

capstone project

DDR

Providing Immediate Stress Relief to
Nurses in the Workplace Environment

DNB311

ID Studio 7: Capstone

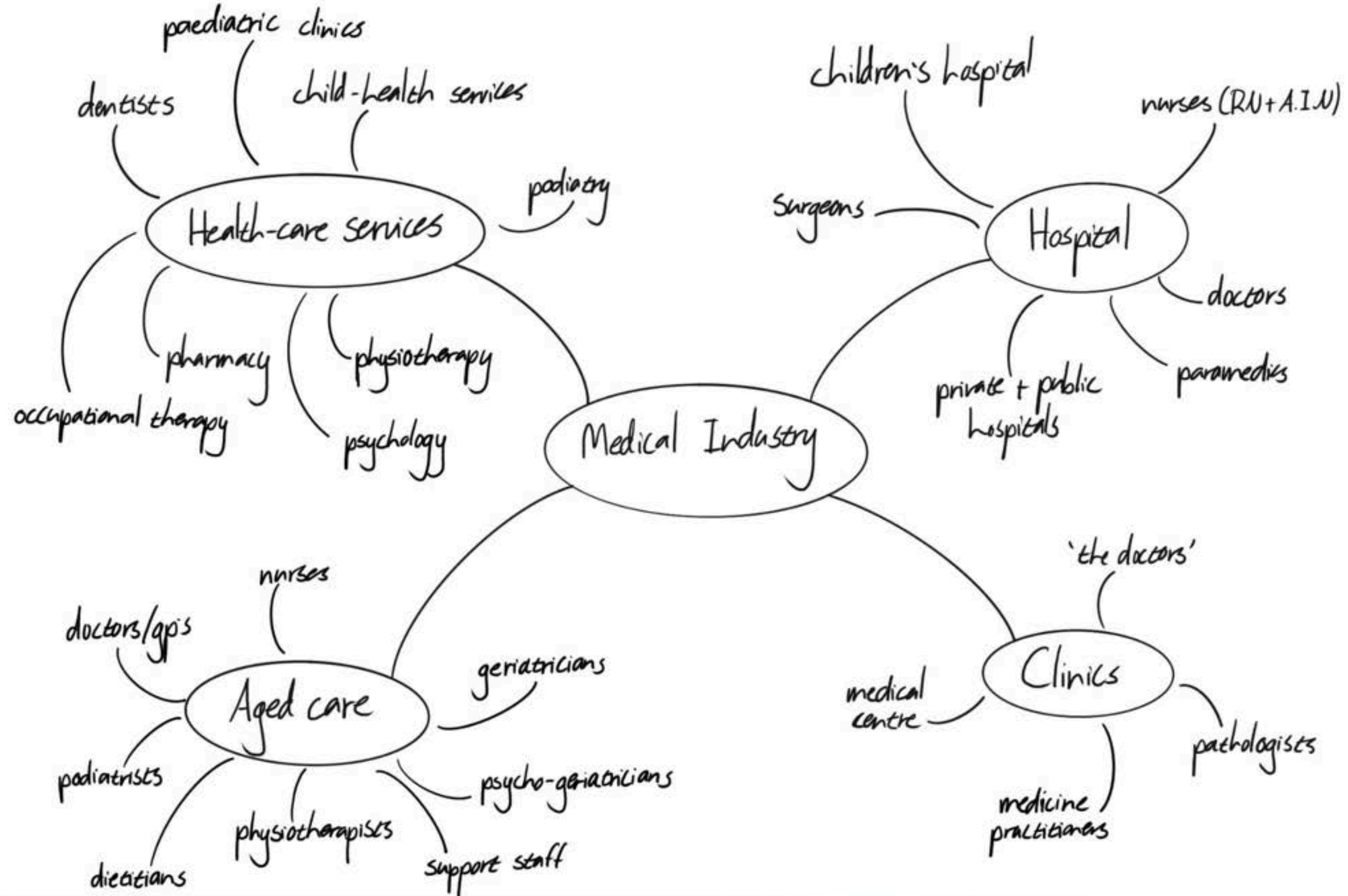


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INITIAL BRAINSTORMING | WEEK ONE

- DISCOVERING FOCAL POINT/AREA



LECTURE ONE | WEEK ONE

- NOTES TAKEN

- Don't fall into the trap of wanting to solve everything (in that area).
- Designs play a significant role in the modern world, + it's impact on helping to solve future challenges + opportunities facing people + the planet will grow.
- Be environmentally conscious, think about the impact your design will have on the environment.
- Pragmatic visionary: Maria Murati
 - ↳ watch videos on her + how she designs
- Attention to detail: Dieter Rams
- Be capable, engaged in what you do
- Business Minded: Richard Branson
- Have a social conscious, think about the effects on society.

