

MORAL DISTRESS THERMOMETER



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Moral Distress Thermometer Report

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This document is an effort to analyze the Problem Space and come up with varied solutions using affinity diagramming, mental model diagramming, brainstorming and conceptual designing.

PROBLEM SPACE DEFINITION

Introduction

We began with an initial stakeholder discussion and discussed the perspective of the problem from their point of view and their existing research. In this project our stakeholder was Dr. Lucia Wallace, who is an ethicist and a researcher. Her research combines ethics and distress amongst the nurse community and studies their implications on the behavior. Our initial meetings with her shaped our understanding of the space of ethics and moral distress. The meetings led to an understanding of the following business objectives that she was looking forward to achieve through this project. These objectives formed our business requirements on the basis of which we started our initial research and interviews. The following section lists our business requirements and an initial understanding of the project.

Business requirements

- **Authentication:**

Provide the user with the authenticated entry to the system by sign-in. This feature will ensure secured access to the application for the nurses and Nursing Managers.

Authenticated access to the application will ensure the privacy of user's data.

- **Record the level of distress**

This section of the application is mainly for the Nurses to record the moral distress parameters. This feature will have two more sub categories:

1. Record Moral Distress Level using Thermometer Analogy
Nurses will select the level of their Moral distress with a Thermometer analogy
2. Select all possible causes for the Moral Distress

Nurses can select possible causes of the moral distress level with multiple options.

- **Aggregate Moral Distress Level**

A Nursing Manager should be able to view and print an aggregate level of Moral Distress in a particular Nursing Unit. The access to this page will also be secured by providing authentication to the Nursing Managers.

Literature Review

Validating the problem of Moral Distress:

The literature review that we conducted was aimed at validating the problem that we identified in our stakeholder meeting. It was also conducted with the aim that we identify existing technology solutions to the problems that we have identified in our discussions. Every nurse is an advocate of the well-being of every patient; this forms a central part of their schooling as a nurse practitioner (International Council of Nurses, 2012). Moral distress occurs when the nurses want to advocate for the user but fail to do so, due to several hindrances (Jameton, 1984). A recent study on moral distress in nurses suggests that, there is highest level of moral distress found in critical care nurses as compared to non-critical care specialties (Whitehead et al., 2015). Moral distress is a very prevalent phenomenon among health care practitioner, that includes nurses, causes job dissatisfaction (De Veer, Francke, Struijs, & Willems, 2013), burnout (Whitehead et al., 2015), emotional exhaustion on the job (Meltzer & Huckabay, 2004; Oh & Gastmans, 2015), staff turnover, that further results in reduced quality of patient care (Burston & Tuckett, 2013; Corley, 2002). Another recent multi-site study conducted of 323 healthcare professionals, including nurses, suggests that professionals who look to leave the healthcare profession or who have already left the profession rate moral distress as the prime cause of this decision (Allen et al., 2013). All nurses regardless of their professional preparation are at risk for moral distress.

Research in the area of measuring mental health:

There have been attempts to use scales that measure emotional well-being of a person. One such example is the Maslach Burnout Inventory scale that assesses different types of burnout. It assesses the three important measures of burnout which are emotional exhaustion, depersonalization and reduced personal accomplishment (Maslach, et al 1997). There is one more attempt in measuring the psychological behavior of general users which is called the Cancer Coping Questionnaire (CCQ) (Moorey, et al 2003). The research community has come up with a scale to measure Moral Distress phenomenon. Along these lines is the Moral Distress Scale (MDS), which is a 38 item instrument that has different clinical conditions that lead to ethical issues and moral distress amongst nurses (Corley et al., 2005). "The clinical situations included several categories: individual responsibilities (physician practice, nursing practice and institutional factors), care not in the patient's best interest (futile care), deception and euthanasia" as stated by Dyo, et al 2016 .

Technology and Healthcare:

There have been attempts to use technology in nursing care to improve the lives of nurses who are constantly striving to help improve patient care. The technologies which facilitate non-invasive and less invasive use of treatment and diagnostics will help nurses provide a stress free care to the patient (Carol 2013). Health care providers, which include nurses, handle a big amount of patient records 24 hours a day and 7 days a week. These records provide coordinated care to the patients and facilitate accountability (Carol 2013). The Electronic Health Records are of great help to not only the nurses but also to the other health care practitioners. Many federal programs currently exist to support EHR adoption, including those around *meaningful use* (capturing the right data that can improve patient outcomes); the implementation of electronic information exchange; consumer e-health; and workforce training (Centers for Medicare and Medicaid Services, 2010; Take 5 with a Nurse Leader, 2012). There are tattoos that have been developed for diabetes patients to monitor blood glucose without pricking fingers or bruising their skin for injections (Howard 2011). These have greatly reduced the amount of patient care and the nurses have to be less distressed about patient advocacy. Judy Murphy, deputy national coordinator for Programs and Policy at the Office of the National Coordinator (ONC) for Health Information Technology, Department of Health and Human Services, in Washington, DC stated that "I used to think we [nurses] provide

health care first, and that the need for health information was secondary” (Take 5 with a Nurse, 2012, para. 8). Murphy suggests that in this age of information we cannot separate information technology and healthcare. The nurses need the right information at the right time to make decisions that help them improve patient care and act ethically. She also suggests seeing nursing profession as an information based profession and technology plays a part of taking this information to the point of care (Carol, 2013).

Technology, Nursing and Moral Distress:

We found that there is a lot of research done in the areas of defining moral distress in nurses. The researchers have explored areas where in they have succeeded in finding the factors that have caused moral distress to the nurses and nurse managers. We have also seen in the aforementioned sections how the technology is ready to revolutionize the area of healthcare in a lot of ways. We have not found a lot of research that has combined moral distress amongst nurses with the technology. We have found research where the nurses have been exposed to technology for e.g. Electronic Health Records, ECG monitors etc. but there is no such technological solution developed in the area that caters to moral distress amongst nurses. Our solution will be one such unique area or a step towards improved mental health of nurses and a good visibility of that problem would be communicated to the nurse managers for them to take appropriate actions to avert the crisis. We hope to achieve this from our solution.

User Requirements

In our user interviews sessions we followed the same process of validating our problem space given to us by the stakeholders and also worked on gaining more insights from the users as to what they really expect from the solution. These sessions also helped us get an idea about their lifestyle, work hours and the environment that they worked in. The following are the few of the insights that we got from our user interviews. We look forward to add more to these as and when we get more data.

Introduction of User Sessions:

We conducted three interviews at the IU Health Hospital coffee room. The unit that we covered was Intensive Care Unit, where most of the critical care nurses worked. The patients in this unit are mostly the ones who are the most critical than the other units. This brings us to the

hypothesis that the nurses are a lot more distress in these units than the others because the rate of deaths is higher in these units than the others. These nurses were asked to a part of the sessions in their break times. The following is the procedure that we followed:

1. **Introduction:** We made them aware that we are working with Dr. Lucia Wallace
2. **Welcome and Project Brief:** We read the Interview Script to each of the nurses(See Appendix)
3. **Consent:** We asked them for their consent for recording audio
4. **Survey:** We provided them a survey sheet questionnaire(See Appendix)
5. **Interview:** We asked them a few open ended questions to get their insights(See Appendix)

Views of Different participants:

Participant One Summary:

- Lack of staffing the reason for moral distress
- She does not like to open up in front of the team because she believes in team cohesiveness
- She does not use technology to share her experiences but instead uses it to de stress by window shopping or browsing
- She does not feel confident sharing information online neither are is she allowed to share experiences online
- She reads religious books to de-stress herself
- Her work timings restrict her to meet the required consellers or consultants arranged by the health administration
- The ethics classes of ' Stress and Coping with the Stress' is helping here cope up with the stress
- She enjoys spending time and sharing her stress related issues with family even if they no longer know the context of her work
- She is aware of certain scales that help measure mental health for eg: Maslach burnout scale, cancer patients tool

- Drinking occasionally

Participant Two Summary:

- She does not bond with Managers and higher authorities
- She prefers a few set of close peers, whom she considers as friends for sharing information
- She thinks that the physicians go too far with the treatment of the patients and that adds her moral distress
- She is religious and uses going to church as a means to distress
- She does not like to carry mobile phones with her or any type of technology

Participant Three Summary (Nurse Manager):

- Her every day is not the same and also has an option of working remotely but does not prefer
- She keeps her professional and personal life separate
- Nurse Managers are siloes, neither are they part of the leadership nor do they connect with the bedside nurses
- She considers that the reason for unionization of the nurses is because of high level of distress in their job.
- Several other reasons apart from distress for a lot of nurses is getting fired and not able to voice their opinion
- The causes of her personal distress is her workplace being not competitive enough, she has to stretch her staff too much and when she is given assignments that would be tough
- She mentioned that charting for the nurses is a difficult. The charting has to be done every one hour for Intensive Care Unit patients and every two hours in case of Progressive Care Unit patients.
- Her hobbies include reading , gardening, drinking occasionally
- She sometimes feels disenchanted with leadership and feels powerless
- Does use online tools like vitalsmart.com and is impressed by the EHR technology

Final Scope

The combination of business requirements, literature review and the current state of user interviews are moving forward in the direction of the following scope. At this stage, we think the solution should consist of the following theme or areas:

1. Data Collection Module:

This module will help us explore the ways technology can intervene to improve the collection of data from the nurses. The constraints here would be to identify most simplistic ways to capture data and at the most appropriate timing.

The image below indicates the reference to capture different parameters of moral distress.

Moral Distress Thermometer

Moral distress occurs when an individual's moral integrity is seriously compromised, either because one feels unable to act in accordance with core values and obligations, or attempted actions fail to achieve the desired outcome.

Please draw a line on the thermometer that best describes how much moral distress you have been experiencing related to work in the past week including today

Many things can contribute to feelings of moral distress. Please put a check in the box to indicate factors that contribute to your current feelings of moral distress. If other things not on the list are contributing to your moral distress, please provide information where there is an "other" option.

