a scale, or level of tolerance. We all have different levels of what we’re able to deal with mentally before we reach that tipping point, and so it might be helpful for people to realize that they have this system of levels, and provide them with tools to help go back down to a manageable level (Dr. Heeter). It was when we were discussing this idea of scales, and levels, when Dr. Heeter mentioned that it could literally be like a thermometer--a range where

we can comfortably deal with stress, before we might start needed some tools to reduce it. It was this idea that lead us to decide on the center of our app being measuring and tracking a person's stress levels, much like the thermometer analogy that she had mentioned.

We also knew that it would be more effective to center our focus around this aspect of tracking and being aware of your stress, with the larger sphere of de-stigmatizing mental health in general--because a large reason of why the resources that UC Berkeley offers or why people feel they should just deal with it by themselves, instead of feeling that it's okay to seek assistance or acknowledge that things might be rough at times. In helping with this area, Dr. Heeter gave some practical tips on how to lower this barrier and change people's perceptions--vocabulary was key, especially with terms like 'well-being' being seen as a luxury, while terms like 'counseling', 'treatment' tend to have negative connotations; similarly, 'seeking help' sounds very serious, like you are going to make a confession, confessing that you're sick--which is very different than simply going out and buying some aspirin. We want to focus on the idea of not bringing you back to 'normal', but helping people go beyond normal, that you can never be too mentally healthy (Dr. Heeter). The key points from this conversation was our 'turning point', which lead us to immediately narrow down our scope to our current prototype and really help us move forward with designing around this concept of 'mental health care should be as simple and easy as taking an aspirin.'

After talking to a researcher in the field of using technology for mental health, our second expert interview was with a clinical therapist who directly helped patients with mental health issues, including stress. For this interview, we were interested in hearing from his perspective of increased usage of technology in this area (if any), and practical recommendations for how to make our project as effective as it could be. One key point that came up was the proliferation of technology--it's everywhere, and oftentimes it can actually

act as our source of stress--the need to constantly be connected, to check our mail, our messages, etc. However, even though some patients may leave their phone off or outside, they don't see the technology itself as the problem--but rather that it's a medium for something else, say a problem at work that came through on a call. Technology can also act as a transitional object, something that comforts people to have, and in that manner it can be something to help people deal with their stress as well. (Dr. Romi Mann)

Much of this interview also focused on more general areas of mental health, such as how people who might not have all their base needs met might not be able to focus as well on maintaining their mental state, so an app that helps with stress is not even be what they need at that moment. An important point that we tried to incorporate was how people tend to respond better to subjective units, say rating their distress on a scale of 1 to 10. (Dr. Mann) We also made sure that suggesting strategies would be incorporated into a large part of the app, in the sense of distancing people from their negative thoughts and feelings with some other activity that may help to lessen those feelings, like reading book or taking a walk. All these factors were aspects that we kept in mind and tried to design into the first mockup wireframe of our prototype.

Key Findings:

During our background research phase, we focused on barriers that prevented people--specifically students--from seeking help for mental health; some of the top reasons listed included lack of knowledge of resources, but more importantly, the on-going stigma associated with mental health. We wanted to see if students at UC Berkeley carried the same feelings that mental health was something abnormal and wrong, and thus why they don't make as much of an effort to pay attention to or treat it. However, to our surprise, most of the people we interviewed, as well as the earlier survey results, showed a largely positive reaction

to just the idea of mental health in general; many interviewees agreed that it's something important and should be paid attention to, some even had personal experiences (their own self, a family member) that caused them to re-think mental health and see it as a positive aspect of their lives.

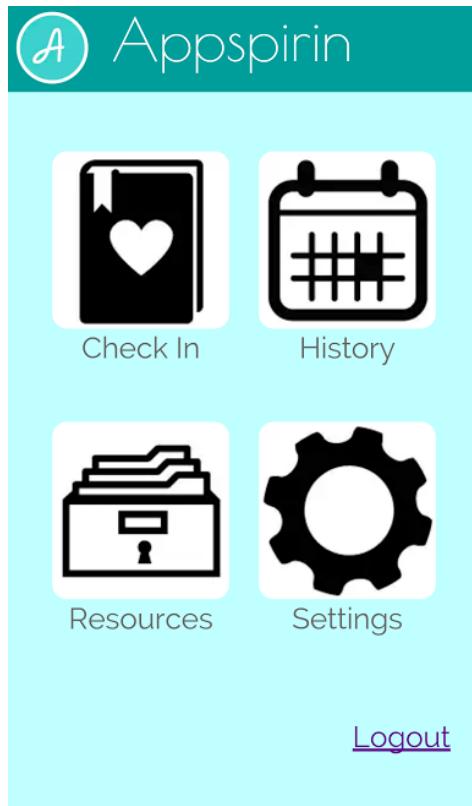
However, a positive outlook about the concept doesn't necessarily translate into direct course of action. Although we didn't question the interviewees specifically on whether or not they would consider talking to a counselor, survey results on whether or not people were comfortable sharing the fact that they (hypothetically) saw a counselor was less-positively received than the idea of seeing counseling overall. Even in the interviews, some interviewees did express a reluctance in trying common treatments--things like medication tended to bring up a negative image of potential addiction/reliance on it (Person 1), or hesitence to try new strategies that they'd never done before: "I can't get out of my head enough to do that. I see [meditation] as a valuable tool, but I don't think my mental state is appropriate for it." (Person 2) Many interviewees often commonly mentioned trying to just 'power through' their stress, that if they try hard enough they will overcome it, rather than relying on outside sources.

These behaviors are also similar to the ones found in a study conducted in 2009 studying reasons and barriers to seeking help for mental health; the stigma attached, and the perceived embarrassment by one's own self, emerged as the top barrier. In addition, many of the respondents also put "self-reliance", that is the concept of just 'getting over it' by themselves as a top reason for not seeking outside help (Amelia Gulliver, et. al). Additionally, in a study on effects of self-stigma and perceived stigma, it was found that one's own perceived stigma--that is, seeing it as a sign of personal weakness or negative aspect--was a stronger barrier than an outsider's potential negative reaction. (L.J. Barney, et. al) This might

explain why even though most of the respondents would not stigmatize a friend for seeking help, they themselves would be reluctant to try it themselves or let others know.

