**Tech Trio**

trellykan.github.io/hci

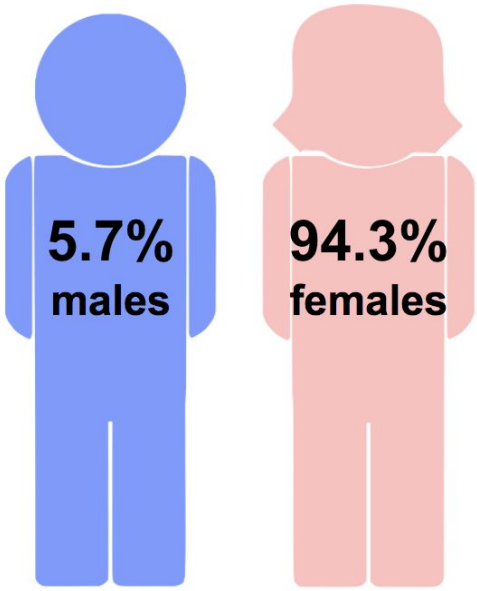
**Project Description:**

There is currently a lack of tools and resources available for dementia caregivers to effectively monitor, understand, and cope with changes in their patients. Therefore, we are designing a smartphone app that will make it easier for dementia caregivers to interact with their patients while providing them with a variety of new resources and methods that may ease the stress of caregiving and provide better help to the patient. By increasing the availability of resources to caregivers, we are also indirectly helping dementia patients and giving them a better quality of life.

