CalmDesk Final Report

Octavian Johnson   
Charleston Southern UniversityCharleston, United States  
otjohnson@csustudent.net

*Abstract*—CalmDesk is a website that aims to mitigate mental health struggles in school and the workplace. In testing this application, users who are in highly active roles in their jobs were tested on how the site affected their stress levels. While the site didn’t have huge improvements on stress, a majority of users reported that it did calm them down enough to help them get through their projects.

Keywords—calmDesk, depression, anxiety, stress, mental health, workplace

# Introduction

The problem that CalmDesk aims to solve consists of creating a calm and more manageable workplace for workers and students. The purpose of the study is to test to see if CalmDesk helps lower the user’s stress levels and keeps them at ease in the workplace. The study is important because over a quarter of Americans over 18 suffer from a diagnosable mental disorder in a given year. Dealing with stress in the workplace is taxing on the mind for people and can stem into worse problems down the line. ). CalmDesk by no means is an end all be all to mental illnesses, but it does strive to help lower the frustration of the day to day stresses of working in an office. If CalmDesk can even slightly lower the stress levels of its users, the study will have been a success.

# System Description

## Interface Design

CalmDesk’s design philosophy was founded with its purpose in mind: to make sure the user has the lowest stress levels possible. With this in mind, the site was created with a one-page layout with navigation that takes the user to each corresponding section of the site. The color scheme consists of calming, cool colors that aims to have them in a calming mood upon arrival to the site. The website sections take up the entire screen of the browser so that the user isn’t distracted from anything other than the particular activity that they’re interacting with. The fonts are light weight and the colors are light and welcoming. All aspects of the design were created so that the site doesn’t give any additional stress on top of what the user could already be experiencing. The buttons change colors when hovering and great care was put into making sure something happened when the user clicked on them. All of these features come together to create a streamlined and intuitive experience for users.

Graphical user interface, website

Description automatically generated

Fig. 1. CalmDesk Home page.

A screenshot of a computer screen

Description automatically generated

Fig. 2. CalmDesk Exercise section

Chart

Description automatically generated

Fig. 3. CalmDesk Sound section

Graphical user interface, website

Description automatically generated

Fig. 4. CalmDesk Breathing section

## Important Requirements

* CalmDesk will provide workouts, breathing exercises and calming sounds
* The user should be able to get a few minutes of a workout in and use breathing exercises and/or calming sounds to calm down
* The website needs to work 95% of the time
* The exercises should be able to be timed
* The sounds need to be able to be selected from a playlist
* The breathing exercise should be able to be started and stopped whenever the user pleases.

## Design specifics

# Apparatus and Method

## Participants

CalmDesk is for anyone that is dealing with stress during any projects that they’re working on. The participants will be people who are in highly active roles in their jobs or people who are students that are dealing with a multitude of tasks in school, or both.

They should have the following characteristics:

* They should either be working in a job with easy access to a computer, be a student, or both
* No specific gender or age
* Willingness to give feedback on CalmDesk and input on features that they feel would help lower their stress levels
* Ability to do light exercise in their immediate area/environment
* Physically capable of doing the activities on the website
* Either have access to headphones or the ability to play sounds from their computer speakers
* Various levels of computer experience

There were 10 participants in this study:

* Brianna Shelton
  + 27 year old female with average computer experience
  + Leasing Consultant at The Reserve at Wescott Plantation for the past 3 years. Actively dealing with clients, phone calls, emails and paper work daily
  + Part Time Trident Technical College student
  + Single Mother
* Jaraya Johnson
  + 24 year old female with average computer experience
  + Content Coordinator at King and Columbus for the past year and a half. Deals with writing and designing articles and magazines for the Post and Courier while also managing SEO. Does this work daily
  + Lives with family
* Diquel Richardson
  + 29 year old male with above average computer experience
  + Dev Ops Engineer at Doosan for the past 5 years. Deals with programming, server and application management on a daily basis
  + Lives with wife and son
* Kaelyn Richardson
  + 29 year old female with average computer experience
  + CT Technologist at Novant Health Imaging Mooresville for the past 2 years. She uses x-ray equipment to take images of patient’s bodies to locate injuries and diagnose diseases on a daily basis
  + Lives with husband and son
* Victor Johnson
  + 20 year old male with above average computer experience
  + Not currently working
  + Full time computer science student at Clemson University
  + Lives on campus
* Wanda Johnson
  + 52 year old female with average computer experience
  + Clerk at the SC DMV
  + Lives with husband and daughter
* Louella Davis
  + 65 year old female with below average computer experience
  + Custodial worker at Morris College for 20 years
  + Lives with son
* David Jackson
  + 27 year old male with above average computer experience
  + Full-time USC student
  + Works part time at Starbucks
  + Lives on campus
* Eric Bailey
  + 24 year old male with average computer experience
  + Not currently in school
  + Works full time as stocker at Walmart
  + Lives with parents
* Parker Simpson
  + 27 year old male with above average computer experience
  + Vet Tech at The Animal Hospital of North Charleston. Deals with basic preliminary needs of animals brought into the clinic as well as assisting the doctors when needed on a daily basis
  + Lives with wife

