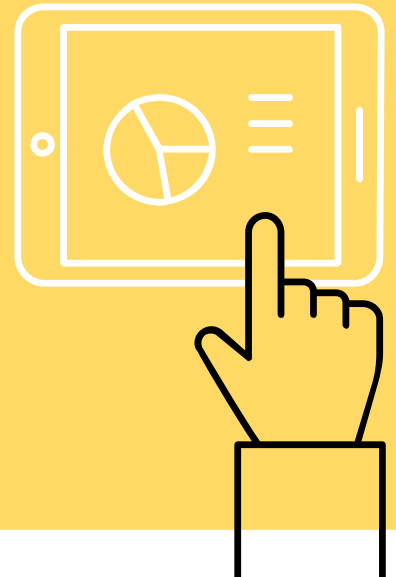
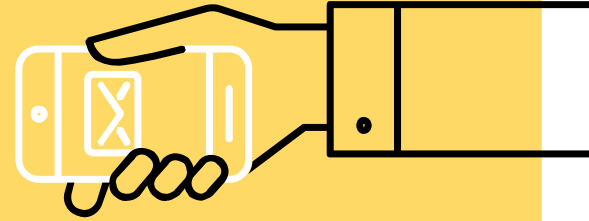
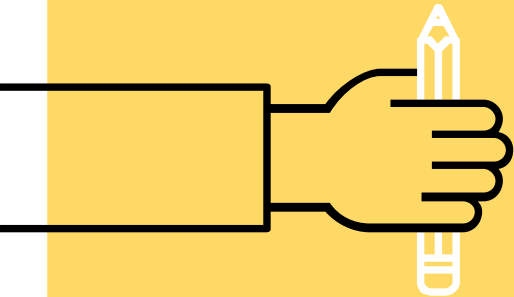
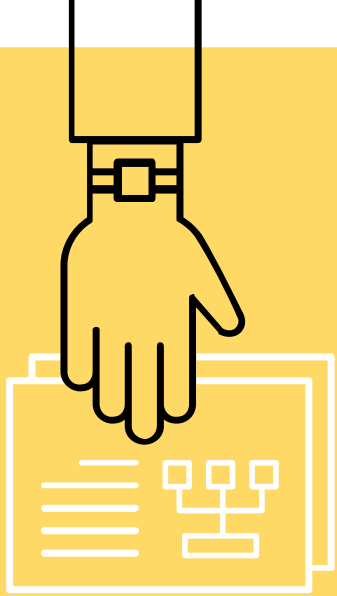
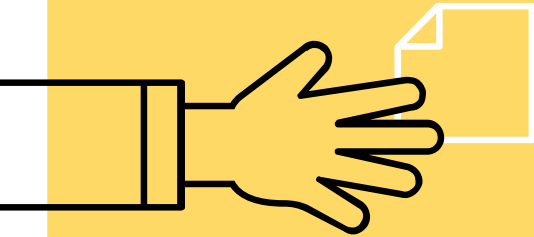
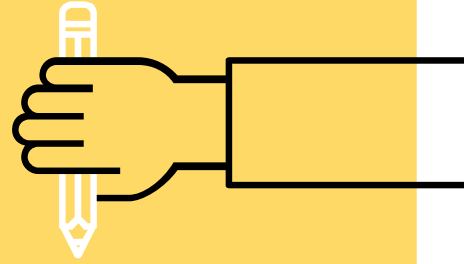
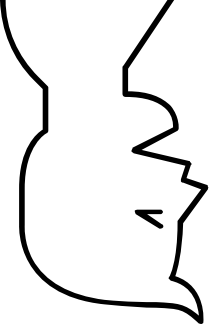


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1. Problem Statement





Caregiving for a dementia patient is a huge challenge for those who are dealing with the changes in behavior and lifestyle of patients. There remains a lack of resources for caregivers to go to in order to learn more about their patients and the best tools and resources to help them. Many caregivers also lack the proper tools to monitor their patients, such as the performance of daily tasks like taking medication or eating meals on time.