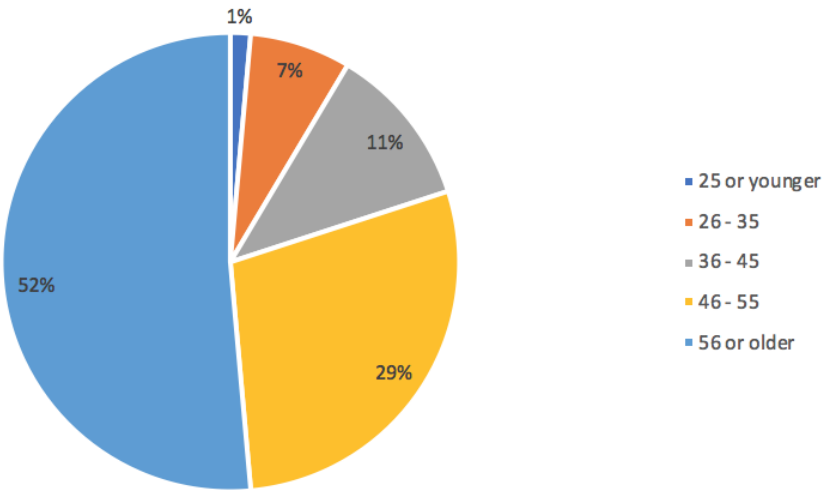
**Survey Analysis**

1. *Visualizations*

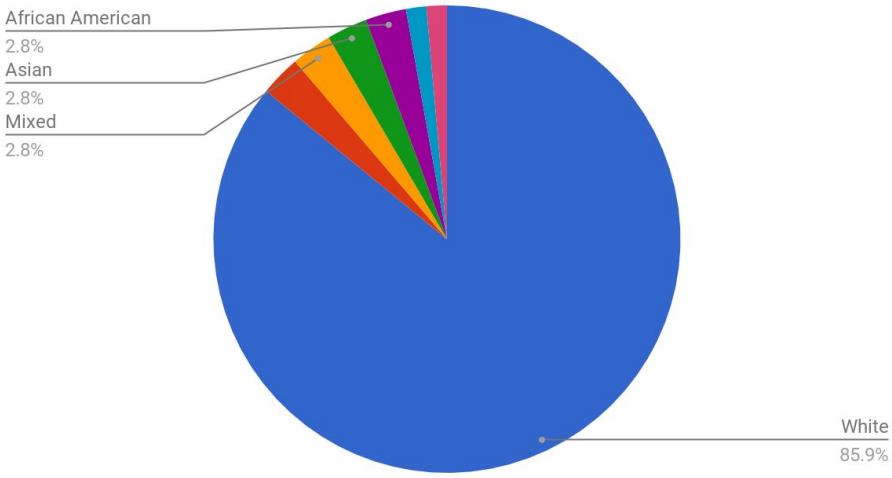
Gender Breakdown of Participants



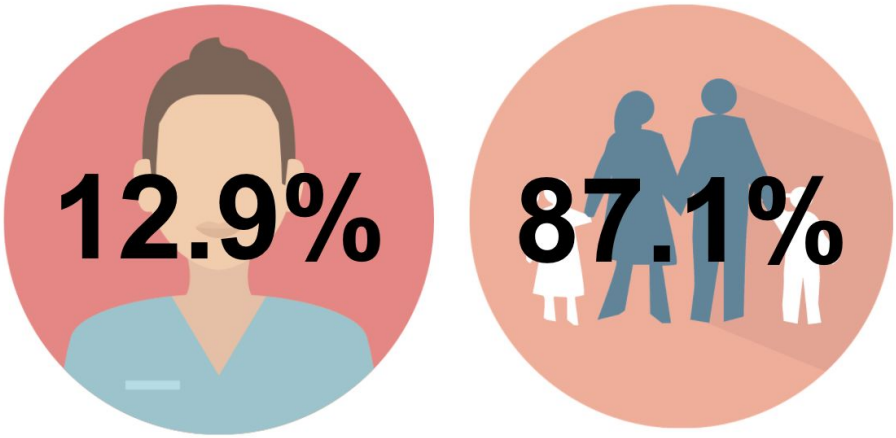
## Age of Caregivers

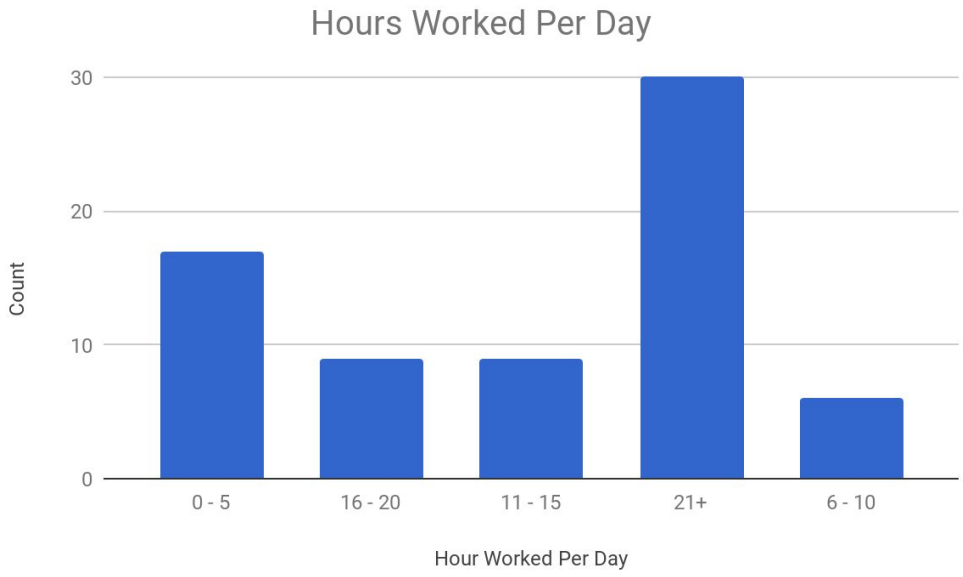


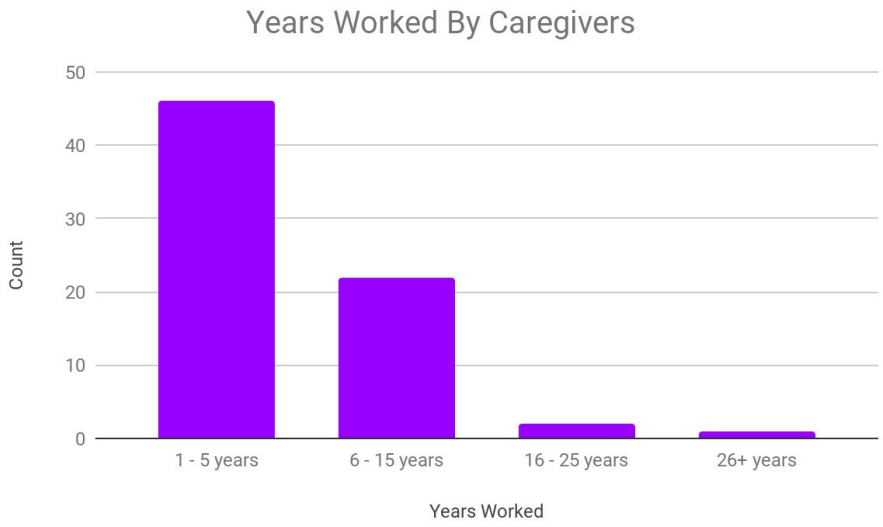

## Ethnicity of Caregivers



Professionals vs Non-Professionals



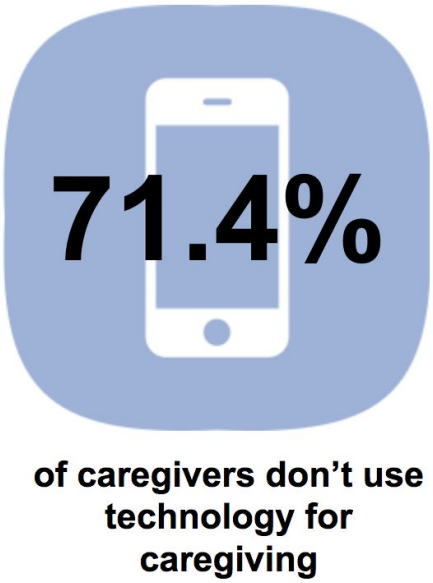





**is the average rating of stress on a scale from 1(not stressed) to 10 (very stressed)**

**is the average rating of how confident caregivers feel about caregiving on a scale from 1(not confident) to 10 (very confident)**

**is the average rating of how knowledgeable caregivers feel about dementia on a scale from 1(not knowledgeable) to 10 (very knowledgeable)**




2. *Demographic Data using Descriptive Statistics*

**Gender (Count)**

Males: 4

Females: 66

**Ethnicity (Count)**

White: 62

African American: 2

Asian: 2

Hispanic: 2

Mixed: 2

**Relationship to Patient (Count)**

Spouse: 25

Child: 28

Professional Caregiver: 3