The Features We Designed:

Taking into account all of the research data and answers from the survey and interviews, we started to draft out the actual design of the product. From the start, we knew that, given the limitations of being a two-woman team and also the time constraints, that it would be unrealistic to aim for a fully-developed, web-store ready app; instead we aimed for creating a very high-fidelity prototype that would function and look very close to our idea of the final product, had we been able to have more time and resources. We called our app "Appspirin" to give users a sense that checking up and taking care of your mental health, specifically stress, should be as easy as taking an aspirin when you have a headache. We designed this app in a way to make it as approachable and friendly as possible, in order to help break down the preconceived notions of mental health being this dark, serious thing that requires locked rooms and medications given by doctors in white lab coats. The goal here isn't so much to 'succeed' or have an end goal, but rather to be there as a tool to maintain a healthy mental state. In this sense, if a user can see their stress decreasing, or no longer hitting high levels over a period of time, it can be considered a successful use of the app.



The main screen of Appspirin.

Feature: Tracking and Managing Your Stress

Based off our conversation with Dr. Heeter, we wanted to focus our app away from improving the existing Tang Center resources and onto allowing the user to personally track and manage their stress. The basic idea was first some sort of scale, similar to the thermometer analogy that was brought up. Since we wanted the overall aesthetic to feel friendly and welcoming, we went with visual representations of mood/stress, along with numbers (at first). The main point here was to be able to allow users to input what they were feeling at the time, so they could start perhaps seeing trends in stress over a period of time. With this flow, we envisioned that the app would send a notification reminder to the user, and when the user logged into the app, they would 'check in' and log their stress level at the time. Afterwards, depending on the level--high or low--as well as frequency (based on successive

check-ins), we'd recommend stress-reduction strategies: lower stress levels will bring up different strategies versus higher levels. In addition, if a user is detected as having several days of high-stress in a row, instead of suggesting from the usual list of strategies, there will be a separate pop-up that asks the user if they'd like to seek professional help instead. After choosing a strategy suggested from the list (e.g. meditation, yoga exercise, taking a walk), the user is asked again if it helped or not--this way, the app can keep track of which strategies certain users prefer, and can adjust the suggestions accordingly.

The check in screen, which uses facial expression to determine stress levels. Afterwards, a list of strategies are recommended.

Check In

De-Stress

Meditate

Take a walk

Talk to someone

Thought distancing

Listen to a guided meditation to help focus yourself.

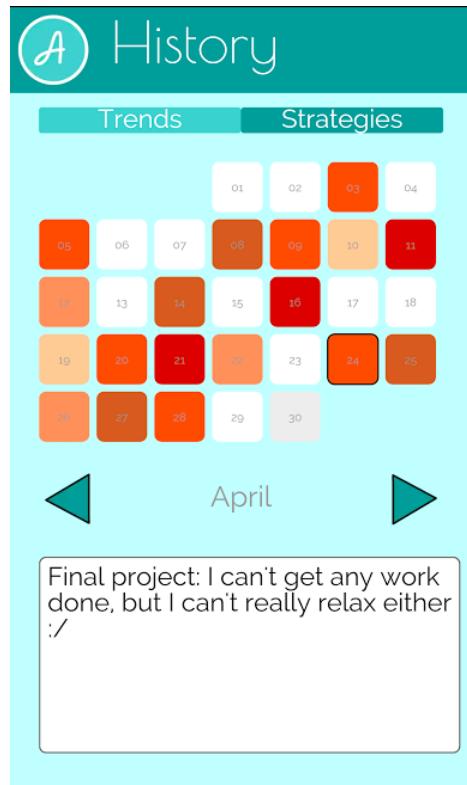
Continue

The main ideas here are to encourage the user to keep track of and be aware of their own mental state; especially with the student population, stress is a big part of it, yet many either are not aware of being affected negatively by it or else think it's normal and attempt to ignore and "power through" it. By having something like an app remind users to check in, even just the act of being reminded that you have this concept of mental health, and that it's

important to pay attention to, we hope can help to break down this idea of having to hide our mental health issues and that it's something abnormal. Furthermore, many ideas that have gained traction--such as yoga, meditation--can be extremely effective, but some people may not have thought of to give it a try. It was also important to us to record the before and after effects of trying strategies--to help the give the users an actual sense that, doing such activities can help and can in fact, be quite simple to do.

Feature: History

Following the idea of maintaining one's own mental health, we knew we wanted to implement a feature that allowed users to see their status and activities as time went by, after they start using the app. The tracking feature is also necessary for us to track on the backend which strategies were used when, and how effective they are. We started with an idea that it could simply be a graph, showing how users felt on the days they checked in, along with a description of how they felt that particular day--for instance, if a user checked and noticed that on Wednesday there was a particularly low point, they can click on that individual date and see that they had a lot of homework, which would explain why they were more stressed out than usual.



The History screen, which indicates stress levels with varying shades of red.

The first design of the history was simply a graph, showing one week's worth of check-ins at a time. Users had the ability to change the month shown, as well as checking on individual dates. However, after doing some usability tests, the final design was changed to a calendar view, with each of the dates colored in, the shade indicating the stress level (red is very stressed, pink is medium, and white is no stress). The effectiveness of strategies that have been tried is also on this page, as we felt that the 'History' section should encompass both the user's personal levels of stress as well as the show the strategies they've done. The strategies are shown based on success rate--that is, effective they have been, which is calculated based on how many times the strategy has been done and how the user subsequently felt. The user can toggle back and forth between seeing their stress levels and the strategies.