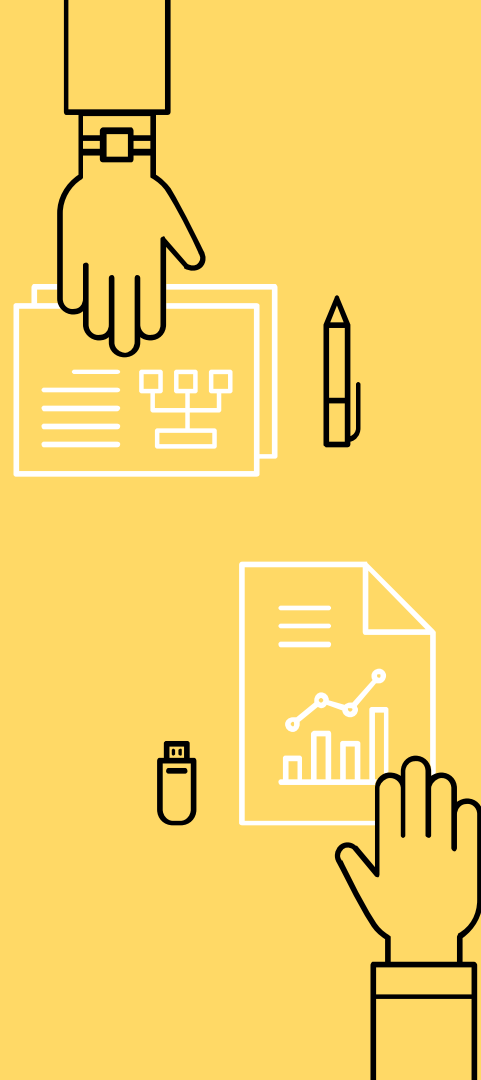


WHO DOES THIS AFFECT?

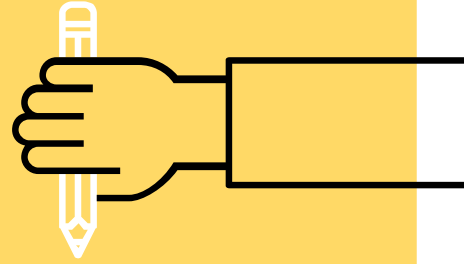
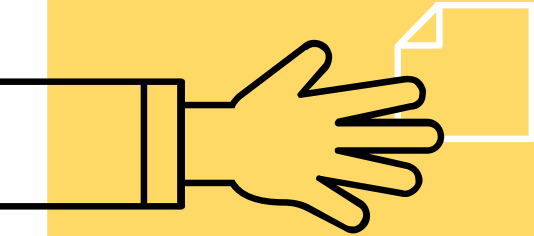
- ▶ Over **5 million people** in the US live with dementia
- ▶ **35%** of caregivers report that their health has deteriorated as a result of caregiving

CAREGIVERS NEED:

- ▶ Education about dementia and training on how to interact with patients
- ▶ Tools to monitor patients
- ▶ Memory tools to help patients



2. Data Collection



- ▷ Caregivers are mostly untrained female family members
- ▷ Caregivers are 56 years and older
- ▷ Caregivers work 21+ hours per day
- ▷ Most caregivers having been working 1-5 years

Survey Learnings



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)

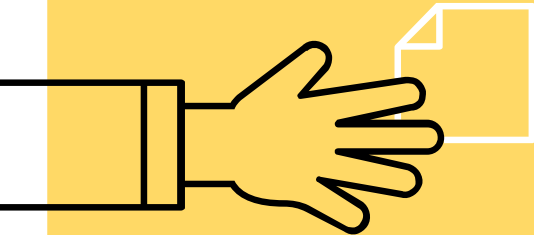
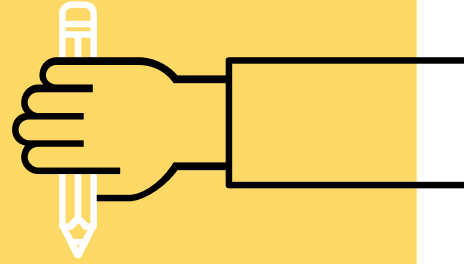


is the average rating of how knowledgeable caregivers feel about dementia on a scale from 1(not knowledgeable) to 10 (very knowledgeable)

- ▶ Professional caregivers are usually happier and less stressed than non-professional caregivers
- ▶ Non-professional caregivers feel they lack support, community, and resources
- ▶ Non-professional caregivers don't currently use technology for caregiving but they wish there was something to help them

Interview Learnings

Affinity Diagram



Riz

Wearable
tech would
be efficient

less
sleep

likes when
patient talks
about their
life

called 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
thrifty or
what was
wrong

body aching
kiss

patients forget
an activity
and refuse
to do it

turned
pro 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
ble of remember
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