Other: Family : 12

Other: Non Family : 1

**Distance Away From Patient in Miles (Count)**

Live with Patient: 33

1 - 20 miles: 33

21 - 40 miles: 4

**How Often Caregiver Provides Care to Patient (Count)**

Daily: 62

Weekly: 7

Monthly: 1

**Number of Patients (Count)**

1 Patient: 62

2 - 3 Patients: 6

4 - 5 Patients: 1

6+ Patients: 1

**Caregiver's Knowledge about Patient's Condition (Scale of 1 - Not knowledgeable to 5 - Very Knowledgeable)**

Mean: 4.1

Mode: 5

Median: 4

Variance: 0.91

Standard Deviation: 0.96

**Caregiver's Confidence in Taking Care of Patient (Scale of 1 - Not Confident to 5 - Confident)**

Mean: 3.9

Mode: 4

Median: 4

Variance: 0.87

Standard Deviation: 0.93

**Caregiver's Average Stress Level (Scale of 1 - Not Stressed to 10 - Most Stressed)**

Mean: 7.9

Mode: 10

Median: 8

Variance: 3.7

Standard Deviation: 1.9

**Currently Using Smartphone Applications to Help with Caregiving (Percentage)**

Yes: 28.6%

No: 71.4%

3. *Paragraph about what we learned: themes, categories, what was unexpected, surprises*