Feature: Resources

Even though we decided to move away from the initial focus of improving upon the Tang Center's resources that were already available, we didn't want to drop it completely--even though the website is hard to navigate and pretty convoluted, the actual information they have, particularly the tips and resources are very valuable and we wanted to take advantage of giving it a wider reach. That, and since many students mentioned in our survey and man-on-the-street interviews that although they knew they should go to the Tang Center to start, they weren't sure of the actual process--such as making an appointment, finding out which counselors and other resources are available. This was another section that we wanted to bring to light, by linking the most important information--hotline numbers, appointment numbers, phone numbers for resources provided by the Tang Center--into one place so that users didn't have to go all over the place hunting just for that one piece of information. This also draws back to our original idea of creating a central hub of resources and information for students--only in the final version, it would be condensed into one section of the app.

Since we wanted the resources section to be fairly straightforward, the resources were listed out with icons next to each one--phone numbers for the Tang Center, Chatting with a Counselor, Tips for Time Management, Tips for Managing Stress, and How Counseling at Tang Works. The phone numbers consist of the general contact number, as well as important hotline numbers--listed out and will automatically move to dial should a user click on them. Since this is mostly an information resource section, we wanted it to be presented in a mostly static, non-complicated way--it's meant to be a place where a user can look up information at their leisure, or if they want to seek professional help. Chatting with a Counselor is the only

section where there is direct interactivity--if the option is clicked, the user will be asked if they wish to be connected to a counselor and chat in real-time with them, similar to texting or IM. The content of the tips for managing time and stress is an amalgamation of the information that the Tang Center already provides--but in our app, it's a lot easier to access and students don't need to go through a convoluted search engine or tons of menus to look up something that should be easily accessible and more importantly, be used! The Tang Center actually has some really good advice, but because the current website is so hard to use, it's often overlooked. We hope that by bringing it in a format that's much more easily accessible, the research and effort that the Tang Center has gone through to put it together in the first place will be put to good use.

Feature: Settings and Editing Strategies

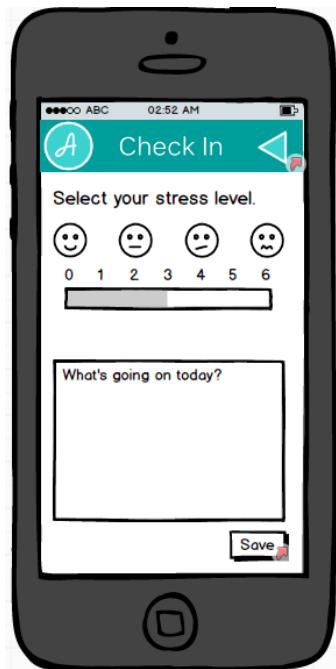
Since the beginning, we knew that designing the app to be highly customizable was going to be a key factor in having this app reach as much of the student population as possible; stress levels mean different things to different people, for example a stress of "3" may be like a "5" for someone else. We wanted to be able to have users enter customizable levels of description and scores for their stress levels, however, this feature will have to be something that's added into future iterations, as this current prototype just has the default settings of stress levels. The customization is also a very important part of the strategies section; although the app comes with pre-loaded ones, chosen from popular activities that help to reduce stress, many people on the surveys and interviews listed other activities that are effective and specific to them; even if such strategies may apply to everyone, different people have different methods.

We implemented two sections for the settings--one to edit notifications, and one to edit the strategies. The notification is to set how often and when you get notifications from the

app--initially we had users choose just days on a calendar, but after initial usability tests, some users said it would be difficult to repeat if they had to manually select all the Mondays of a month, so we changed it to being able to set on certain days of the week, as well as choose what time of day a notification should be sent (morning or evening). This way, users can choose to turn on notifications if they see a stressful period coming up (e.g. midterms or finals) and turn it off if they feel that the notifications are getting to be too frequent. Editing strategies is where users will be able to see all the strategies, both the default and custom-entered ones. They can also choose to add in their own strategy, which allows them to enter a title and description, and if applicable, set a time limit for the activity. Users are also able to select and delete strategies, both custom and default, if they feel that there are certains ones that they do not like or do not work. In the future, we hope to be able to add in more customization, such as adding in personal icons or pictures, and the ability to custom-edit the default strategies as well.

Usability Tests

After we discussed the initial design, we came together to go through with a very quick design sprint; due to time restraints, we weren't able to do a full one-week sprint, but instead employed rapid iterative testing and evaluation because of our limited team size and time. We sent out an email on the mailing lists to ask for volunteers who would be willing to take about half an hour to go through some simple tasks and flows, using a balsamiq mockup. Although we were programming the actual web app at this time, because the build wasn't stable yet, we wanted to avoid any potential issues that might arise from technological problems, so we decided to use the wireframes instead. The original design consists of a log-in/registration screen, since users will need to create an account in order for the app to start track their stress levels and learn which strategies to recommend over time.



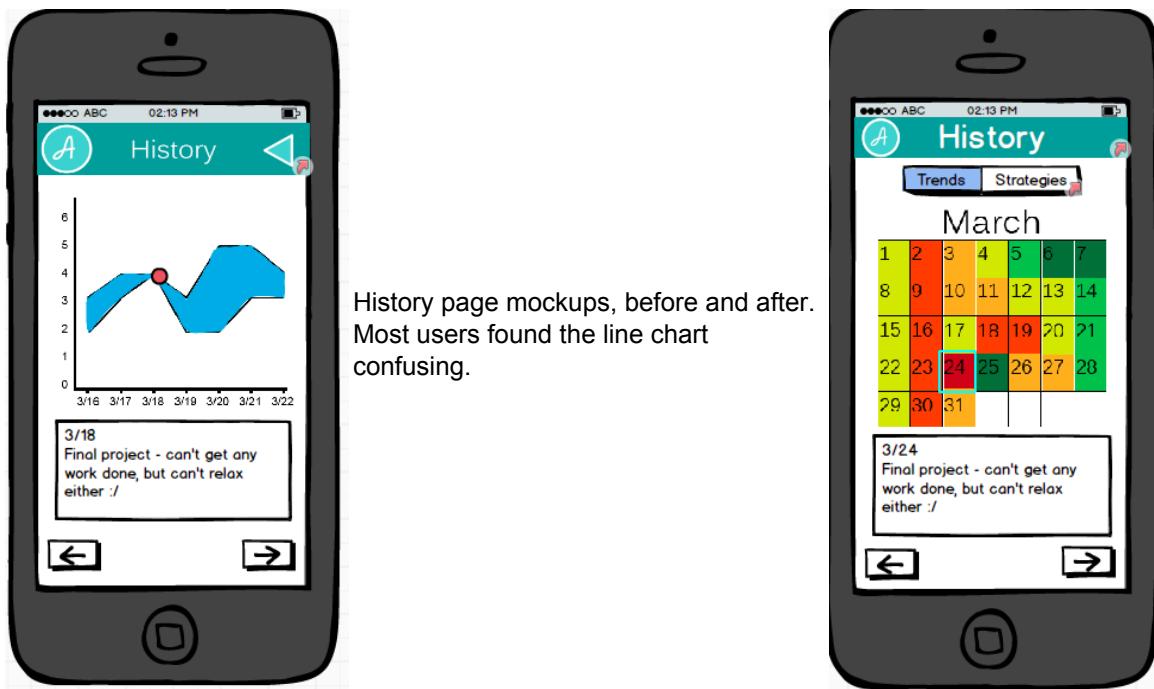
The balsamiq versions of the check-in page, followed by a recommended strategy. This shows an early version of the check in, which had a numbered scale.