Clinical Triggers

- Current treatment
 - o unnecessary
 - o causes undue harm
 - o non-beneficial
 - o prolongs dying
 - o hastens death
 - o not in patient best interest
 - o Disregards patient preferences
 - o Based on surrogate demands
 - o Due to provider preferences
- Inadequate symptom relief (e.g. pain, dyspnea)
- Unclear goals of care (lack of treatment plan)
- Lack of consensus regarding treatment plan
- Lack of continuity treatment plan providers
- Other _____

Communication and Interpersonal Issues

- Information withheld
- Incorrect information
- Feeling "in the middle" between key stakeholders
 - o Between physicians and patients
 - o Between family members and patients
- Providers giving false hope
- Inadequate team communication
- Intra-professional conflict (e.g. RN to RN)
- Inter-professional conflict (e.g. RN to MD)
- Work with clinically unsafe staff
- Fear of retribution if I speak up
- Feeling disrespected by those in authority
- Other _____

Legal and Regulatory Factors

- Treatment plan focused on risk avoidance
- Compromised care due to cost containment
- Tension between ethical and legal perspectives
- Other _____

Are you thinking about leaving your current job due to moral distress? YES NO

Internal factors

- Feeling powerless
- Difficulty stating the ethical issues or ethical concerns
- Lack of assertiveness
- Self-doubt, Clinical inexperience
- Socialization to follow orders
- Personal values compromised
- Professional values compromised
- Other _____

Institutional/Environmental factors

- Lack of involvement in decision-making
- Inadequate staffing
 - o not enough
 - o not right mix
- Lack of administrative support
- Policies that conflict with care needs
- Tolerance of disruptive/abusive behavior from staff
- Tolerance of disruptive/abusive behavior from patients/families
- Issues of unequal power within healthcare system
- Inadequate resources to meet patients' needs
- Excessive documentation requirements
- Preferential treatment of some patients/families (VIPs)
- Compromised care to marginalized populations
- Safety concerns
- Other _____

Please comments on anything you believe is relevant to your level of moral distress (e.g. a particular patient assignment, attendance at educational offering or contact with an ethics resource)

Figure: Scale and parameters for recording Moral Distress for Nurses

2. Therapy Recommendations: Based on the data captured and the state of the nurses distress level the solution will give them immediate feedback and therapy recommendation based on their preferences, severity level and other parameters that we learn about them.

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A. Follow up on the progress: This would be the sub module that would ideally help us follow up with the nurses by giving them extra care based or therapy reminders based on their consent.

3. Data Visualization Module: This module will visualize the data that the individual nurse capture and this individual nurse data would be aggregated to nurse managers without disclosing the identity of the nurses.

A. Aggregate Individual Nurse Data: This sub module will focus on the visualizing the individual nurses data.

B. Aggregate Nurses Data for Nurse Manager: This module will focus on visualizing the aggregate nurses' data to the nurse managers in order to take appropriate decisions. It also would have the ability to print out the visualizations to showcase its daily impact on the nurses.

Persona

Nurse



Judy is a charge nurse working in the intensive care unit from past 25 years for the same hospital. She has spent most of her life being a bedside nurse caring for patients. She works in shifts and sometimes outside her shifts when needed for extensive hours. Her daily routine includes monitoring patients, carrying out their daily chores, performing charting operations, looking after proper and timely medications of patients. Apart from these work responsibilities, she also bonds well on emotional front with the patients and their families. She shares a strong bond with the

patients and gets disturbed to see them suffer. She feels helpless at times when she is not able to do anything in certain situations. This causes her to encounter moral distress. Some of the other factors contributing to her moral distress include lack of staffing, extensive work, seeing the patients suffer, decision making of physicians. She likes to share her work day experiences with her family which helps her de-stress. She also involves herself on religious front to cope up with the stress induced to watching the patients and families suffer. Her comfort level with technology is not too high but she does make use of smartphones and desktops for her daily use. She believes family and friends to be her major support. She also sometimes feels unheard when it comes to higher management involvement in decision making.

Persona



Nurse Manager

Alice is a nurse manager working in the intensive care unit and manages a team of around 25-30 nurses reporting to her. She has been a bedside nurse before and then accepted the responsibility of a nurse manager. Being a bedside nurse in the past, she is very well able to relate to the moral distress caused to the nurses in her unit. She frequently approaches the nurses which seem to be facing moral distress and offer them suggestions for coping from the same. Her day looks very busy with very little time available to address all the nurses in her unit. She faces issues with monitoring and maintaining a healthy work environment which according to her is her major responsibility towards the nurses. There is no way to know the aggregate levels of moral distress for nurses in her unit. She also faces

problems with attrition rate of nurses and tries hard to lower it. Apart from work she engages herself in activities like exercise, gardening as a medium to de-stress from the work stress.

Making Sense of Data:

From the interviews and surveys we were able to collect huge amount of data from the nurses regarding their Moral Distress and their concerns about the same. The next step for us was to derive insights from the raw data collected and categorize it into buckets that would make sense about the data and derive modules for further conceptual design. Working on project in the healthcare industry requires special attention as our personas were the nurses and nurse managers who have to directly deal with patients. Understanding their needs and providing solution for the same is a critical task and requires deep analysis of the data collected. For categorizing the interview data and make sense from it we decided to go ahead with the Affinity diagram as one of the data modelling technique. We also wanted to know the nurses and nurse managers mental model regarding their concerns and the remedial measures they take to address those concerns.

Affinity Diagramming:

Affinity diagram helped us structure and categorize our interview data. We were able to draw useful insights from the affinity diagramming exercise. We started with listening to recordings of the interviews and listed down thoughts and ideas of the interviewee. We then went ahead with categorizing those ideas into buckets of Reasons for MD, Concerns of Nurses and Nurse Managers, How they manage their Moral Distress. Some of the insights gathered from the affinity diagramming process is as follows:

1. Reasons for MD can be intrinsic as well as extrinsic. Intrinsic factors related sufferings due to the nurses' emotional bonding with patients whereas extrinsic factors were related to organizational and institutional issues.
2. Nurses were mainly concerned about been only subjected to research and did not receive any solution to their moral distress as outcome of the research and interviews conducted.

3. Nurses also displayed willingness to share their situation with peers and nurse managers which was a surprising insight as opposed to the conclusions from the existing research on moral distress.

Below are screenshots of categories derived from the Affinity Diagram.