people
think i'm
amazing

can't remember
medication &
when to take
or renew

not tech
savvy

worried
about him
when away

have to
take care
big of
husband

patient ask
same thing
over &
over

feeling
my
age

can't hear
each other
when not in
same room

taking a
bail on
body

can't find
a good
aide

husband
has dementia

poor time
understanding
patient
needs

uses notes
when away
from husband
to remind
him she's away

wish
communication
was easier

needs help
getting
things in
order

doesn't
have time
to learn
new tech

easier way
to get
medical
info

Bonnie

Xin

didn't
choose
dementia
patients

patients can
walk around
randomly and
 resist help

switched unit
job because
there is help
assistant
nurses, etc

stressed,
worried,
frustrated at
job

feel happier
when I am
away from the
patient

not tech
savvy

made food for
patients twice
with 3-4 times
long medication

patient doesn't
engage in
enhancing
practices

feel accountable
for getting
my patient the
best treatment

patient's family
puts a lot of
stress on me

You can't leave
for an emergency
situation
responsibility to
stay here

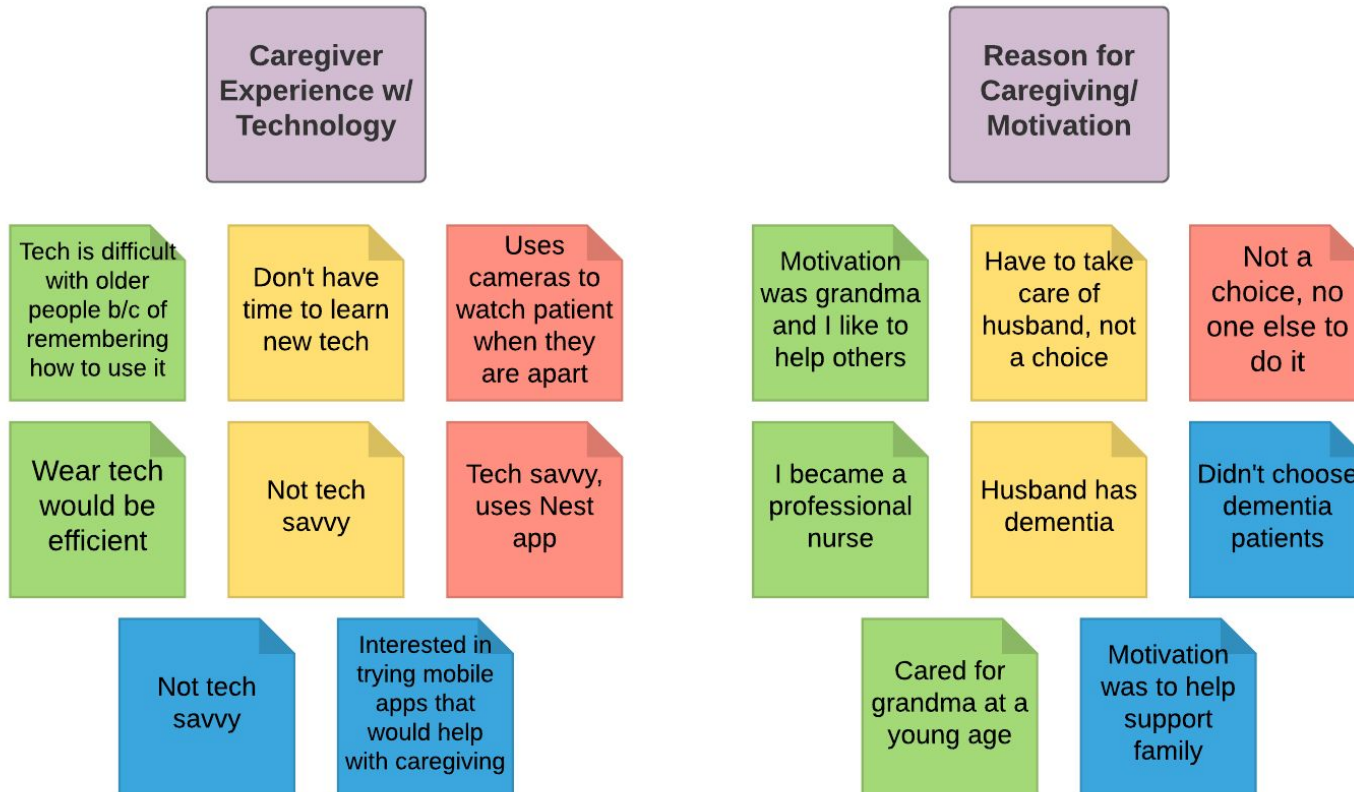
Worried
about helping
my patient's
family