For the first balsamiq mockup, the ‘choosing your stress level’ page had facial emoticons to represent visually what a user was feeling, along with a number scale at the bottom, in order to give a more quantitative factor. In addition, we also came up with the idea of having a small text-box to users to enter how they were feeling at the moment--similar to how some users like to write in a diary or journal about their feelings. In the first few rounds of testing, many users expressed positive reactions to seeing the facial expressions--they found them amusing and easier to identify with--but felt that it didn’t quite match up the number scale, which went from 0 - 6 although there were only 4 expressions. After hearing nearly all the testers on the first day say this, we decided to eliminate the number entirely and instead replace them all with just the visual emoticons instead. Another issue we spotted early on in this first wireframe was the fact that when we asked users if the strategy was helpful, the vocabulary of the sentence, “did this strategy help?” caused some users to feel pressured and/or lead, that they should be responding ‘yes’ even if it didn’t help. This was where we

noted that the language and vocabulary choice that we used here would be extremely important, since our goal is to make users feel as non-pressured as we can.

Another area that generated a lot of confusion, especially in the initial wireframe testing rounds, was the history page. We originally thought of using just a simple line graph, to show users over a week their stress levels and how high they were by filling in the area below the line to indicate whether or not they had checked in for that day. However, it turned out that many users were very confused as to what exactly the line, and specifically the shaded area under the line meant; they knew that it was some way to track how their stress levels were, but most couldn't figure out the significance, or else found it too difficult to decipher (usability tests). We also wanted to track the history of effectiveness of strategies, but the first iteration only showed how many times a strategy was tried with how many times it was effective. Some users didn't feel that it was necessary, while others wondered if there was a better way to show instead of using fractions.



Because of our time limit, we employed RITE (rapid, iterative testing and evaluation), meaning that after each day's worth of usability tests, we made the changes immediately afterwards, especially if it was an issue that was brought up by more than one person. Then the next testing day/cycle would have the changes, and we would continue iterating each day, over the course of one week. We took notes during the usability tests, and encouraged the users to think out loud so we could understand their thoughts. One thing that the users all liked was the ability to choose add their own strategies, aside from the default ones that were already provided. People also found the resources to be helpful, however some expressed confusion about the order of the placement--such as, it might've been more useful to group together Tang Center hotlines, phone numbers, and then move onto tips and more static resources.

We had graduate students test the wireframe over one week, making immediate iterations after each day. However, we also knew that constant iterations would not complete the product in the long run, especially if we were spending time each day to test and ask people questions, so after a week, we aside one week where we would not do any testing, and instead do an entire design based on all the data we'd gathered from the usability test, and then test again with this entirely-new iteration.

After a week of just developing the new one, we came up with a web-based app prototype that would serve as our final prototype, after the final round of usability testing. The final version is a web-based app, built with angular.js, with Javascript and json. Since we had planned to just build a prototype, and this would serve also as our second and final round of usability testing, we implemented test account data to simulate the feeling of a user being logged into and having an actual account with Appspirin. We took the suggestions, especially feedback from the check-in flow and the history section and changed those two sections the

most. In the check-in phase, we replaced the numbers entirely with face emoticons, since most of the testers either resonated fairly strong, or they found the facial expressions to be an amusing and effective way of measuring stress levels. We also changed the language of the post-strategy check-in to just being straightforward and asking, ‘did this strategy help you feel better?’ Even though we were wary of potentially leading questions, we also decided ultimately that being simple and to-the-point was what we wanted, because the key piece of data we needed was to figure out which strategies work for the specific user.

The history also changed radically; we decided to abandon the graph entirely and use a calendar with a heatmap, with the days that had higher stress being darker red, and low-stress days being light pink. We felt that this more visual representation of the actual month would look like, and colors would grab the user’s attention more easily. The strategies were changed to a percentage, to better show at a first glance which ones were working instead of using a fraction.

We recruited volunteers for the second round of usability testing by also sending out emails on the email list, but also, we wanted to hear the opinions of those who had tested the earlier prototype to see their thoughts on the changes, since they had seen the first iteration and pointed out some areas they felt were confusing. We also made an effort to include undergraduates in this round, because our product is aimed at students at UC Berkeley and we want to try and get a variety, since stressors and strategies could differ between graduates and undergraduates. Again, we asked the tester to go through a simple series of tasks involving checking in and selecting a strategy, and then checking their overall history for the month. Many users liked the new check-in flow with the faces, although about half the users also expressed confusion about what exactly each face represented in terms of actual level; many said that it was difficult to tell the difference between the third and fourth faces (usability

tests). However, they no longer felt that the check-in after the activity was leading or felt pressured to answer correctly, and overall felt that the flow made sense.