Nurses Affinity Diagram

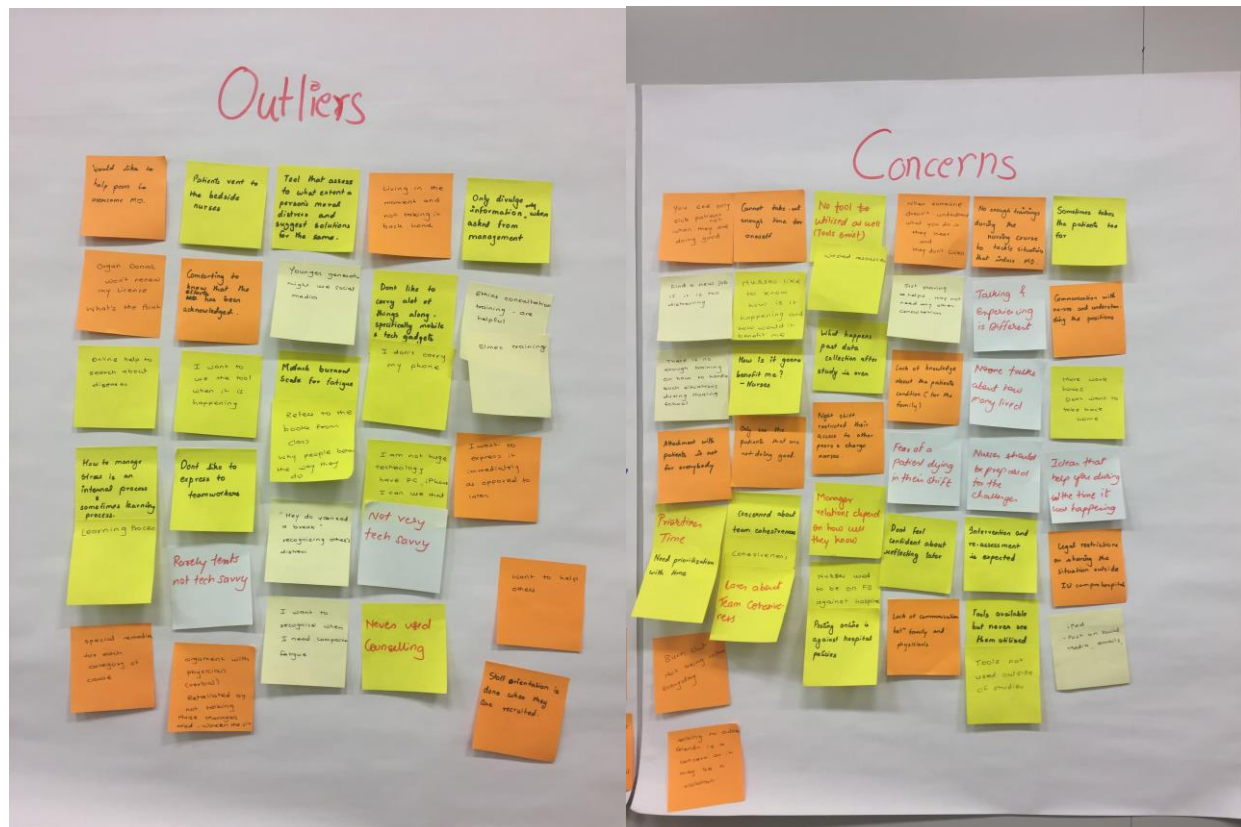


Figure: Outliers and Concerns of Nurses

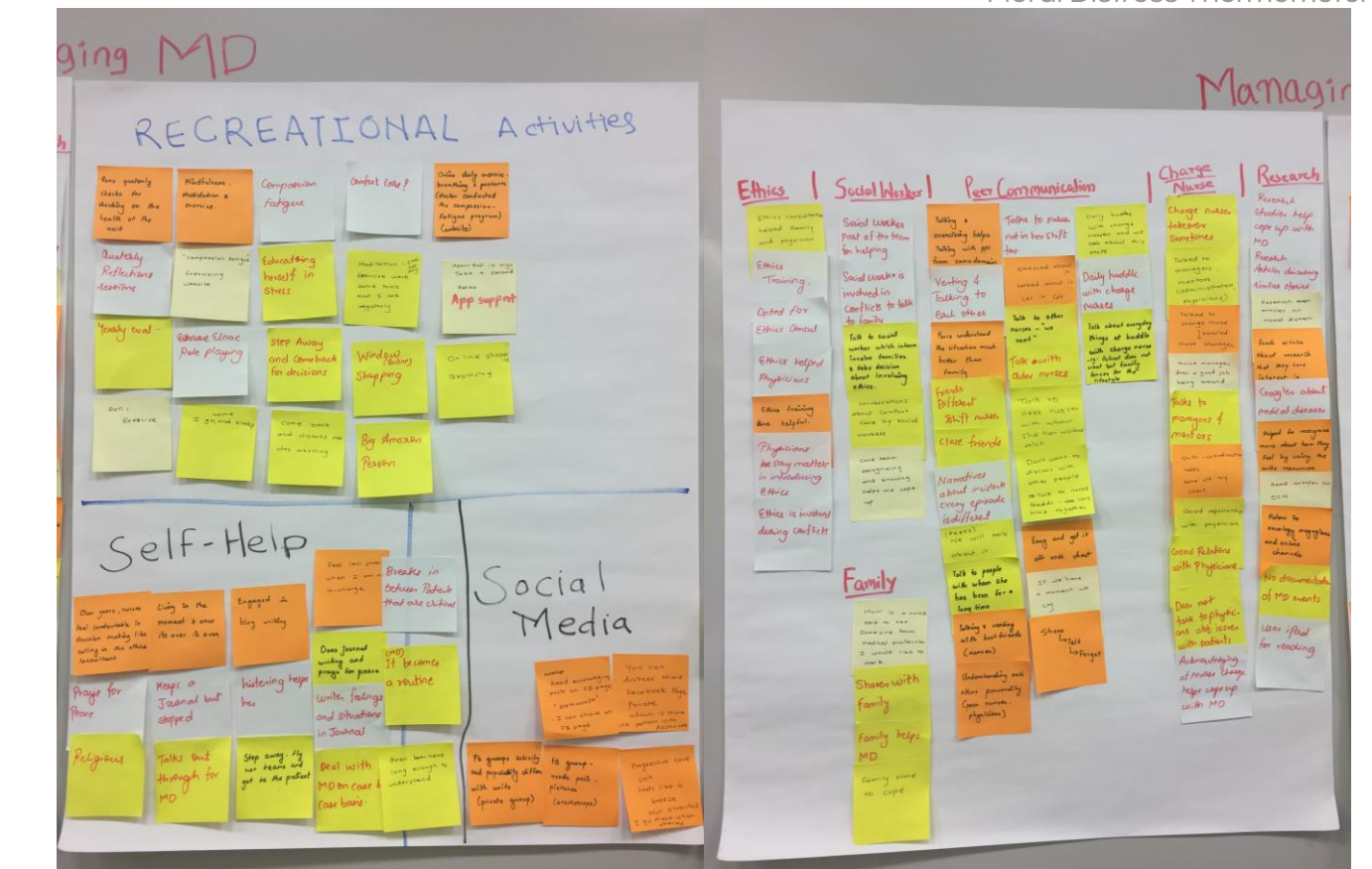


Figure: Management of Moral Distress



Figure: Reasons for Moral distress amongst nurses

Nurse Managers Affinity Diagram:



Figure: Identifying and addressing moral distress amongst nurse managers

Moral Distress Thermometer

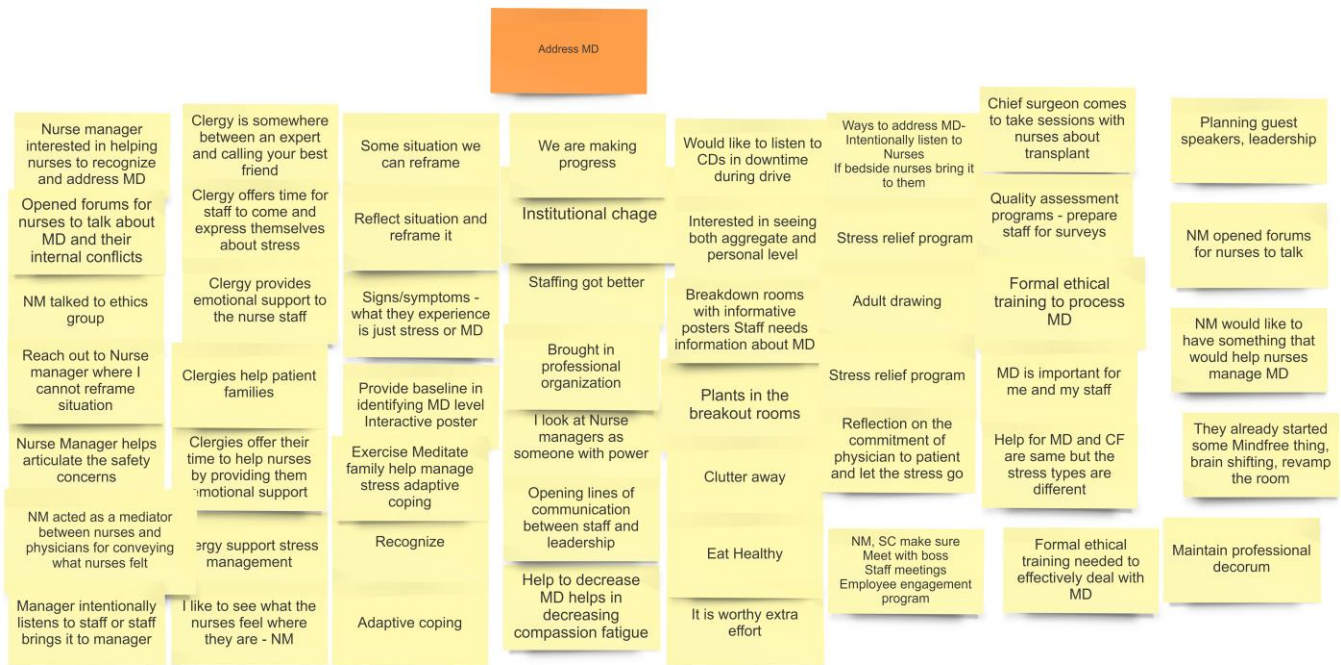


Figure: Addressing moral distress amongst nurse managers



Figure: Nurse Managers general concerns and concerns with tools

Mental Model Diagramming:

Mental model diagram is a visual depiction of how a certain group of people think and feel. This is shown as towers - like a city skyline where the organization features and services appear as support beneath particular towers. This data modelling technique helped us understand the thinking of Nurses and Nurse Managers to support their thoughts with the features we develop. We did the mental model diagram to see our data in a different perspective than the affinity diagram. The upper section of our diagram represents the causes of Moral distress whereas the lower section represents the solutions to those causes Young, I(2008).

The lower section of the mental model helped us in deriving a framework for the features and services of our conceptual solutions. Modelling the available data added an extra dimension to the information gained from the data.

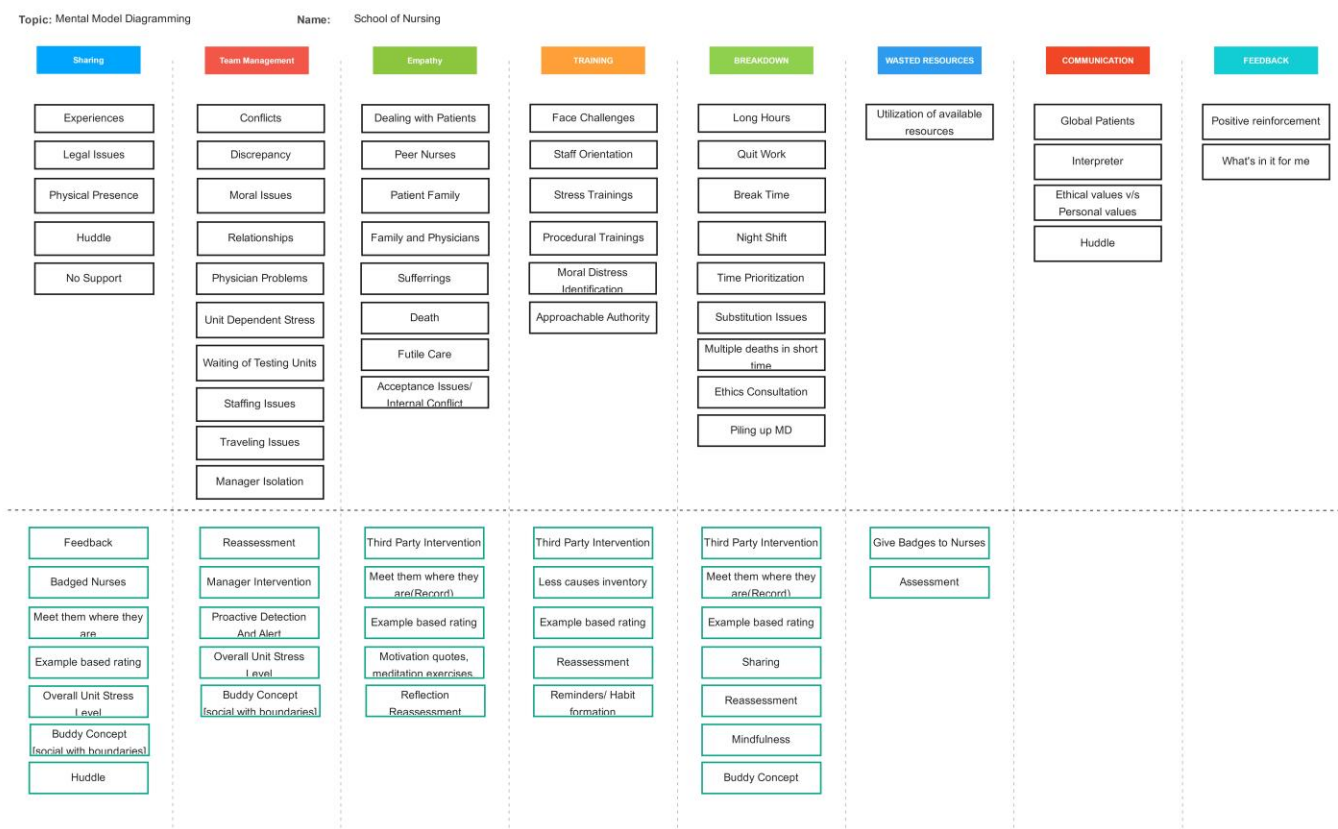


Figure Mental Model Diagram

Brainstorming Ideas:

After the data modelling exercise, we started individual brainstorming session taking into consideration the insights derived from the previous techniques. We each came up with five concepts which was further refined by conducting group brainstorming sessions to derive three concepts.