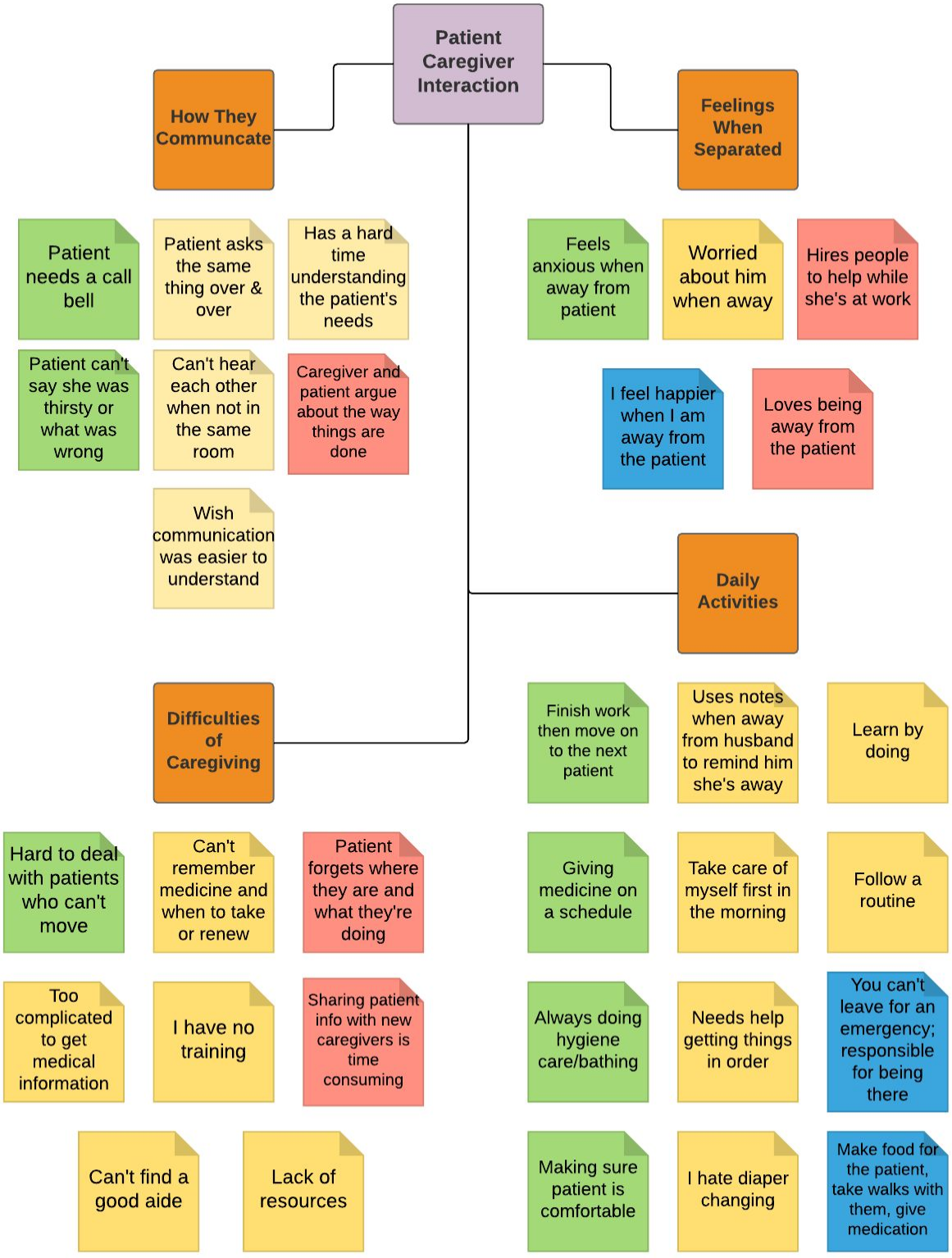
**Survey Analysis**

We noticed that the majority of caregivers were either the spouses or children of patients, which could indicate why many caregivers felt that they were not given a choice to go into caregiving. This could also correlate with the statistic that most caregivers only took care of 1 patient and the statistic that most caregivers live with their patient. If they are family, they are likely close by. Currently, only about 28.6% of caregivers actually use smartphone applications while caregiving, so the use of helpful caregiving mobile applications is not widespread. Caregivers generally reported a high degree of knowledge about their patient's condition, with an average of 4.1 on a scale of 1 (no knowledge) to 5 (very knowledgeable). Caregivers also reported a similar average in regards to having a sense of confidence in taking care of their patients. This shows that many caregivers don't feel that they're lacking a large amount of personal information about their patient's condition or the best way to take care of them but could be improved by allowing caregivers to have access to a larger knowledge base of how to take better care of their patients and more information on their conditions. What was really