The calendar view for history received largely positive feedback, as many users knew quickly what it was representing, and what the colors stood for. There was some confusion as to whether or not the individual dates could be clicked (they can), but liked that it would show them the notes they typed that day if they wished to view what happened in the past. There was a bit of ambiguity as to whether the arrows next to the months changed the month or the date, but most users seemed to accept as a standard calendar function. One issue we ran into a lot was switching the tabs between the strategies and trends, however; a lot of users couldn't tell which section was highlighted due to the color overlays, and thought they were viewing one tab when it turned they were viewing the other.

The resources and settings were also changed up a little in this iteration, although less so because most users understood them in the original mockup and felt that having it be simple and straightforward was a good way for users to understand their functions. Most testers felt that keeping the resources information as just information they can access and read on their own to be a useful thing, since often times the Tang Center's website was just too difficult to navigate and it was useful to have similar types of information all in one place. Users also liked the ability to choose certain days to be reminded to check in, as well as the time of day--morning or evening. Some expressed interested in potentially being able to check-in more than once a day, or even customize the time of check-in, but mostly found the process to be straightforward and easy to understand. They also liked the ability to add their own strategies, and the fact that it would show up at the top when it was added in so they could see it right away.

After this final week of usability testing, we made any final changes that were suggested, such as reorganizing some of the resources and changing the color of the tabs in the history section to make it more obvious whether you were looking at your overall trend for the month or the history of your strategies. The final prototype does not have the log-in function, as we decided to have it already on the home page at all times to demonstrate how the app would work if there was a user, with test data implemented to show how all the functions work. After the final changes were made, we froze development in order to focus on adding the content, such as resources and strategies, into the app, rather than continue making new features that we would not have the time to test thoroughly.

Future Work:

Although this current version of Appspirin is merely a working prototype to showcase what type of potential app can be built and designed based off our research amongst the UC Berkeley student population, if time and resources weren't an issue we would like to be able to build it out into an actual smartphone app, and include all the features that were originally planned such as the ability to create an account and log in, and more customization features that we thought of in the first design stage (customizing descriptions for different levels of stress, changing descriptions and time durations for default strategies). Most importantly, we would want this app to be scalable; right now the prototype doesn't have an actual database implemented, and even if it did, we would have to make sure that it could handle a potentially large number of thousands, maybe even hundreds of thousands of users. We would also want to probably change the strategies and flow to make sure that it would work for not just UC Berkeley students, but eventually students across the entire country--which would mean changing the resources so they can be utilized by anybody, not just Tang Center resources for Berkeley students.

Additionally, although this prototype was built around stress reduction for students, we both agree that stress is just one component of mental health that needs to be addressed; ideally, even more serious issues like depression, and anxiety, would be supported by this app as well, since it would allow us to break down the barrier surrounding those issues as well. Furthermore, many people who suffer from one condition are often more prone to experience other issues as well, and we would want this app to hopefully be something that people can use to address all at once, instead of having to use so many different tools, so to speak. This would require us to gain IRB clearance, so we could do the required research and interviews to implement the correct strategies and resources necessary to be effective, and also to see what different types of information these mental conditions would need.

Conclusion:

Although this app is designed to help students track and manage their stress, in the end, its overall goal is to also help people be more aware of, and pay attention to their mental states; we want to break down this barrier of shame and foreboding that still, in this day and age, exists whenever we hear the terms ‘mental health’. A myriad of options exist for taking care of our physical health, many of them easy and simple methods. We can talk about catching a cold, feeling under the weather, or going to see the doctor without any real fear or shame of mentioning our physical conditions. When this model is applied to mental health, however, suddenly there is a sense of foreboding, that this is a topic we shouldn’t be allowed to mention freely, and any type of solution for solving even simple issues are always complicated and wrought with this feeling of guilt, and often a vision of inadequate doctors and drugs. Part of our goal is to break down these barriers of perceived shame and complications that prevent people from seeking or getting the help they need, when it comes to being able to freely discuss and take care of your mental health.

We want students, and hopefully everyone else, to not shy away from this topic of mental health. We want people to realize that it's not something that comes up only when bad things happen, but rather it's simply another part of you that is always there, just like your physical health. As we must maintain and take care of our physical health, we need to do the same for mental health--but maybe just with different tools and strategies. Similarly, we hear advice all the time about the need to eat healthier, exercise more to maintain our physical health; the same is true for mental health. Even if when we don't feel stressed out, doesn't mean we can't benefit from activities and strategies that will not only help us feel better, but can help build up the mental stamina so that when we do take a hit, we are able to cope better and recover faster. It's not about only addressing the issue when it becomes critical, but taking small steps every day so that it doesn't have to get to that point.

If we get a headache, a common solution is to just take an aspirin--small, simple, and easy to do without much fear of repercussions. If we have something like this for physical health, then who's to say that there can't be the same for mental health as well? We hope that with Appspirin, students will not have to look at mental health with fear and trepidation, but rather know that it's simply a part of their overall well being and there are in fact, ways to help take care of it that are as easy as taking an aspirin.

Appendix:

1. Survey Questions

1. Are you a student at UC Berkeley?

- Yes
- No

2. Do you ever use technology to combat stress?

- Yes, I use technology to entertain myself when I'm feeling stressed - like video games or Netflix.
- Yes, I use technology to keep track of everything that I have to do.
- Yes, I use apps like Superbetter or meditation apps to help with stress.
- No, I don't use technology in this way.