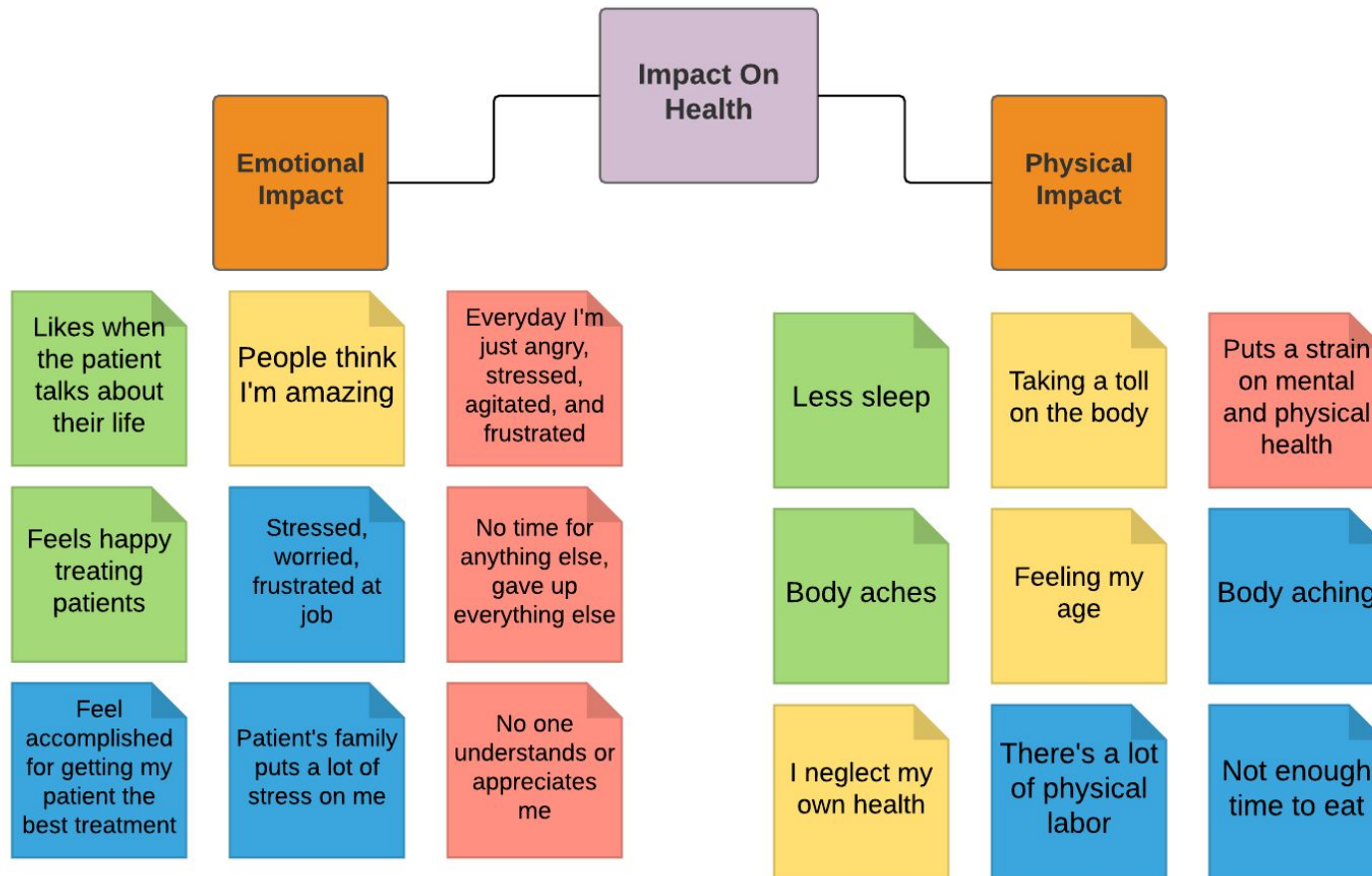
interested in
trying mobile
apps that could
help with
caregiving