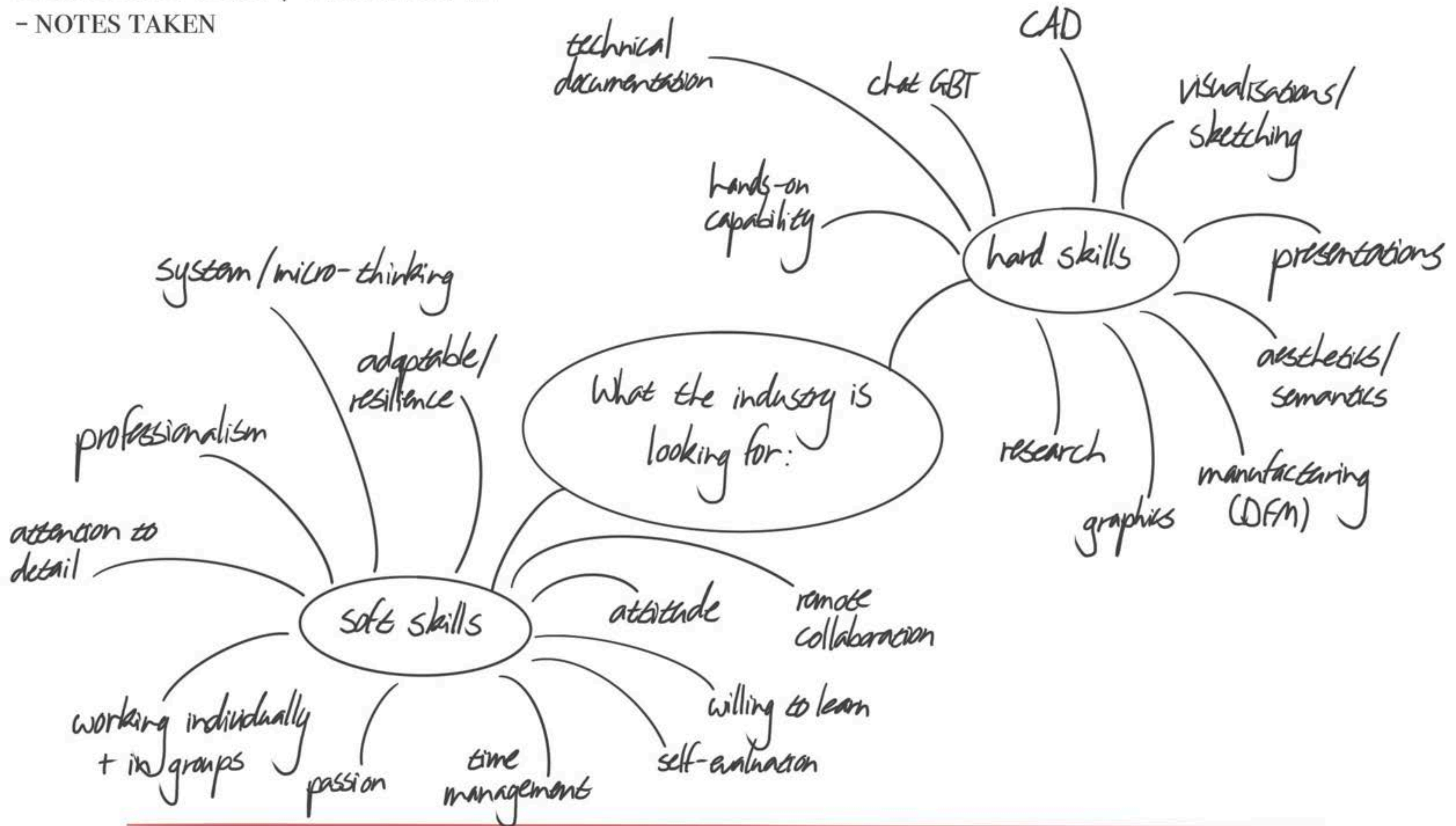
Inspire . Drive . Transform

autonomous + professional

- Don't hide what your product can do - form follows function.
- Be honest with your research first, + then build your product around that.
- If you can't showcase what your product can do, use other techniques like process + materials.
- Create photos in context with your product (keyshot)
- Design things that you want to associate your life with
- 'Do it with passion, or don't do it at all'