Yes, I do something else:

3. What is your year in school?

- Freshman
- Sophomore
- Junior
- Senior
- Master's Student
- PhD Student
- Post-doctoral student

4. What, generally, is your top source of stress?

- Schoolwork
- Personal relationships
- Career-related events (finding a job, working)
- Family

Other (please specify)

5. For each of these statements, please indicate how much you agree or disagree with them.

| | Strongly Agree | Agree | Neutral | Disagree | Strongly Disagree |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Therapy is only for mentally ill people. | <input type="radio"/> |
| It would be easy for me to call a therapist's office and make an appointment. | <input type="radio"/> |
| I wouldn't want other people to find out if I had been in therapy. | <input type="radio"/> |
| When I'm feeling stressed out, it's usually easy to work through whatever's bothering me. | <input type="radio"/> |
| When I'm stressed, I like to talk to other people about it. | <input type="radio"/> |
| When I'm stressed, I want to distract myself from whatever's stressing me out. | <input type="radio"/> |
| Therapy wouldn't be something to get stressed out over. | <input type="radio"/> |
| I prefer to talk about my problems to people who know me well, as opposed to strangers or acquaintances. | <input type="radio"/> |
| I like talking about my feelings and experiences online (like through forums, Facebook, Tumblr, Twitter, etc). | <input type="radio"/> |

6. What do you think of when you hear the term "mental illness?"

7. If you were feeling stressed and wanted to talk about it, which of these options would you be most likely to pursue?

- Friends
- Family
- Religious leader
- Academic advisor
- Student counseling center
- Other counseling provider
- Physician
- Significant other
- Social media (e.g. Facebook)
- Online forum

Other (please specify)

8. Are there any circumstances where you would use one help source over another? For example, talking to a religious leader about one kind of problem, but a friend for another?

9. If you were having a tough time, what would you do? Would you consider therapy? If not, why?

10. Have you heard about the available mental health services at University Health Services?

- Yes
- No

11. What do you think goes on in therapy?

12. During your school career so far, how often have you utilized the University's mental health services?

- Monthly or more
- Semesterly
- Yearly
- Only once or twice
- Never

Other (please specify)

13. If you decided you wanted to go into therapy, where would you start? What would your next steps be?

14. If you have never used the university mental health services, why not?

- Too complicated to make an appointment
- Cannot figure out how to access services or which services are available
- Do not want to physically go in person
- Do not want to talk to someone in person
- Never needed mental health help

Other (please specify)

15. If your friend told you they had been in therapy, what would you think about that? Why?

2. Man-on-the-street Interview Questions

- What's your year in school?
- What do you think goes on in therapy? (Mental type, not physical)
- If you decided to make an appointment with a therapist, how would you figure out where to go?

3. Student Interview Questions

- What are your thoughts on mental health?
 - a. Do you think it's something people should pay more attention to?
 - b. Do you consider it just as important as physical health? Why/why not?
 - c. How effective do you think our university is currently in helping students in this area?
- Can you tell me about a time when you were extremely stressed out? (Preferably related to university setting but not necessary)
 - What did you do?
 - Did you feel you need to seek help? Why or why not?
 - If you felt you could benefit from seeking help, did you? Why or why not?
- If you ever thought about seeking help and didn't, what held you back? If you did seek help, what about it was difficult? What do you think other people might find difficult about the process?
 - looking at logistics like making appointments, seeing somebody in person
- Say you decided to seek help for any reason; would you tell anybody about it, including family/friends? Why or why not?
 - how do you think they would react? (gets into barrier/stigma of seeking help)
- How stressed out do you think others around you are?
 - own perception of less/more? Do you think this is 'normal'?
- What kind of technology do you use to manage stress?
 - apps (calendar, task management, etc.)
 - entertainment (games, film, etc.)
- How effective is this for you? Can you describe how/why you use them?
 - Do you prefer this to more 'traditional' therapy approaches? Why?
 - would you use them?
- Have you tried meditation-type activities before?
 - Would you? Do you think they help?
- What do you generally do to manage stress (not just technology) but any lifestyle habits (e.g. less caffeine, more sleep, etc.)

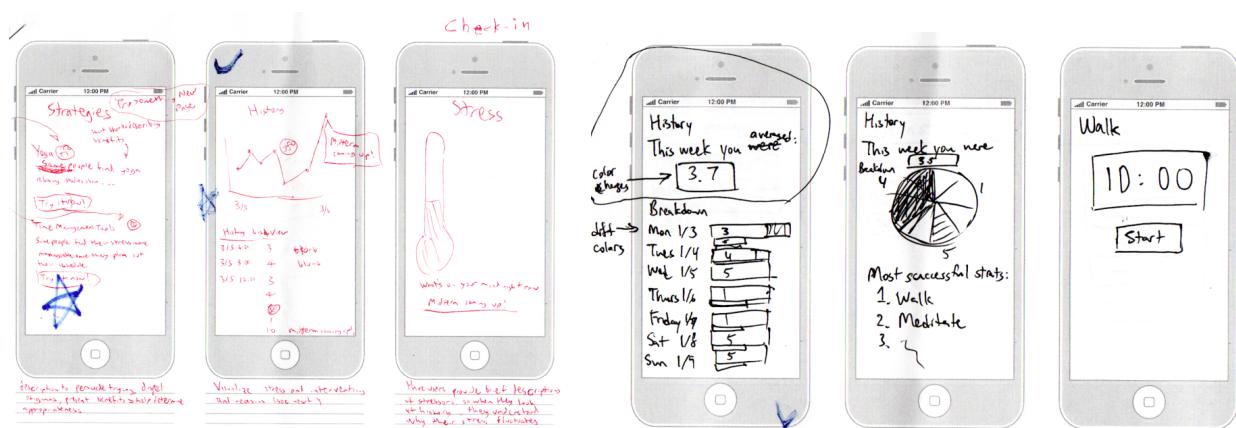
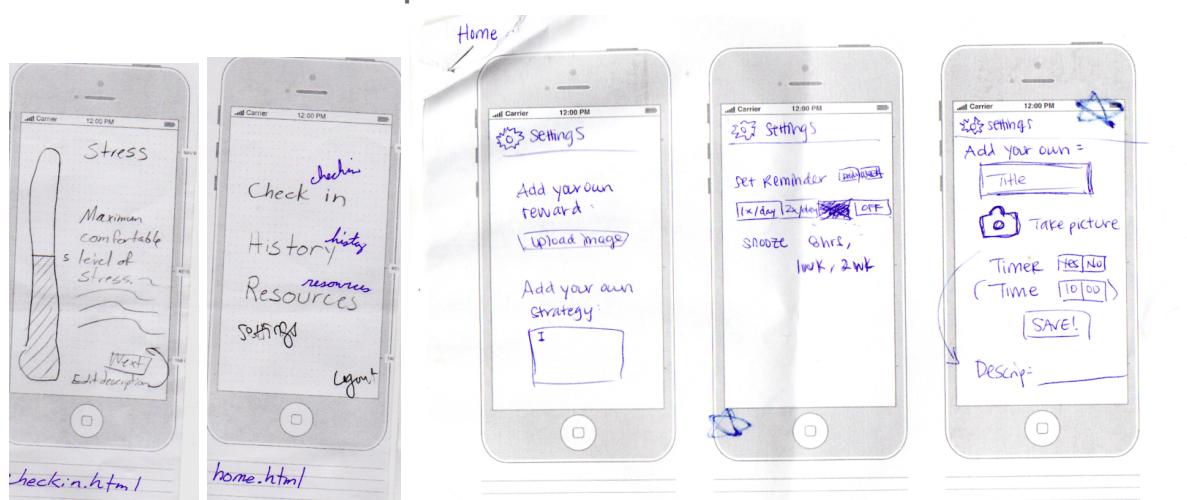
4. Expert Interview Questions (Dr. Heeter)