No community
to rely on

There's lots of
medical labor
and not enough
time to eat







Riz
Xin
Bonnie
Sheila

Patient Behavior

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

Community & Support

Has family support

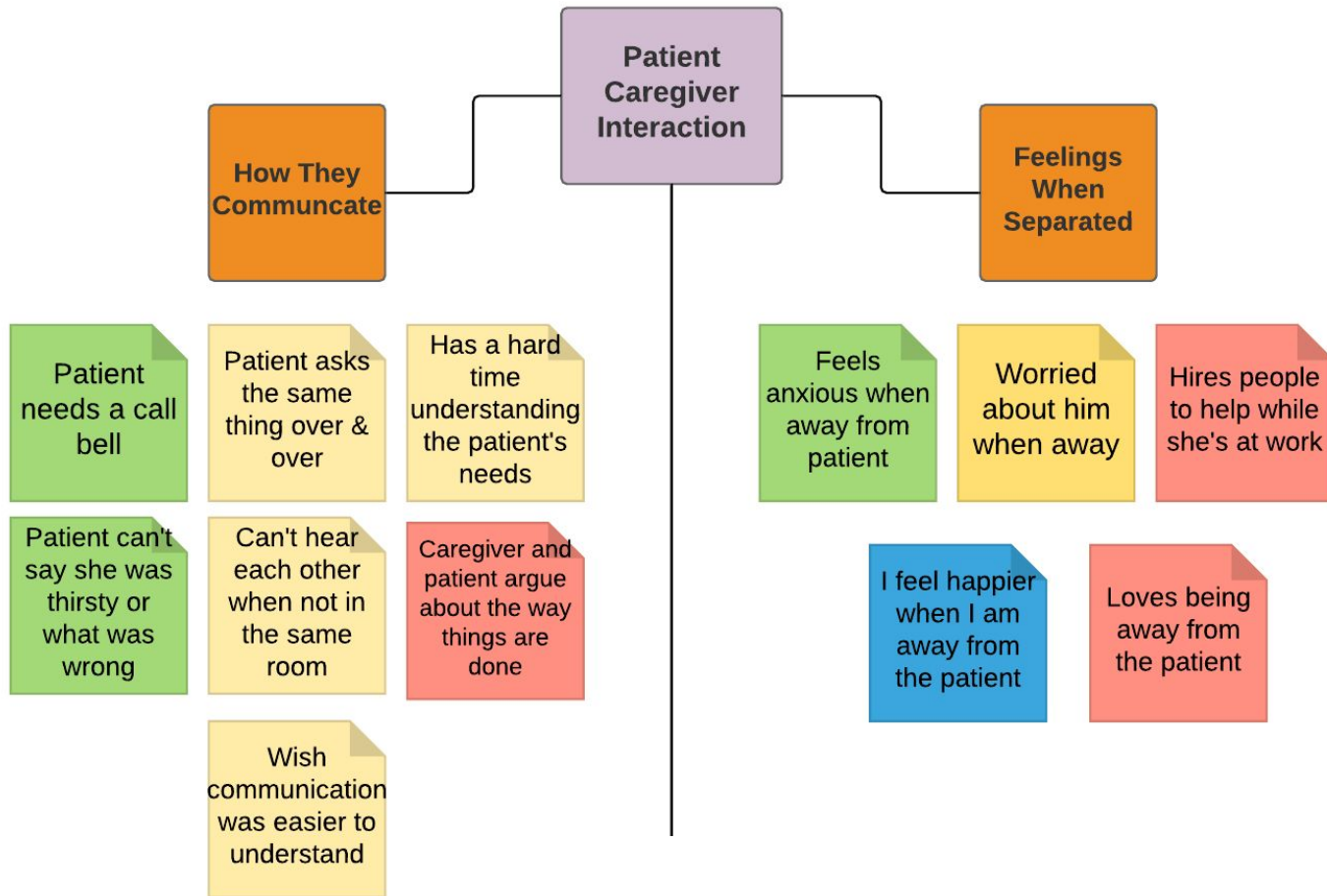
Has immediate family support

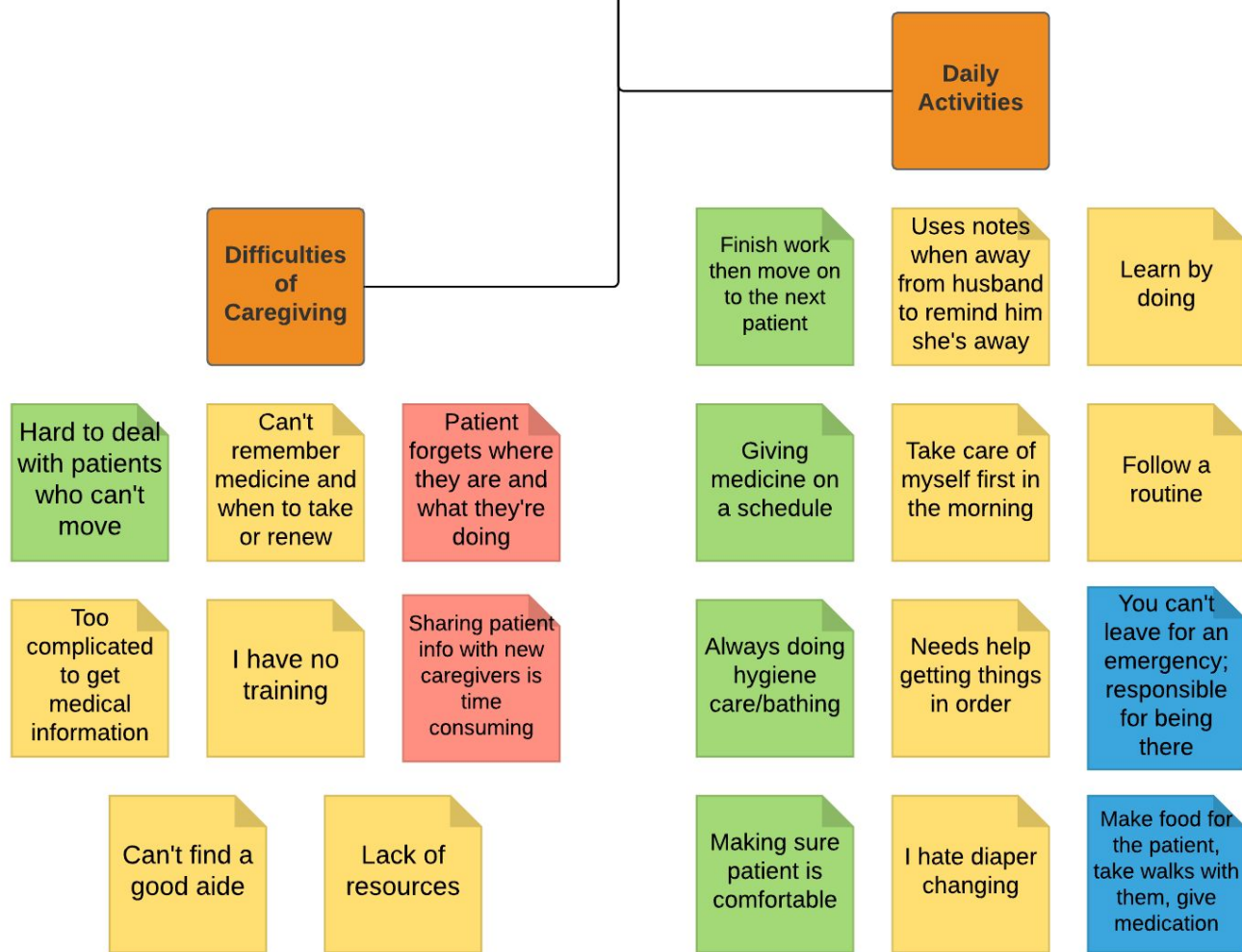
Feels isolated, no community

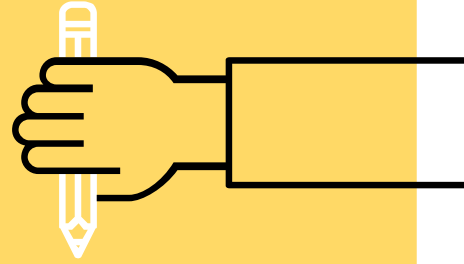
Doctors and nurses help with tasks

No community to rely on for support

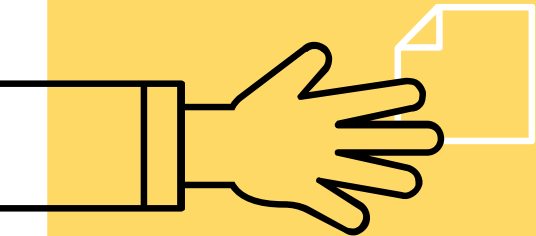
"Everyone else disappears"







3. Personas



Happy-to-Help Hana

Name: Hana

Gender: Female

Age: 24

Education: Jefferson College of
Nursing, BSN

Occupation: Nurse

Marital Status: Unmarried

Location: Philadelphia, PA



Background/Motivations

Growing up, Hana's parents were always working and had little time to take care of the home and family. Hana was left to take care of her younger siblings as well as her aging grandfather from a young age. Caring for others became second-nature to Hana and she is always happy to be of service whenever she can be. She went to school for nursing and began working at Philadelphia Nursing Home after graduation. She empathizes with the families of dementia patients because she is reminded of her own grandfather. She cares for her patients as if they were her own family and is upset when patients' families neglect them. She understands that interacting with a dementia patient can be frustrating, but patients' conditions improve greatly when their families are active and present in their lives.

Challenges with Caregiving

- Seeing patients' families suffer from lack of resources and understanding of dementia
- On busy days, it gets hard to keep track of multiple patients