Three broad categories of solution are as follows:

1. **Only Strategic solution:** The idea behind having only strategic solution was to cater to the needs of nurses of not willing to use technology to a large extent. Many nurses mentioned using their cell phones for calling and texting purposes only. We wanted to keep in less tech-savy audience and design solution based on their needs. This gave rise to the solely strategic solution.
2. **Half and Half having both Strategic and technological approach:** This concept was derived keeping in mind the current advancement in technology and also at the same time adhere to the needs of nurses and nurse managers. With this area we hoped to target an innovative and out of the box solution that would use sensory signals to detect the moral distress and communicate with nurses using interactive intelligent technology.
3. **Only Technological solution:** The third conceptual design category is based on a complete technology solution such as wearables and mobile app. This concept catered to the young nurses who are tech-savy and most of the times use their mobile phones for social media and internet browsing.

Only Strategic

- * ① Relationship Tree //
- ② Badges for Nurses (helpers)
- * ③ Reweeling Tool (Tool for course)
+ Overall Unit Starts here!
+ Example based rating
- ④ Nurse help chain
- * ⑤ Knowledge sharing wall

Half n Half

- * ① Ipad recording + Weekly (anonymous) print of aggregate levels + Reflection day per week with printout
- ② Use something different for recording
- ③ A corner for mindfulness activities using technology + reward feature + podcasts + games
- ④

- ⑥ Reflection by painting + puzzles
- * ⑦ Interesting break out area.

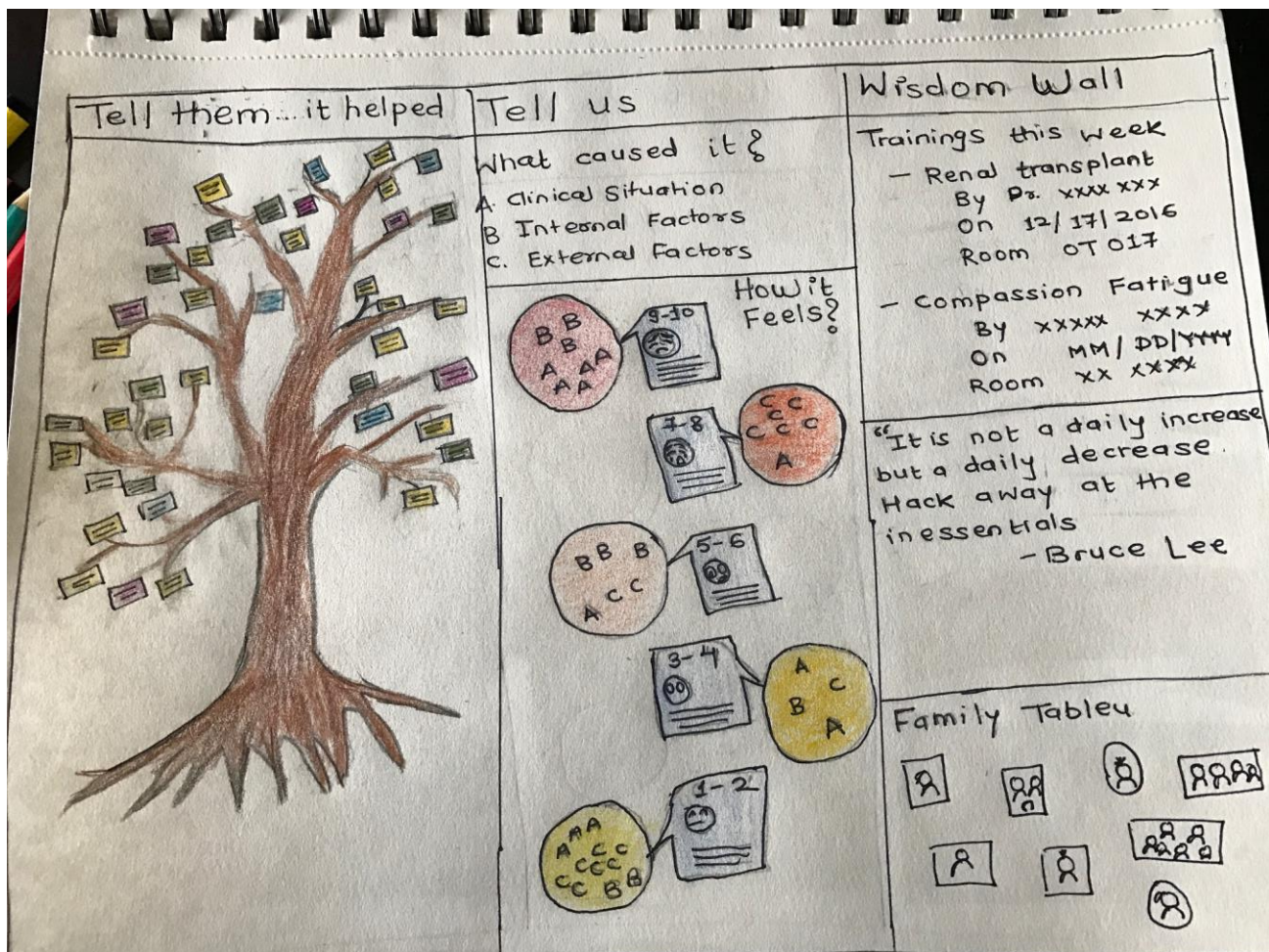
Only Technological

- ① iPhone App with recording levels & sharing
- ② A band to record your stress level + auto detection
- ③ Ratings for helper Nurses
- ④ Profile for Nurses
- ⑤ Ratings using Relationship Tree
- ⑥ Stable users help unstable users
- ⑦ Billboard Training + Wall (Motivation, mindfulness training, exercise, tips for the day) + Reflection painting, mindfulness activities

Conceptual Designs:

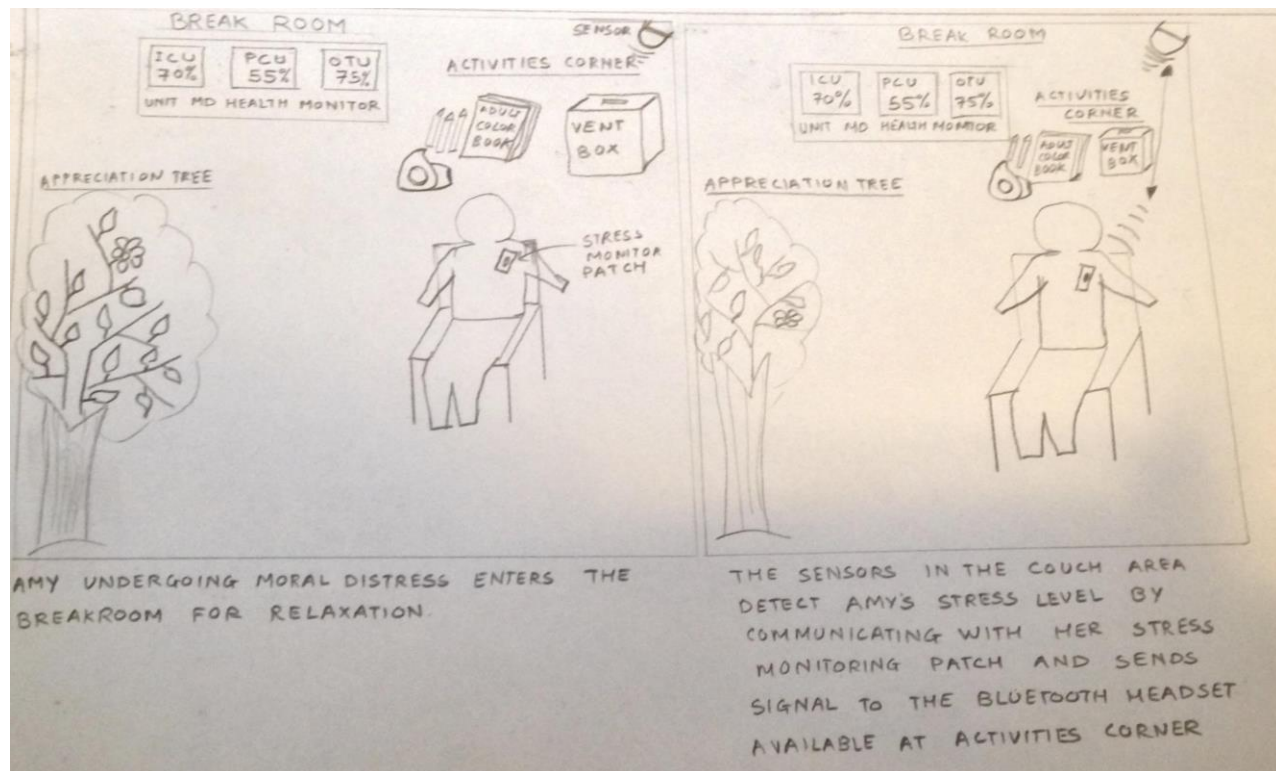
Concept 1: Strategic Solution

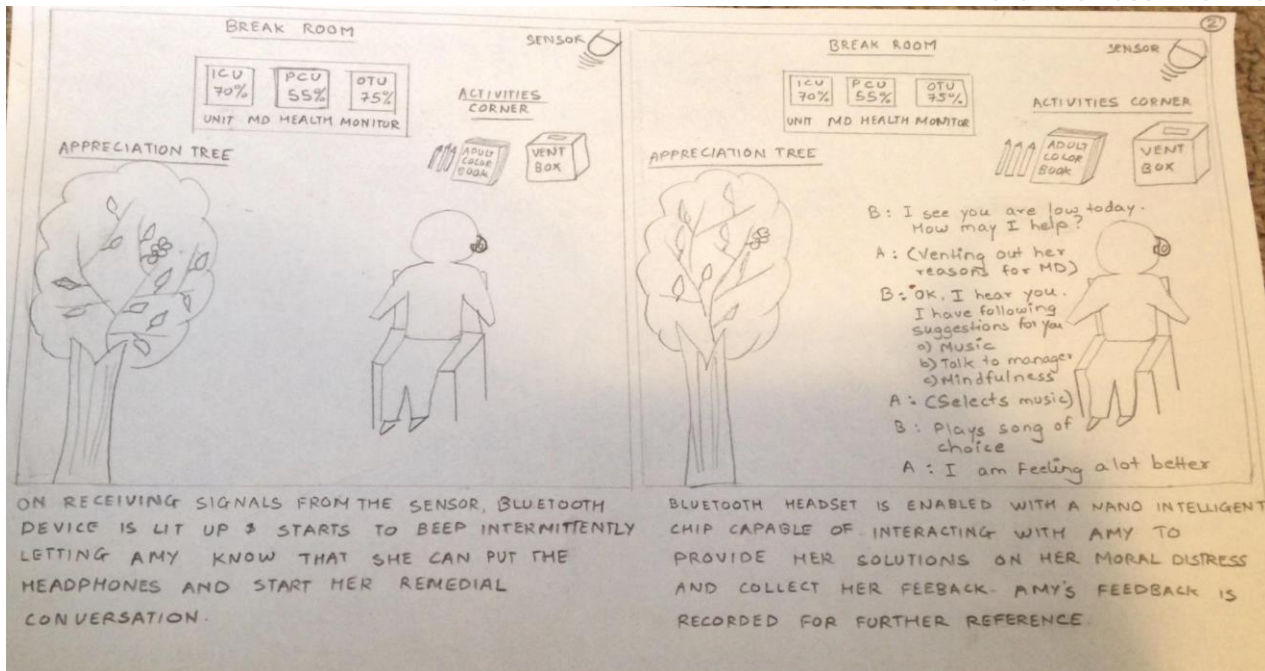
The below conceptual solution a complete whiteboard based solution in which the whiteboard setup would be placed in the breakout room for the nurses where they can come and record their Moral Distress level. The appreciation tree helps to value the peer nurses and nurse manager by posting appreciation notes as leaves and flowers on the tree. The more the tree flourishes the healthy a unit is. The whiteboard for recording contains levels of moral distress along with the example and reasons for a particular level. Nurses can choose a reason in an appropriate level of MD and mark it on the whiteboard. This gives nurse manager an overall view of the units MD level and reasons for the same.



Concept 2: Sensor detection of MD and bluetooth enabled intelligent robotic earbuds for interaction with nurses.

In this concept the nurse wears a stress monitoring patch. Whenever the nurse relaxes on the couch in the break out area the sensors mounted in the area detects the nurses stress level and sends signal to the bluetooth enabled intelligent robotic earbuds that begin to glow and beep to signal the nurse to put them on and interact with the system to address their MD.





Concept 3: Wearable and Mobile app for Nurses

The wearable would be used to record the Moral Distress for nurses and receive notifications about the messages from other peer nurses for help or any trainings scheduled by the nurse managers. The mobile app on the other hand will support an account creation and login process along with the profile page which allows the nurses to personalize the settings according to their needs. The progress section would give them a glimpse of their activities and progress over days, weeks and months. Breakout area is more like a social forum with boundaries for nurses to vent out or share their Moral Distress or stress level with their peers and nurse managers.