- What is “cybermeditation”? Why did you choose this term?
- Can you tell me a bit about your research on using technology to help maintain a healthy mental state?
- How has this field changed from when you first started to now?
- Why use games, compared to maybe more traditional time management or straightforward tip apps?
- What’s your opinion on increased usage of technology to help treat mental health problems?
- What are some of the approaches you’re seeing in this field?
- You mention ‘meaningful play’; how is that different from plain meditation?
- Is it more effective than a more traditional task-management or regular meditation app?
- What do you think are people’s biggest hesitations about getting into therapy?
 - Do you think having access to this as an app, instead of in-person, will break down this entry barrier?
 - *bringing you beyond normal.*
 - (depending on response) Are there any logistical issues you feel prevent people from seeking help? (difficulty finding information, complicated process to make appointment, etc.)
- If you could wave a magic wand and create some kind of technology to support therapy, what would it include?

5. Expert Interview Questions (Dr. Mann)

- What sorts of strategies do you recommend for people who are dealing with stressful situations?
- How has technology changed the way people think about mental health? Specifically apps like meditation, yoga, etc.
- From your perspective, how do people seem to feel about maintaining a healthy mental state?
- How do you recommend patients who may not be aware of having a mental state start off?
- If you can answer this, do you work with any students? Do you notice any broad trends?
- what do they tend to do? (if applicable)
- What’s your opinion on increased usage of technology to help treat mental health problems?
- In terms of an app to track/’be aware’ of taking care of your own mental health, what do you think are some important aspects we should pay attention to?

6. Initial Wireframe Mockups

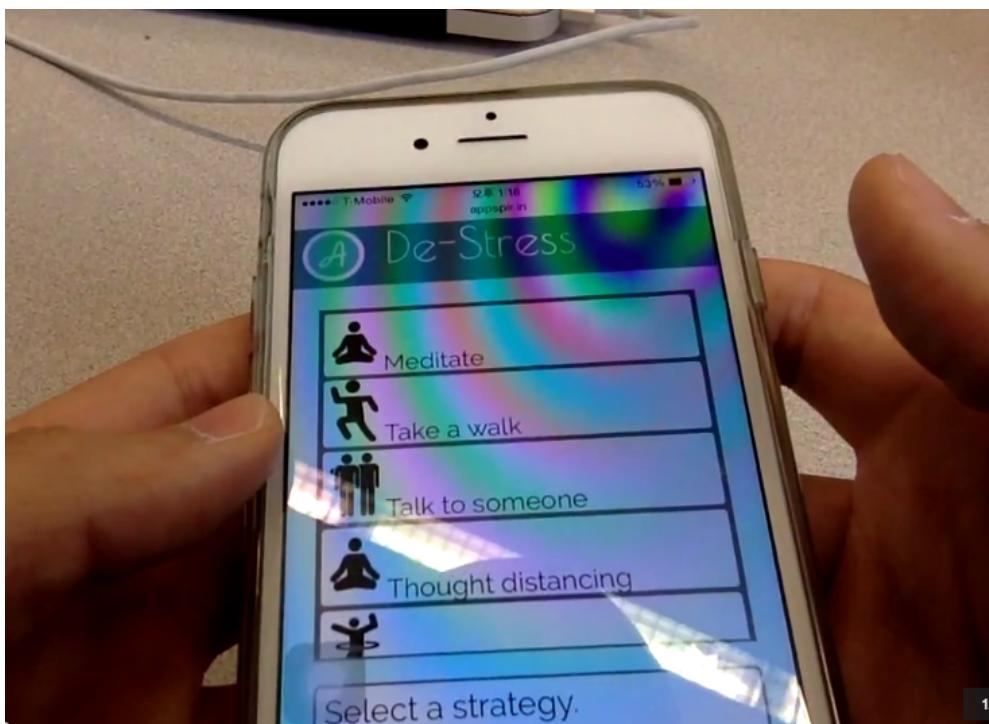
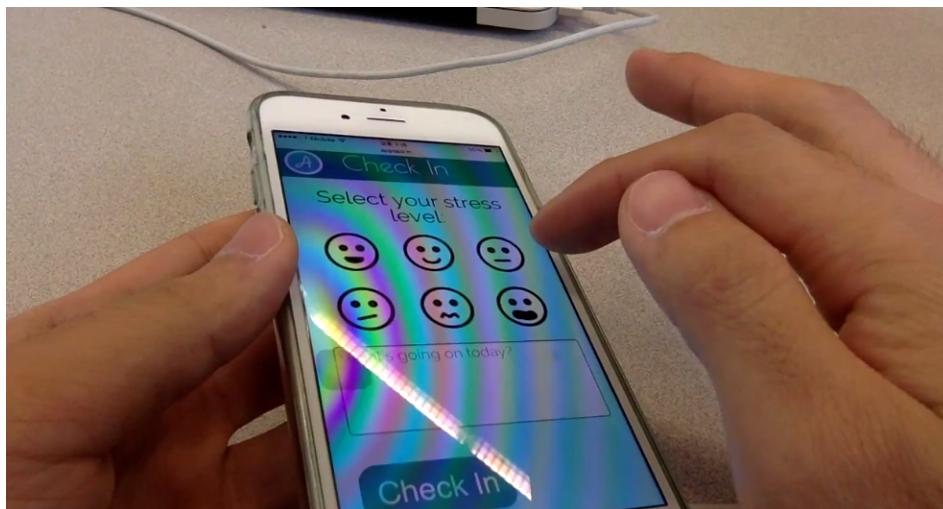