- With severe cases, the patient needs more specialized care that is beyond our scope

Needs

- Easier way to share patient information with other caregivers
- Easier way to keep track of multiple patients' schedules
- Easier way to monitor multiple patients' statuses, something that alerts me if something needs my attention

In Hana's Words

"I love being there for my patients, it reminds me of my family. It makes me happy to know I'm doing everything I can to make it easier for them."

"Sometimes, patients need more specialized care than we can provide here at the nursing home, but families are resistant to seeking additional help. They rely on us for everything."

"I wish patients' families had more support outside of the hospital. Coping with a loved one developing dementia can be very stressful, especially when they don't have resources."

Stay-at-home Sheila

Name: Sheila
Gender: Female
Age: 63
Education: Master's Degree
Occupation: Stay at home mom
Marital Status: Married
Location: Northeast



Background/Motivations

Sheila's husband was diagnosed with early onset dementia two years ago. She has no background in caregiving but she was the only one that could take care of her husband. She used to work part-time but her husband's health started demanding more care. Caregiving has been a trial-and-error process for her. Since she is not trained, she's not sure how well she's taking care of her husband. Her daily routine requires her to take care of her husband first before taking care of herself. Her physical and emotional health has declined after starting to caregiver. She spends most of her time at home because she cannot leave her husband. Sheila is pretty tech-savvy so she uses her Nest cameras to watch over her husband while she's away.