LECTURE ONE | WEEK ONE

- NOTES TAKEN



LECTURE ONE | WEEK ONE

- NOTES TAKEN

- o industrial design is changing. the world does not need a massive growth in designers that can create a new chair or mobile phone. the world needs creative thinkers to tackle higher-order problems (complex problems) + world leading industries.
- o look at who your competition is:
 - ↳ research graduates from previous years + other designs out there.
 - ↳ is my product up to scratch with anyone else's?
 - * Monarsh
 - * Lomborough
 - * CGS
 - * RISD
 - * Core 77
- o engage with industry people, consult potential employees

LECTURE ONE | WEEK ONE

- AI OUTLINE

* you are entirely responsible for your own project.

1. Research report + initial concepts - 40%
2. Final design + folio (DDR) - 60%

Types of projects to do:

- A. Self-initiated project
- B. Scientific led discoveries
- C. Industry linked

Briefs + projects (1 page each)

1. why are you interested in this area
2. experiences/interests/ expertise to help in + with the project
3. CV

- o think about a context to explore - not just a product
- o focus on people, activities, context + build out some brain-dumps
- o choose something you are passionate about - but also want to learn
- o consider if you have access to experts + end users in the context you are exploring

Research project

1. Begin literature review
2. Explore existing concepts + ideas

INITIAL BRAINSTORMING | WEEK ONE

- MEDICAL INDUSTRY DIRECTION

o most problems within the medical industry occur in the hospital.

more than 1/10 patients admitted into hospitals for overnight stays have a 'hospital-acquired diagnosis' - additional health problems to what the patient came in with.

some hospitals admitting patients for operations that have little evidence of benefit.

around 6% of admissions are considered 'potentially preventable - w/ bed days.'

not all beds are occupied with people still needing staff care.

almost 2% of hospital beds are occupied by 'maintenance care' patients.

bed efficiency

problematic areas of Australian hospitals

population increase + rates of chronic disease = demand of hospital services.

entry squeeze

long waiting times for procedures + assessment in emergency departments.

redirected ambulances + paramedics caring for patients in emergency department.

tight budget control + poor planning = a gap in providing the required services.

quality of care

additional diagnoses result in significant risk or harm to a patient + added costs.

mental health is often not addressed in both nurse + admitted patients

↳ for different reasons.

reducing avoidable harm in hospitals remains a major challenge for boards, management + clinicians.

- o 'quality of care' has been selected as the project's direction of context as it is one of the largest problematic areas with appropriate intervention points + leads to the 2 biggest stakeholders of the medical industry: patients + nurses.

to realise the benefits of quality care, health services must be:

- o timely - reducing wait times + harmful delays
- o equitable - providing care regardless of gender, ethnicity
- o integrated - making the full range of health services available
- o efficient - maximizing the benefit of available resources + avoiding waste.

improving the quality of health requires strong national direction from governments, focused sub-national support + action at the health facility level.

quality of care in health services for individuals + populations increase the likelihood for desired health outcomes.

it is crucial for achieving universal health coverage.

quality health services should be:

- o effective - provide services to those who need them.
- o safe - avoid harm to people caring for.
- o people centered - regards to individuals needs, preferences + values.

quality of care

PROJECT DIRECTION | WEEK ONE

- STAKEHOLDERS, NURSES

changes in government policies have resulted in changed models of care → increased focus on community care + changes in level of inpatients.

changes / patterns of care delivery seem to be imposed on nurses as a result of changed funding or other catalysts for change, rather than nurses actively + consciously developing.

issues nurses face while providing patient care.

anxiety + depressive disorders are known as common mental disorders (CMD), substance abuse, workplace aggression, stress + burnout have all been reported in the nursing occupational health literature.

nursing is an emotionally + physically demanding occupation that entails high risks of experiencing stress, anxiety + depression.

occupational violence; high levels of physical + verbal assault/abuse + subject to sexual innuendo, abuse or threats.

mental-health related issues →

PROJECT DIRECTION | WEEK ONE

- STAKEHOLDERS, NURSES

o nurses have been identified as the primary stakeholder as they are the backbone of hospitals + are directly connected to the context of providing 'quality of care'. however, it is evident that nurses undergo major levels of stress + mental health issues that affect the level of quality care they provide for patients.