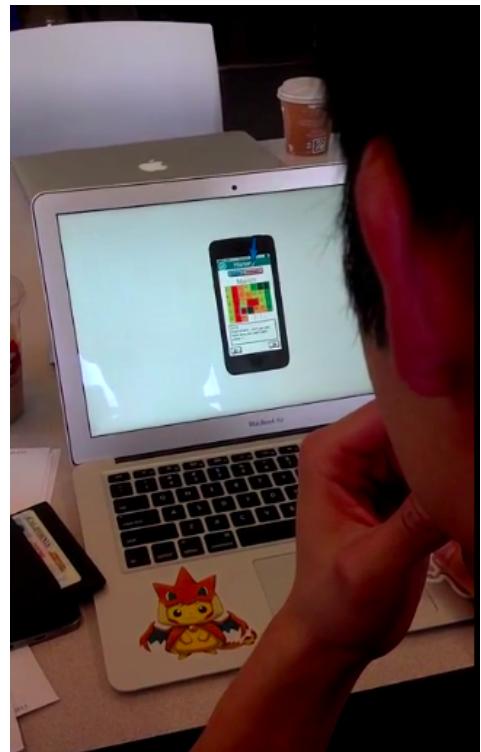
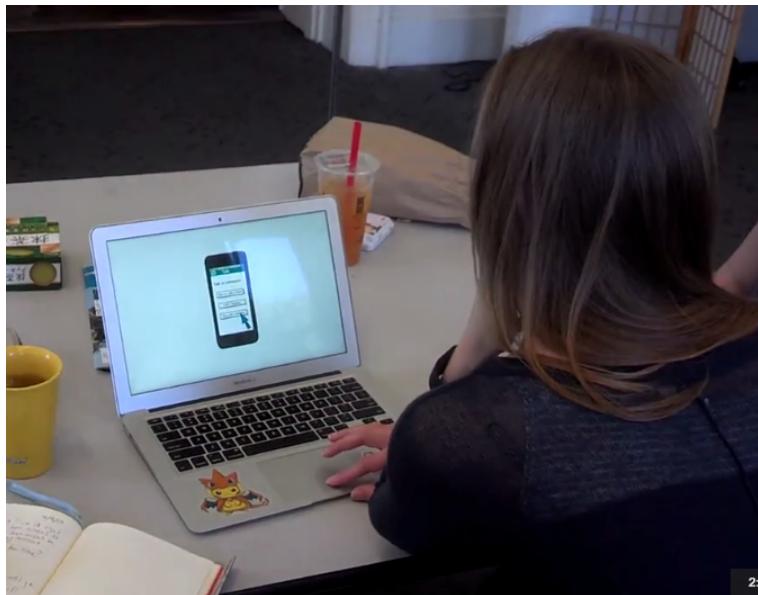
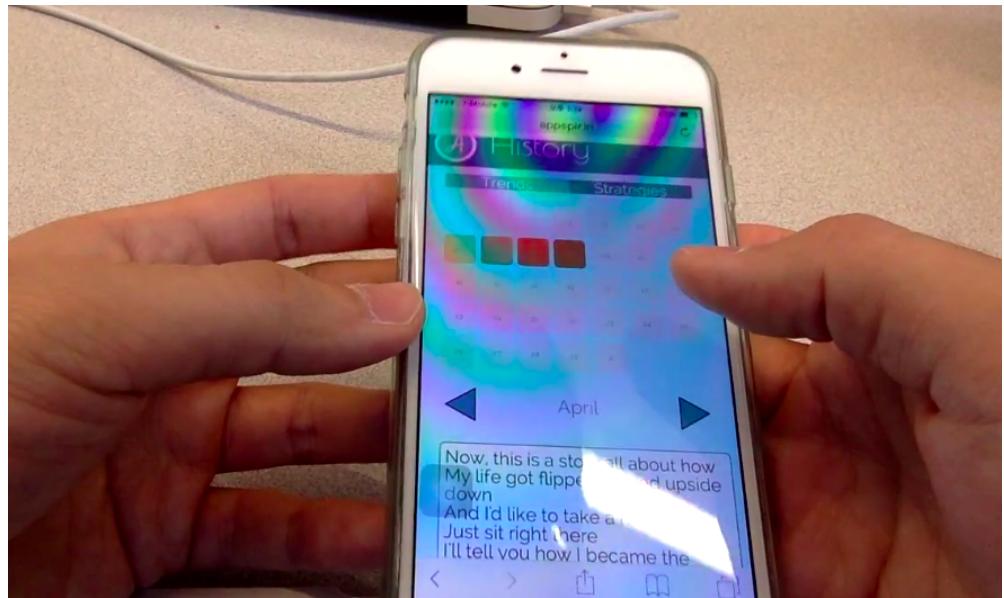
7. Usability Testing Tasks

- Say you just got a notification to check-in right now; where would you go?
- How do you feel about this page? (The check-in page with facial expressions)
- Now that you've just done this activity, what do you think about being asked to check-in again?

- Say you want to see how your stress levels were for this month so far. Show me where you would go.
- Let's say you want to see an individual date.
- What do you think those arrows at the bottom mean? (History page)
- What if you wanted to just learn more information? Where would you go? (Resources)
- What do you think will happen if you clicked on the "Chat with a counselor" option?
- Let's say you want to change how often you get notifications. Where would you go? (Settings)
- Now let's say you want to add a strategy of your own. Tell us what you think this page is letting you do. (Add your own)

8. Usability Tests





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