Challenges with Caregiving

- No community support
- Lack of resources to learn more about dementia
- Difficulty communicating with her husband

Needs

- Easier way to store her husband's medical information and history
- Easier way to help husband's memory
- Easier way to keep track of her husband's needs and schedule (i.e. when to take medicine)

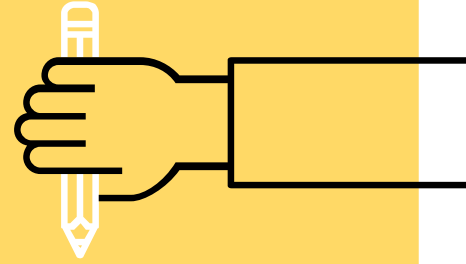
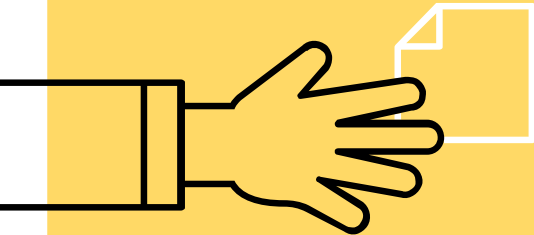
In Sheila's Words

"I wish there were more resources, understanding, and awareness about being a caregiver. Caregivers, unless they are hired which they are usually not, have a stressful job and it probably takes life off that person - like years off their life."

"A typical interaction is I will be trying to give instructions and him not comprehending. It gets frustrating because he won't listen. He doesn't want to view himself as incapable."

"Time, date, where they are, what's happening are things [dementia patient] tend to forget. If an app can help them with that, it would be perfect."

4. Solution Proposal



MOBILE APPLICATION

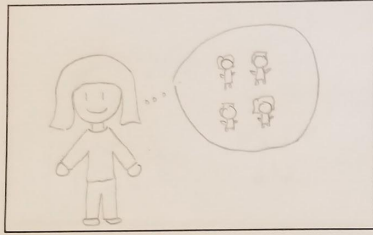


- ▶ Mobile application for caregiver that offers:
 - Tools to monitor patient
 - Task scheduler
 - Caregivers' community
 - Patient medical history tracker
 - General dementia information

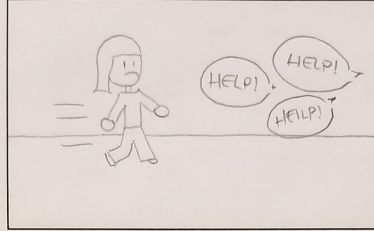
▷ Smartwatch Companion

- Monitor heart rate
- Track location
- Patient medical history
- Alarm for when caregiver should perform tasks
- Reminders of time, date, and general “what’s happening”

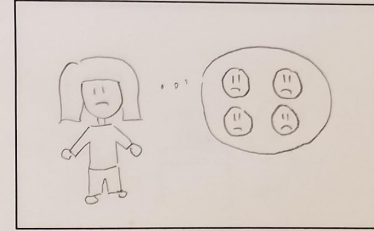




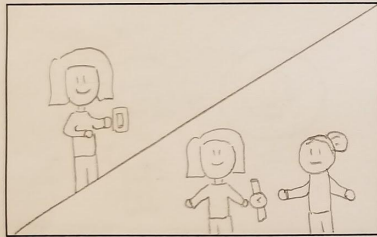
Hana cares for four different patients at Philadelphia Nursing Home.



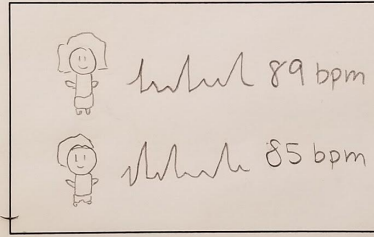
The nursing home is understaffed and Hana is constantly moving around the facility.



She gets worried whenever she is away from a patient and worries that something will go wrong in her absence.



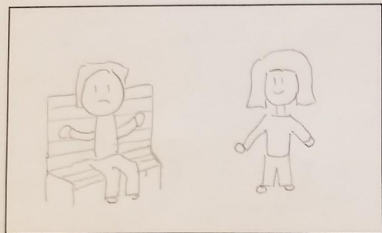
Hana downloads the app on her phone and syncs with a wearable device / smart watch that she gives to each of her patients.



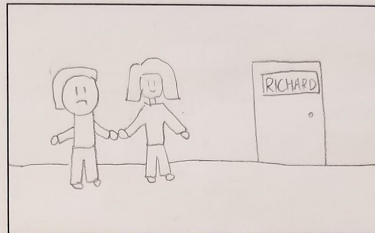
The device stays on her patients at all times and monitors their vitals and locations



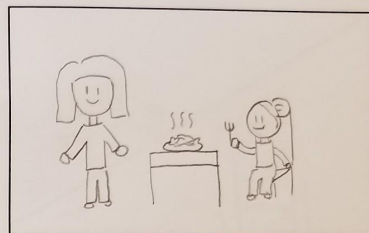
While Hana is feeding Charlotte in one room, her phone alerts her that Richard's heart rate is rapidly increasing