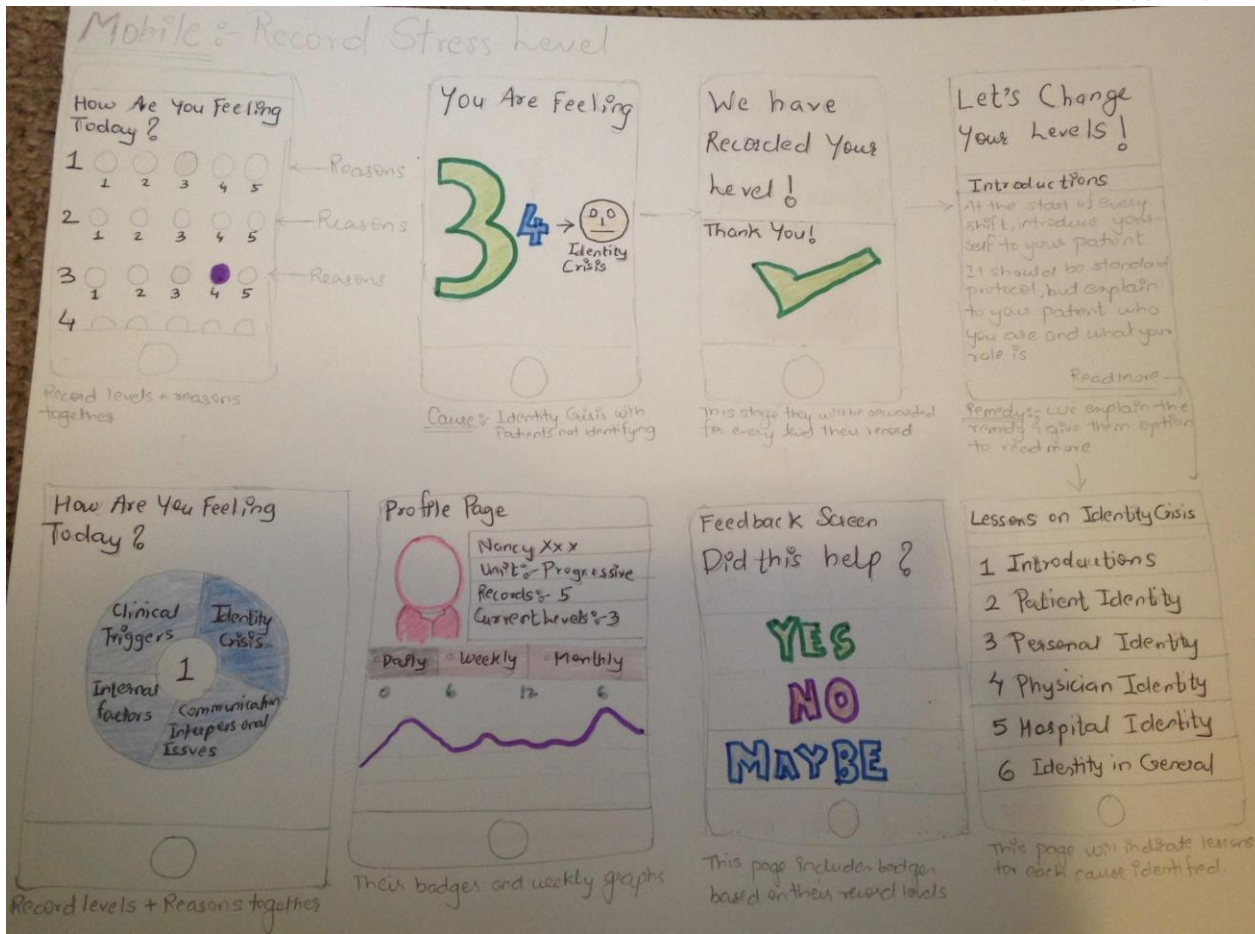


Figure: Mobile App for recording the level of Moral distress for Nurses

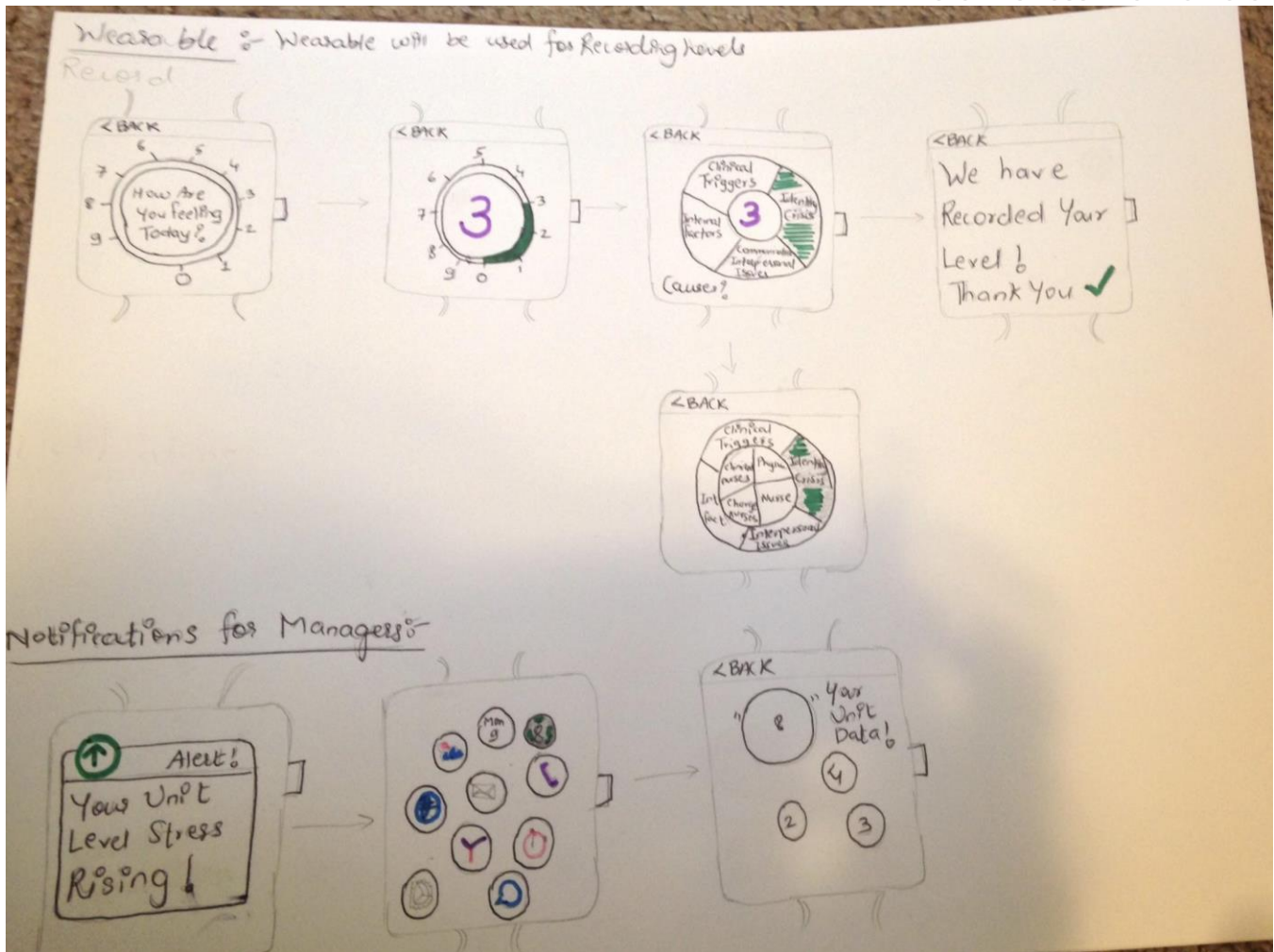


Figure: Wearable app for recording and notifying moral distress for nurses and nurse manager

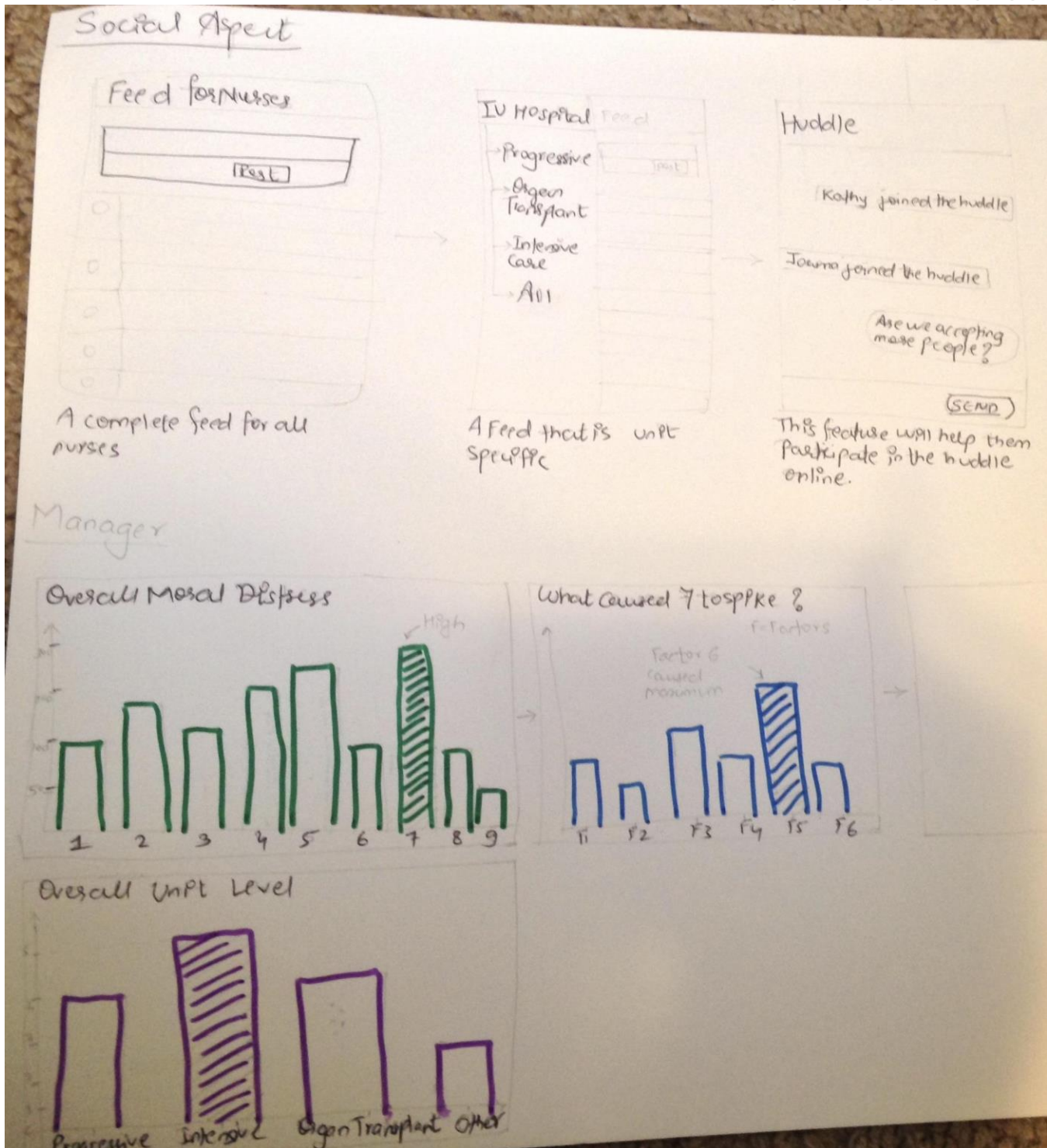
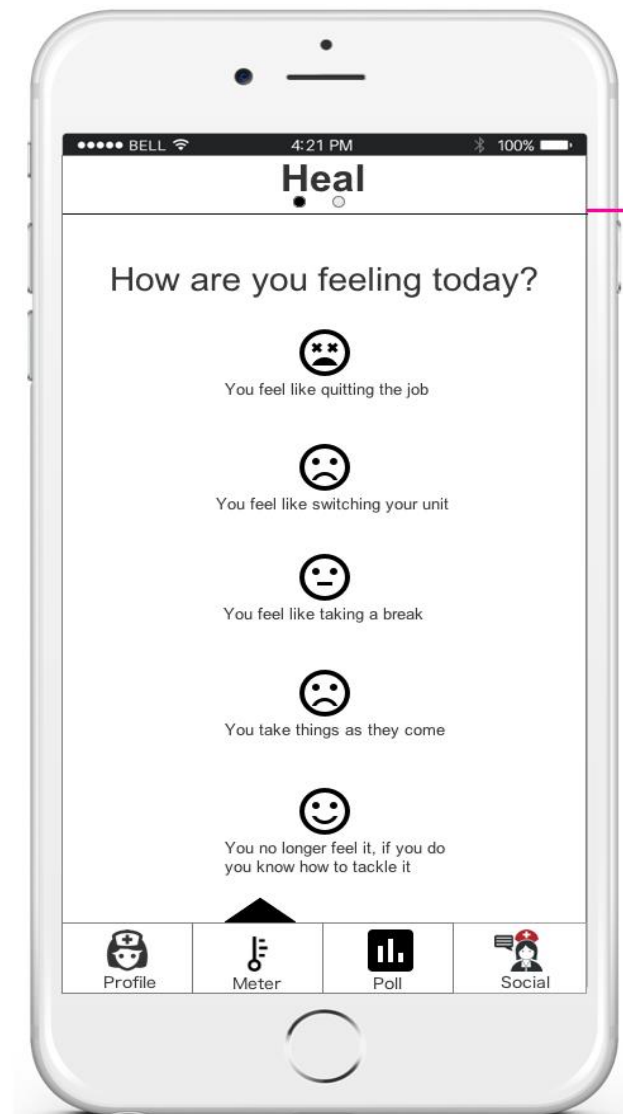
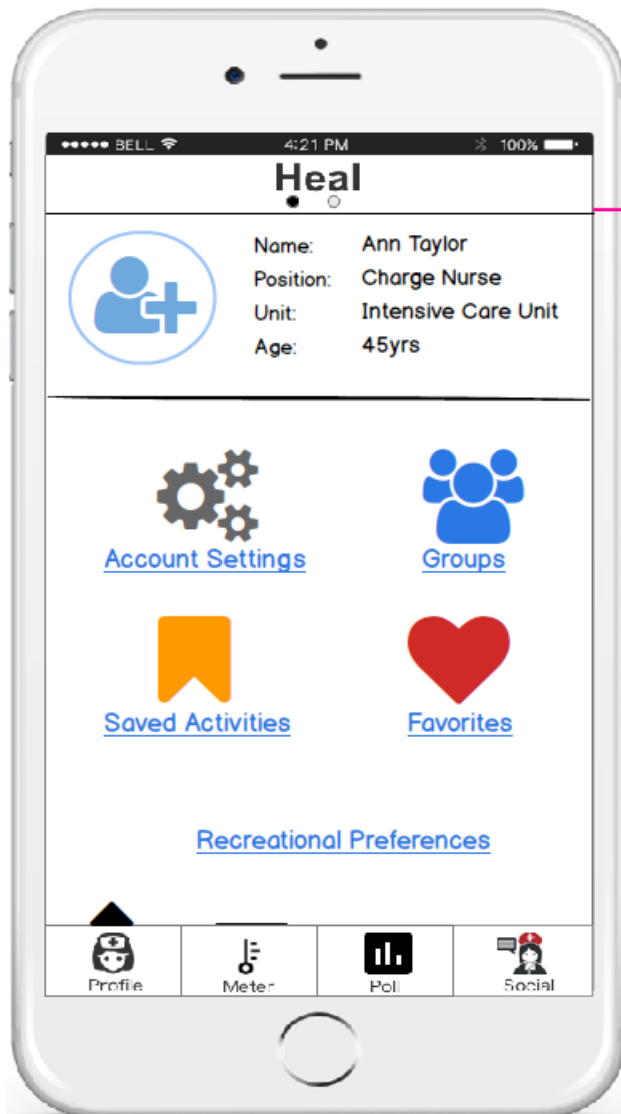
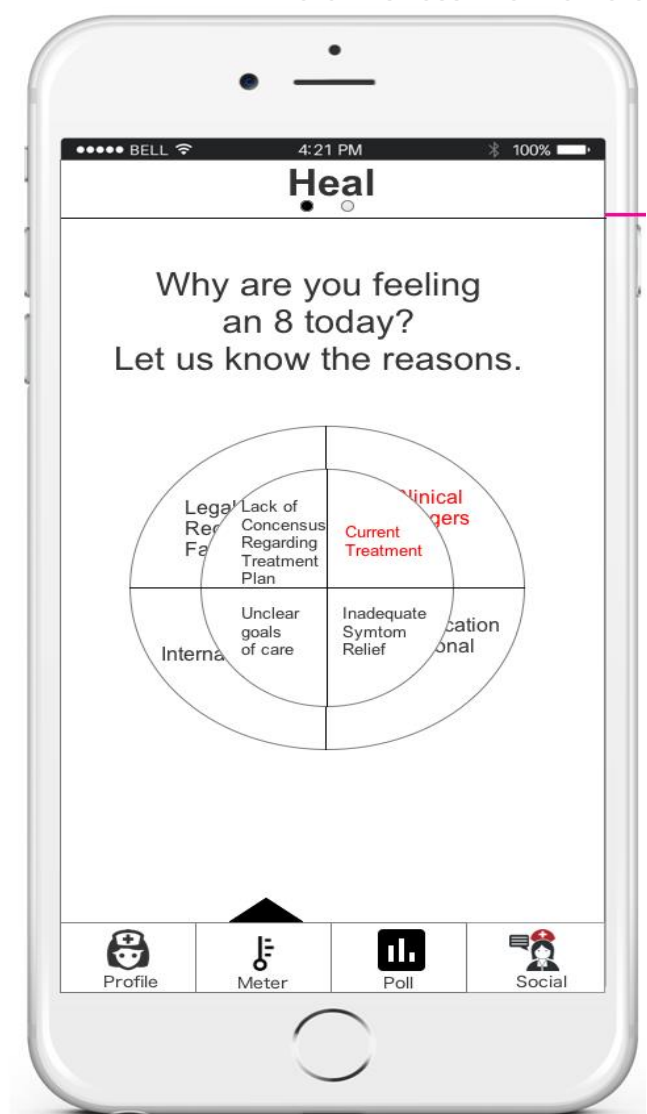
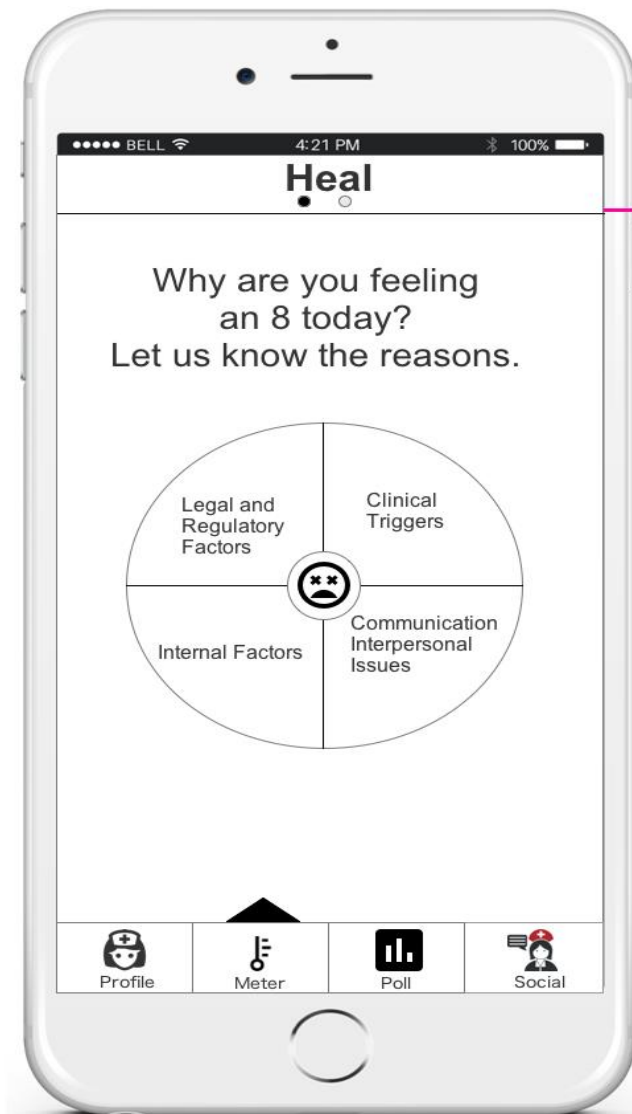