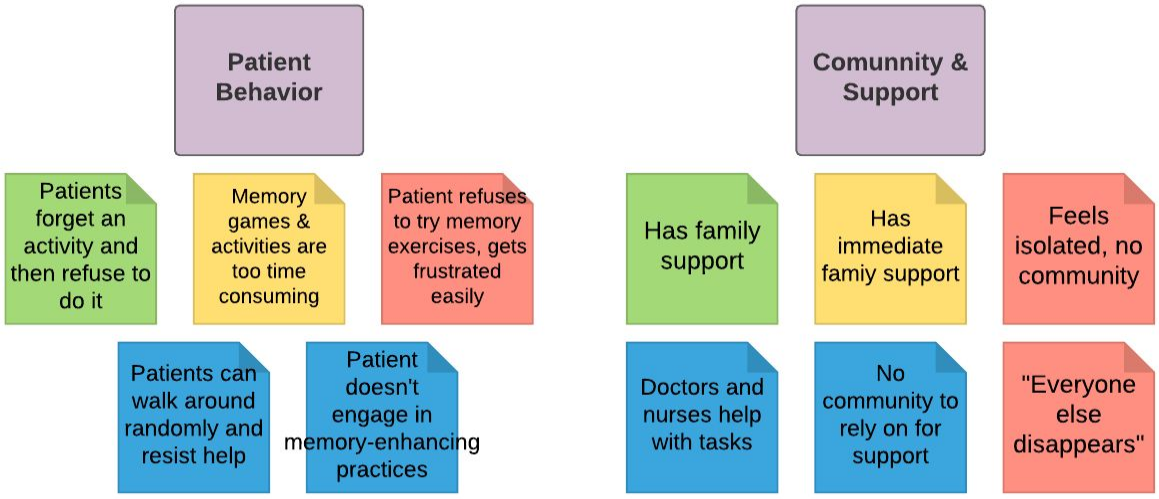
surprising was that caregivers reported an average stress level of 7.9 on a scale from 1 to 10, where 1 indicated no stress at all and 10 indicated very stressed. This indicates that most caregivers are extremely stressed at their jobs, and this could correlate with why many tend to have negative feelings towards their work.

**Interview Data Analysis/Affinity Diagram**

We observed that choice plays a large role in caregiver stress, health, and sense of satisfaction. When caregivers are thrown into a situation where they have to become a caregiver without being given a choice, they often feel underprepared. Caregivers also cite a lack of resources, training, and support and often feel frustrated when interacting with their patients. Being older, most caregivers and patients do not identify themselves as “tech savvy”, but are willing to learn if it will help them with caregiving. Areas that they need help in include time management (reminders for taking medicine, meals, or having more time for themselves), communicating with the patient, sharing patient information, and having a sense of community or more support. What surprised us the most, however, was the degree of negativity that some caregivers feel when they are forced into their positions. This completely alters the relationship between caregiver and patient. With busy schedules and sensitive healthcare information, we expected caregivers to be less willing to open up to us, but it was revealed during their interviews that they feel very alone and greatly appreciate having someone who is willing to listen to them. A sense of community and support is a high priority for our considerations in hoping to design a useful tool for the caregivers.


Patient Caregiver Interaction
How They Communcate
Feelings When Separated
Patient needs a call bell
Patient asks the same thing over & over
Has a hard time understanding the patient's needs
Patient can't say she was thirsty or what was wrong
Can't hear each other when not in the same room
Caregiver and patient argue about the way things are done
Wish communication was easier to understand
Feels anxious when away from patient
Worried about him when away
Hires people to help while she's at work
I feel happier when I am away from the patient
Loves being away from the patient
Daily Activities
Difficulties of Caregiving
Finish work then move on to the next patient
Uses notes when away from husband to remind him she's away
Learn by doing
Hard to deal with patients who can't move
Can't remember medicine and when to take or renew
Patient forgets where they are and what they're doing
Giving medicine on a schedule
Take care of myself first in the morning
Follow a routine
Too complicated to get medical information
I have no training
Sharing patient info with new caregivers is time consuming
Always doing hygiene care/bathing
Needs help getting things in order
You can't leave for an emergency; responsible for being there
Can't find a good aide
Lack of resources
Making sure patient is comfortable
I hate diaper changing
Make food for the patient, take walks with them, give medication