## Experimental Design

* Independent variables:
  + Amount of work done on a daily basis
  + Gender – male, female
  + Age range
  + Computer literacy
* Dependent variables:
  + Time spent using the website
  + Number of exercises done
  + Time spent doing breathing exercises
  + Time spent listening to sounds
  + Recorded Stress levels (on a scale of 1-7)
* Objective Measures
  + Time spent using the website
  + Number of exercises done
  + Time spent doing breathing exercises
  + Time spent listening to sounds
  + Recorded Stress levels (on a scale of 1-7)
* Subjective Measures
  + Feedback on what could be added (or taken away) to reduce user s tress
  + Overall feelings after using the site
  + How the user chooses to navigate the site (scrolling vs menu buttons)
* Data Collection
  + Sources of Data – The sources of data for time on task tata collection were:
    - Background demographic questions which helped determine the user’s job, workload and workplace
    - Questions about user’s stress levels in order to determine if the site has an affect on stress
* Data Topics
  + The user’s time spent on the site. By using a tangible measurement of how long the user is on the site, we were able to use this information to figure out how it affected the user’s experience (users that spend longer on a site tend to enjoy it more vs. people that aren’t on a site for very long and end up leaving it)
  + Time spent doing each of the activities (workouts, listening to music, breathing exercises). With this data, we were able to determine which aspects of the site that the user enjoyed more
  + Stress levels on a scale of 1-7. This data is tracked before and after the user uses the site to help determine whether their stress levels were affected positively, negatively or not at all.
  + Overall experience with the site and its effects. The user’s experience with the site is directly related to the site’s purpose. If the user ends up becoming more stressed while using basic functions of the site, it will have failed.

## Apparatus[[1]](#footnote-1)

* The study was conducted with by setting up a laptop in front of the user that at first had a blank screen so that they couldn’t see the website initially. The script was then read to the user that briefed them on how the study would take place and provide them with more info on the website. The user is then asked to sign a consent form and fill out a background questionnaire. They are then given a chance to ask questions. CalmDesk is a very simple to use website so only basic computer knowledge is needed which the participants are screened for.

# Results

When possible, the testing occurred as close to when the subject was working as possible which means either during a lunch break, after work or even during work in some cases. The link was sent to users so that the results would be as close to accurate for our target demographic as possible.

## Stress Levels

Fig. 5 shows that the mean stress levels before using the site was 5 (standard deviation = 1.287). The mean stress levels after using the site was 4 (standard deviation = 1.523)

TABLE I: Stress Levels Before and After Using CalmDesk

|  |  |  |
| --- | --- | --- |
| **User** | **Stress Levels Before (1-7)** | **Stress Levels After (1-7)** |
| Brianna | *6* | *5* |
| Jaraya | *7* | *4* |
| Diquel | *4* | *3* |
| Kaelyn | *5* | *5* |
| Victor | *3* | *2* |
| Wanda | *5* | *6* |
| Louella | *5* | *2* |
| David | *3* | *1* |
| Eric | *6* | *4* |
| Parker | *5* | *5* |

Fig. 5. Stress level data

## Overall Time on Site

Fig. 6 shows that the mean time spent on the website was 425.2 seconds (standard deviation = 212.662 seconds). The median time spent overall was 375 seconds with a minimum of 134 seconds and a maximum of 845 seconds.

TABLE II: Overall Time Spent Using CalmDesk

|  |  |
| --- | --- |
| **User** | **Time (sec)** |
| Brianna | 583 |
| Jaraya | 845 |
| Diquel | 352 |
| Kaelyn | 276 |
| Victor | 134 |
| Wanda | 398 |
| Louella | 624 |
| David | 489 |
| Eric | 322 |
| Parker | 229 |

Fig. 6. Overall time spent on site

## Overall Time Spent on Workouts

Fig. 7 shows that the mean time spent doing workouts was 294.5 seconds (standard deviation = 183.908 seconds). The median time spent overall was 256 seconds with a minimum of 53 seconds and a maximum of 603 seconds.

TABLE III: Overall Time Spent Doing CalmDesk Workouts

|  |  |
| --- | --- |
| **User** | **Time (sec)** |
| Brianna | 389 |
| Jaraya | 603 |
| Diquel | 185 |
| Kaelyn | 86 |
| Victor | 53 |
| Wanda | 234 |
| Louella | 598 |
| David | 364 |
| Eric | 278 |
| Parker | 155 |

Fig. 7. Overall time spent doing workouts

## Overall Time Spent Listening to Sounds

Fig. 8 shows that the mean time spent listening to sounds was 294.5 seconds (standard deviation = 183.908 seconds). The median time spent listening to sounds was 256 seconds with a minimum of 53 seconds and a maximum of 603 seconds.