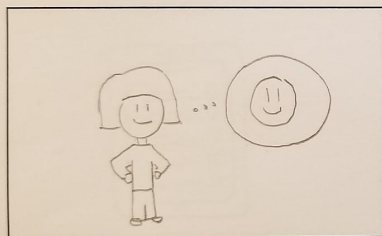
Hana rushes over to Richard who is sitting on a bench, panicking because he forgot where he was



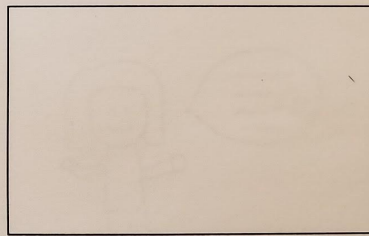
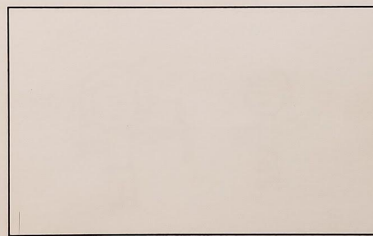
Hana is able to calm Richard down and bring him back inside to his room.

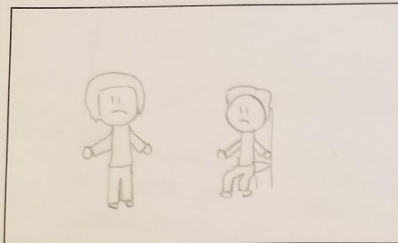


Hana returns to Charlotte to finish what she was doing



Now Hana doesn't have to worry about being away from her patients.





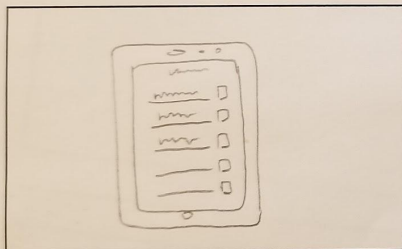
Sheila is an untrained caregiver taking care of her husband who has dementia at home



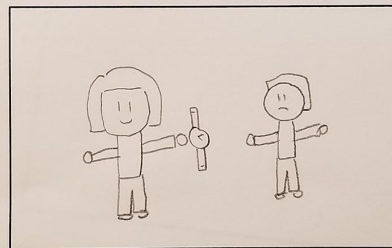
Sheila feels overwhelmed with all the things that need to be done daily to take care of her husband.



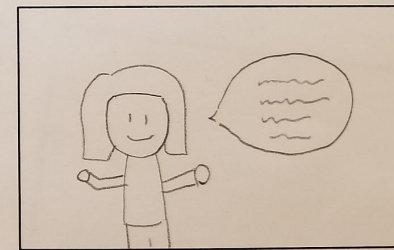
Sheila downloads the app



She adds her daily activities to the scheduler feature.



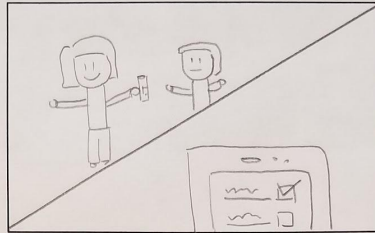
Sheila gives a smartwatch to her husband.



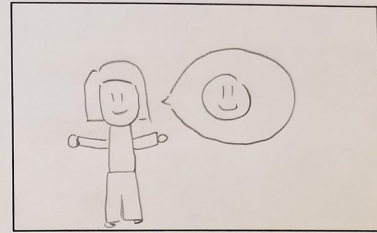
Sheila explains what a smartwatch is supposed to do.



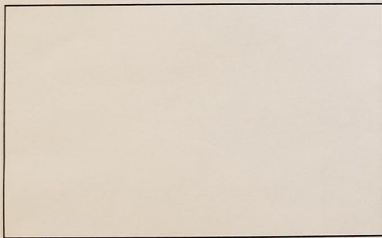
Sheila then gets a notification saying
"needs to take XYZ pill"

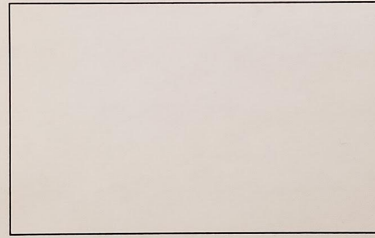


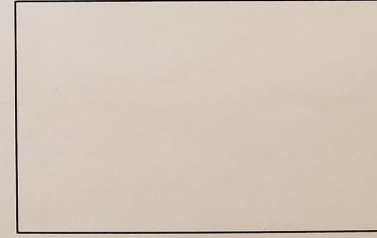
Sheila gives medicine to her husband
and checks it off as complete



Sheila feels a lot more on top of things
and less disorganized because the
scheduler has helped her.







THANKS!

Any questions?

You can find us at:

<https://sites.google.com/scarletmail.rutgers.edu/techtrio/home>