Impact On Health
Emotional Impact
Physical Impact
Likes when the patient talks about their life
People think I'm amazing
Everyday I'm just angry, stressed, agitated, and frustrated
Feels happy treating patients
Stressed, worried, frustrated at job
No time for anything else, gave up everything else
Feel accomplished for getting my patient the best treatment
Patient's family puts a lot of stress on me
No one understands or appreciates me
Less sleep
Taking a toll on the body
Puts a strain on mental and physical health
Body aches
Feeling my age
Body aching
I neglect my own health
There's a lot of physical labor
Not enough time to eat
Caregiver Experience w/ Technology
Reason for Caregiving/ Motivation
Tech is difficult with older people b/c of remembering how to use it
Don't have time to learn new tech
Uses cameras to watch patient when they are apart
Wear tech would be efficient
Not tech savvy
Tech savvy, uses Nest app
Not tech savvy
Interested in trying mobile apps that would help with caregiving
Motivation was grandma and I like to help others
Have to take care of husband, not a choice
Not a choice, no one else to do it
I became a professional nurse
Husband has dementia
Didn't choose dementia patients
Cared for grandma at a young age
Motivation was to help support family


Patient Behavior
Comunnity & Support
Patients forget an activity and then refuse to do it
Memory games & activities are too time consuming
Patient refuses to try memory exercises, gets frustrated easily
Patients can walk around randomly and resist help
Patient doesn't engage in memory-enhancing practices
Has family support
Has immediate famiy support
Feels isolated, no community
Doctors and nurses help with tasks
No community to rely on for support
"Everyone else disappears"

**Raw Data:**

Riz
Bonnie
Xin
Wearable tech would be efficient
less sleep
likes when patient talks about their life
cared for grandma at young age
feels anxious when away from patient
hygiene care / bathing
patient need call bell
family support
hard to deal w/ patients who can't move
patient can't say she was thirsty or what was wrong
body aching
loss
patients forget an activity and refuse to do it
turned professional nurse
Motivation - grandma - help others
finish work then move on to next patient
feels happy treating patients
making patient comfortable
tech is difficult w/ older ppl b/c of memory how to use it
giving medicine on schedule
has immediate family support
I have no training
take care of myself first in the morning
learn by doing
Lacks resources
i neglect my health
follow a routine
I hate diaper change
memory games & activities are time consuming
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can't remember medicine & when to take or renew
not tech savvy
worried about him when away
have to take care b/c of husband
patient ask same thing over & over
feeling my age
can't hear each other when not in same room
taking a toll on body
can't find a good aide
husband has dementia
patient hard time understanding patient needs
uses notes when away from husband to remind him shes away
wish communication is easier
needs help getting things in order
I don't have time to learn new tech
easier way to get medical info
Didn't choose dementia patients
Patients can walk around randomly and insist help
Satisfied with job because there is help (doctor, nurses, etc)
Stressed, Worried, Frustrated at job
I feel happier when I am away from the patient
Not tech savvy
Make food for patient, take walks with them, bring medication
Patient doesn't engage in memory-enhancing practices
Feel accomplished for getting my patient the best treatment
Patient's family puts a lot of stress on me
You can't leave for an emergency it's your responsibility to stay here
Motivation was to help support family
Interested in trying mobile apps that could help with caretaking
No community to rely on
There's lots of physical labor and not enough time to eat

**Synthesis:**

**Contributions:**

<u>Survey Analysis</u>

Visualizations: Anchalee

Descriptive Statistics: Yuhui

Survey findings summary: Yuhui - reviewed by Kelly and Anchalee

<u>Interview Analysis</u>

Making the affinity diagram: Anchalee, Kelly, and Yuhui

Digitizing affinity diagram: Kelly

Interview findings summary: Kelly - reviewed by Anchalee and Yuhui