TABLE IV: Overall Time Spent Listening to CalmDesk Sounds

|  |  |
| --- | --- |
| **User** | **Time (sec)** |
| Brianna | 63 |
| Jaraya | 152 |
| Diquel | 105 |
| Kaelyn | 156 |
| Victor | 47 |
| Wanda | 64 |
| Louella | 0 |
| David | 94 |
| Eric | 44 |
| Parker | 35 |

Fig. 8. Overall time spent listening to sounds

## Overall Time Spent on Breathing Exercises

Fig. 9 shows that the mean time spent on breathing exercises was 54.7 seconds (standard deviation = 38.281 seconds). The median time spent on breathing exercises was 36.5 seconds with a minimum of 0 seconds and a maximum of 131 seconds.

TABLE V: Overall Time Spent Doing CalmDesk Breathing Exercises

|  |  |
| --- | --- |
| **User** | **Time (sec)** |
| Brianna | 131 |
| Jaraya | 90 |
| Diquel | 62 |
| Kaelyn | 34 |
| Victor | 34 |
| Wanda | 100 |
| Louella | 26 |
| David | 31 |
| Eric | 0 |
| Parker | 39 |

Fig. 9. Overall time spent listening to sounds

## Thoughts on CalmDesk as a Whole

Fig. 10 shows each participant’s feedback on the overall functionality of the site.

TABLE VI: CalmDesk Feedback

|  |  |  |  |
| --- | --- | --- | --- |
| **User** | **Recommend?** | **Easy to Use?** | **Changes?** |
| Brianna | Yes | Yes | More sounds & workouts |
| Jaraya | Yes | Yes | More features, buttons not necessary when you have menu |
| Diquel | Yes | Yes | Mobile version/app |
| Kaelyn | No | Yes | More features, features available didn’t help stress |
| Victor | No | Yes | Wider variety of sounds |
| Wanda | No | No | More features, features available didn’t help stress |
| Louella | Yes | Yes | Remove menu and buttons since there’s only 3 sections |
| David | Yes | Yes | Try different color scheme |
| Eric | Yes | Yes | More pictures and videos. Maybe videos to watch along with the sounds. Sounds could potentially make the user sleepy |
| Parker | Yes | Yes | More features, site didn’t change mood one way or the other |

Fig. 10. Feedback on site

# Discussion

As shown by the data, seven out of ten participants reported improved stress levels after using CalmDesk versus before. The data was in fact able to support the hypothesis of the study. CalmDesk was successful in helping lower stress levels for people who deal with the stresses of life. All users spent more time doing workouts than the other sections of the site. This was to be expected considering the workouts were the most involved as well as some taking a bit longer to complete than others. Most users reported that simply the ability to take their mind off of their current problems and focus on doing something else was key to eliminating stress.

A few participants skipped over sections entirely. Louella wasn’t able to play sound at her job so she wasn’t able to participate in that section of the site. Eric wasn’t able to properly do the breathing exercise because of health issues. These are factors that will be considered in future iterations of the site. Looking at the feedback, the biggest response to the site was that participants wished that the site had more features. This is also something that will be added in future iterations. It is quite possible that the features available on the site simply didn’t resonate with the users that didn’t report lower stress levels.

Some users suggested that features already on the site just needed to be fleshed out. Victor was someone that already listened to sounds to calm down at work so he found the options for sound on CalmDesk lacking. He said that while he thinks the site is decent, there wasn’t anything that he felt that he could get elsewhere for better. Eric suggested expanding the sound section to include video. This is also a great feature that could be added to the site. Users could possibly watch the videos in a “theater mode” so that they’re fully immersed and will avoid the user from dozing off in the work place from having only sounds and nothing else along with it. Eric also suggested more pictures. This will be taken into consideration. It shows that even the ability to simply take your mind off of things could help. Maybe there could be a section with art, animations, photography or gifs that are just relaxing to look at.

# Conclusion and Future Work

Thanks to the findings in this study, there is a lot of work to be done with CalmDesk. The biggest request from the participants was a lack of features. More interactive features and functionality will be added such as a way for users to log workouts, create a playlist of workouts to use, and more imagery. There could potentially be live streams of instructors doing calming exercises such as yoga and meditation which would encourage people to invite their friends to CalmDesk.

A mobile app and/or responsive website will be designed to better accommodate users that are not able to interact with the site on their computers. Most people surf the web on their phones, so there will have to be more studies conducted to make sure the features on the website are properly conformed to mobile devices.

The workout section will include more workouts and options for timing your workouts. Although the original requirements for participants was that they be capable of doing everything available on the site, it could possibly be beneficial to add more options for accessibility. For people that are not able to complete one feature of the site, there should be something to help calm everyone down. While CalmDesk is built on a solid foundation, it is still in one of the earlier stages of its life. This means that it can only go up from here.

1. CalmDesk GitHub Repository: <https://github.com/octavianj/calmdeskRepo> [↑](#footnote-ref-1)