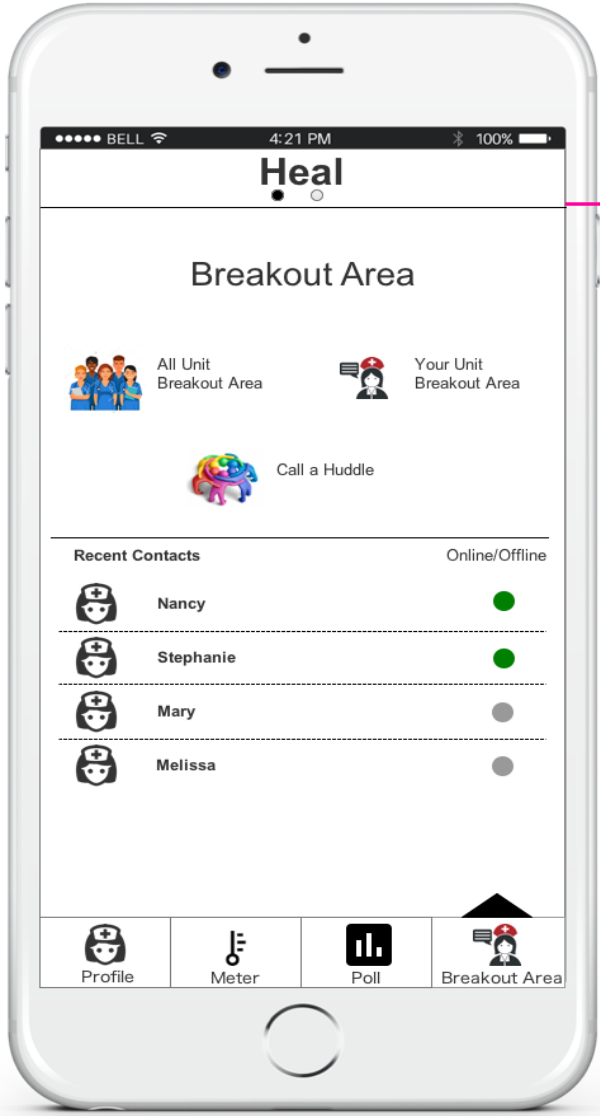
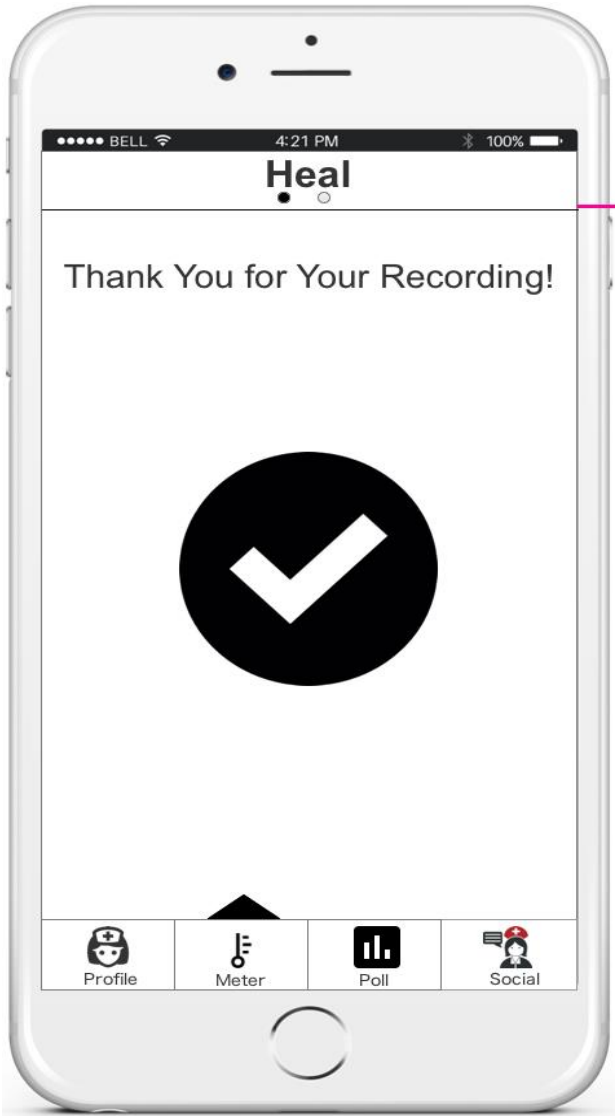
Figure: Dashboard concept for nurse managers

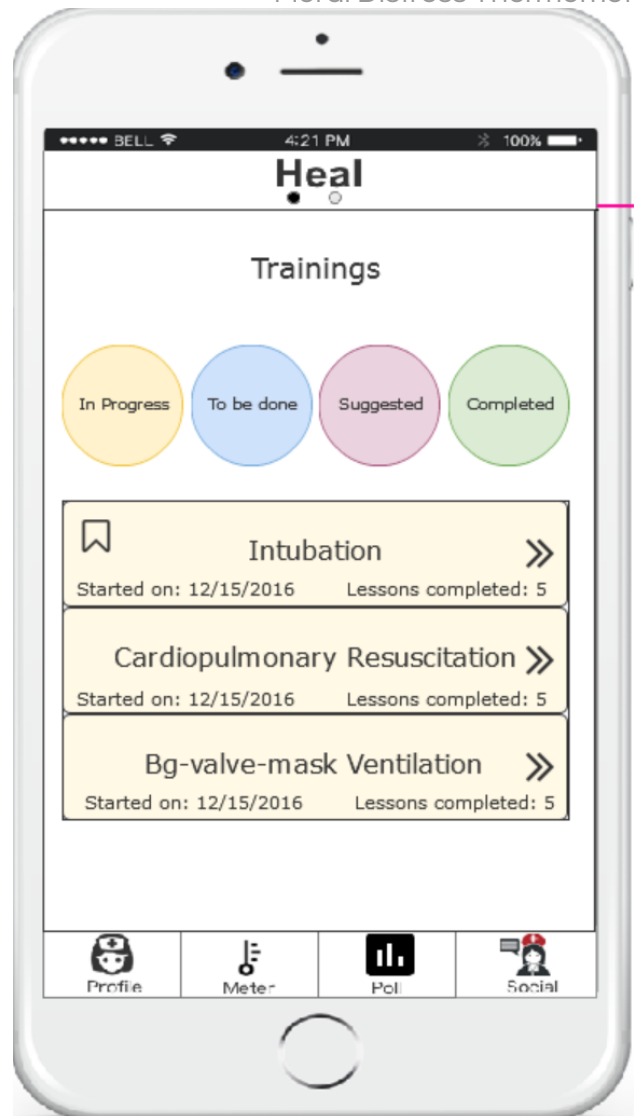
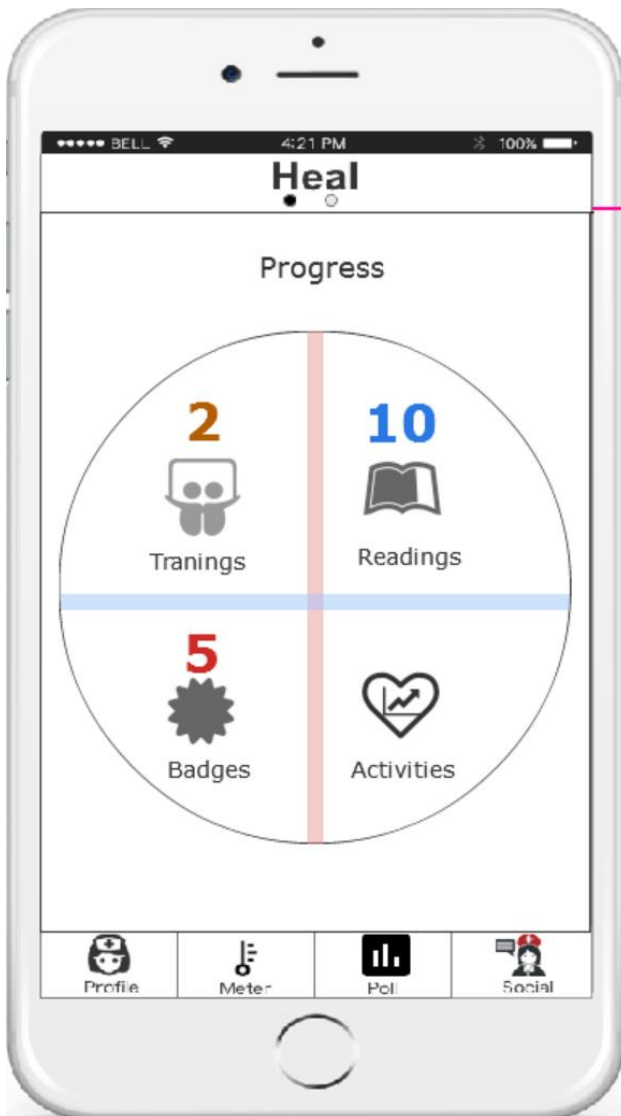
Low fidelity Screenshots:

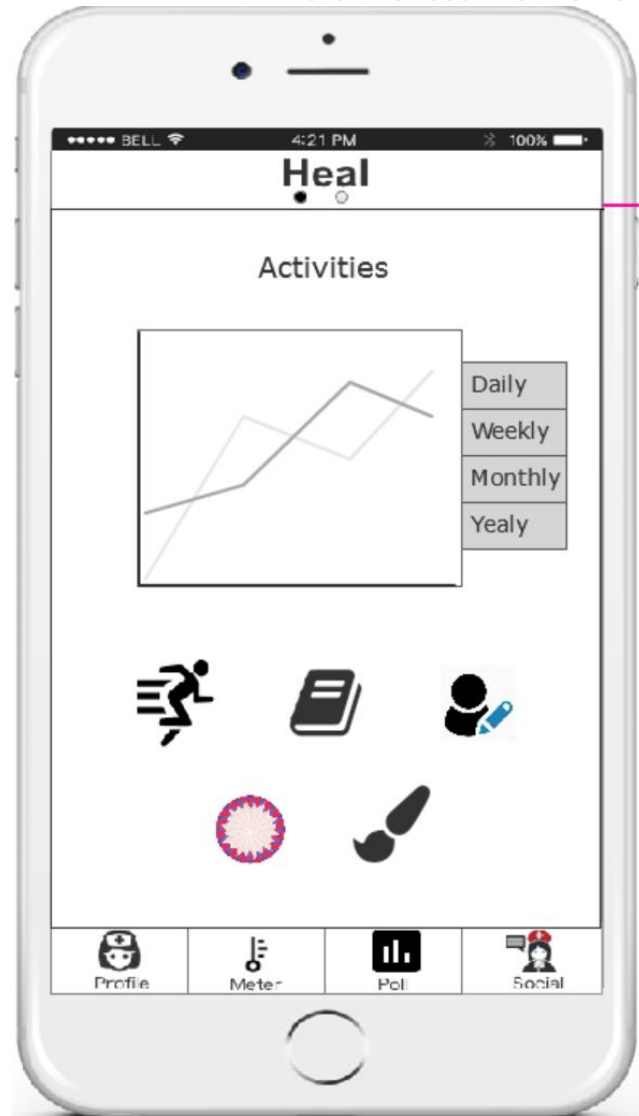
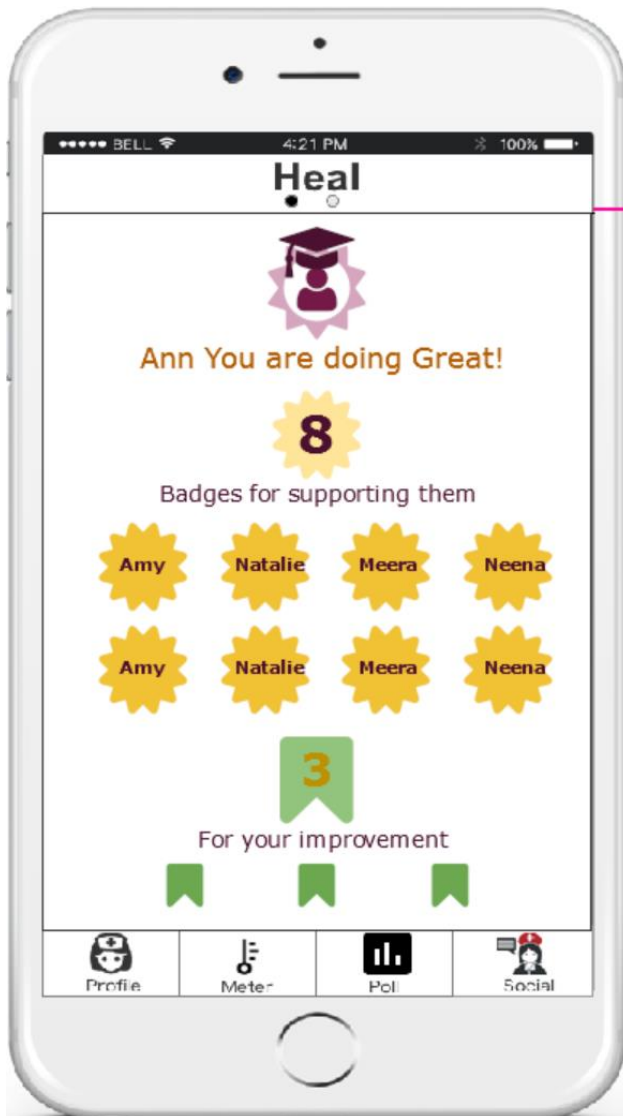
The final concept chosen for low fidelity is the technological concept which would include some ideas from the strategical concept as well. We developed low fidelity using balsamiq. The concept is a mobile app for nurses used to record moral distress and a social platform with boundaries within the hospital to maintain the privacy and adhere to the legal regulations of the hospital. The screens include profile, progress, breakout area, meter for moral distress. Below are the screenshots for the same.











Appendix

1. Interview Script:

<https://iu.instructure.com/groups/286969/files/folder/Problem%20Space%20Definition?preview=65804202>

2. Interview Sign In Sheet:

<https://iu.instructure.com/groups/286969/files/folder/Problem%20Space%20Definition?preview=65804204>

3. Survey Questionnaire:

<https://iu.instructure.com/groups/286969/files/folder/Problem%20Space%20Definition?preview=65804197>

4. Things that contribute to moral distress:

<https://iu.instructure.com/groups/286969/files/folder/Problem%20Space%20Definition?preview=65804200>

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