- Nursing is both physically + psychologically demanding. nurses face countless factors of stress in a shift, they can all impact their mental health, including:
 - ↳ heavy workloads: a nationwide shortage - an increased demand for health care services + a wave of nurse retirements have forced hospitals + health systems to function with skeleton crews, leading to heavier workloads for existing nursing staff.
 - ↳ long shifts: due to staff shortages + the need to provide round-the-clock patient care, 10-12 hour shifts, including overnight are not unusual to nurses. this disrupts their natural sleep patterns + leaves nurses fatigued.
 - ↳ health + safety concerns: inadequate staffing + insufficient resources put nurses' personal health at risk.
 - ↳ patient mortality: the death of a patient is the most difficult aspects of a nurses' job + can bring significant mental + emotional toll.
 - ↳ workplace bullying: nurses may experience workplace bullying, either from patients or co-workers. a hostile work environment can also impact mental health.

DESIGN PROBLEM STATEMENT | WEEK ONE

- ENHANCING NURSES' WELLBEING FOR IMPROVED PATIENT CARE

PROBLEM DESCRIPTION:

IN HOSPITAL SETTINGS, THE QUALITY OF PATIENT CARE IS CLOSELY TIED TO THE WELLBEING AND PERFORMANCE OF NURSING STAFF. HOWEVER, A CRITICAL ISSUE OBSTRUCTING THE DELIVERY OF OPTIMAL CARE IS THE ESCALATING STRESS + MENTAL HEALTH CHALLENGES FACED BY NURSES. THE PROBLEM ADVERSELY AFFECTS THEIR ABILITY TO PERFORM AT THEIR BEST, CONSEQUENTLY IMPACTING THE OVERALL QUALITY OF PATIENT CARE.

FACTORS AFFECTING THE PROBLEM:

1. STAKEHOLDERS - NURSES WORKING IN HOSPITAL SETTINGS ARE DIRECTLY IMPACTED BY THE PROBLEM.
2. CONTEXT - THE QUALITY OF CARE FOR PATIENTS IS AT RISK DUE TO THE COMPROMISED WELLBEING OF NURSES.
3. PROBLEM - NURSES ARE EXPERIENCING HIGH LEVELS OF STRESS + MENTAL HEALTH ISSUES, LEADING TO REDUCED EFFICIENCY, BURNOUT, + POTENTIAL ERRORS OF PATIENT CARE.

DESIGN STATEMENT:

THIS DESIGN PROJECT AIMS TO IDENTIFY COMPREHENSIVE + EFFECTIVE SOLUTIONS THAT ADDRESS NURSES' STRESS + MENTAL HEALTH ISSUES. BY ENHANCING NURSES' WELLBEING, I SEEK TO IMPROVE THE QUALITY OF CARE PROVIDED TO PATIENTS. THE PROPOSED SOLUTIONS WILL BE PRACTICAL, SUSTAINABLE + TAILORED TO MEET THE UNIQUE CHALLENGES FACED BY NURSES IN THE HOSPITAL ENVIRONMENT.

DESIGN PROBLEM STATEMENT | WEEK ONE

- DESIGN SCOPE + SUCCESS CRITERIA

DESIGN SCOPE - THE PROJECT WILL FOLLOW THE KEY ASPECTS:

1. CONDUCTING A THOROUGH ASSESSMENT OF THE FACTORS CONTRIBUTING TO NURSES' STRESS + MENTAL HEALTH CHALLENGES IN THE HOSPITAL CONTEXT.
2. IDENTIFYING SPECIFIC STRESSORS + TRIGGERS IN THE HOSPITAL WORK ENVIRONMENT THAT NEGATIVELY IMPACT NURSES' CONCERNS.
3. EXPLORING EXISTING SUPPORT SYSTEMS + RESOURCES AVAILABLE TO NURSES FOR MANAGING STRESS + MENTAL HEALTH CONCERNS.
4. DEVELOPING INNOVATIVE STRATEGIES + INTERVENTIONS TO REDUCE STRESS, PROMOTE MENTAL WELLBEING, + FOSTER A SUPPORTIVE WORK CULTURE FOR NURSES.
5. EVALUATING THE FEASIBILITY + POTENTIAL EFFICIENCY OF PROPOSED SOLUTIONS WITHIN THE HOSPITAL'S OPERATIONAL + BUDGET CONSTRAINTS.
6. IMPLEMENTING THE SELECTED INTERVENTIONS WHILE CLOSELY MONITORING THEIR IMPACT ON NURSES WELLBEING + QUALITY OF PATIENT CARE.
7. CREATING A ROADMAP FOR LONG-TERM SUSTAINABILITY + CONTINUOUS IMPROVEMENT IN ADDRESSING NURSES' MENTAL HEALTH ISSUES WITHIN THE HOSPITAL SETTING.

SUCCESS CRITERIA - DESIGN PROJECT MEASURED BY THE FOLLOWING OUTCOMES:

1. QUANTIFIABLE REDUCTION IN REPORTED STRESS LEVELS AMONG NURSES.
2. MEASURABLE IMPROVEMENT IN NURSES' MENTAL WELLBEING + OVERALL JOB SATISFACTION.
3. ENHANCED QUALITY OF PATIENT CARE AS EVIDENCED BY PATIENT SATISFACTION SCORES + CLINICAL INDICATORS.
4. INCREASED UTILISATION OF SUPPORT SERVICES + RESOURCES BY NURSES TO MANAGE STRESS + MENTAL HEALTH CONCERNS.
5. POSITIVE FEEDBACK + STOPPERS FROM HOSPITAL ADMINISTRATORS, NURSING LEADERSHIP + OTHER STAKEHOLDERS.

PRIMARY RESEARCH | WEEK ONE

- ALBANESE GOVERNMENT ON MENTAL HEALTH IN NURSES

o the Albanese government have invested \$25.2 million to establish + run the 'National Nurse + Midwife Health Service' to provide peer-to-peer support + referrals.

o this new national support service will help Australian nurses + midwives to better manage their health + wellbeing with counselling + support services.

↳ aims to reduce rates of fatigue, stress + burnout

↳ provide a welcoming, stigma-free entry point for nurses + midwives

o the aim of this service is to keep more nurses + midwives healthy + supported so they can stay in the workforce + care for patients.

Notes taken from 'Albanese government movement.'

→ the only offer of support nurses can receive is through methods of counselling + 'self-help groups.'

→ nurses need to go out of their way to get support from work — in their own time.

→ there are no immediate support systems in place for the work environment.

stress management + quick assessment & referral

response to mental health issues
+ requirement of extra services

process of government mental health assistance.

PRIMARY RESEARCH | WEEK ONE

- TED-X NURSES INNOVATION SPEECH NOTES

- every clinical interaction starts with + ends with a nurse.
- nurses do 27 workarounds per shift + are in 36 different places in the course of an hour.
 - ↳ 'workarounds' are actions performed by an individual to circumvent or temporarily fix real or perceived workflow hinderances or system design flaws or to cope with exceptional patient care circumstances.
- the average age for a nurse is 50 + 70% of nurses are over the age of 40
- over 50% of new nursing graduates leave the bedside within 2 years of practice
 - ↳ the largest exodus from any profession
- compassion fatigue
 - ↳ pain + trauma, like viruses can be extremely infectious, + nurses + other healthcare workers swallow suffering every single day.
- the 'World Health Organisation' estimates around 27.9 million nurses globally.
- the 'Nurse hackathon' (overview on next page).

Key takeaways from Ted-talk:


- nurses are the backbone of the healthcare system.
- nurses work tirelessly to ensure quality of care for patients.
- most nurses are aged between 40-50
 - ↳ this means they also have other stressful + important factors of their lives like kids, families, pets, etc.
- nursing is a very stressful + demanding job, with 50% of graduates quitting within 2 years.
- nurses deal with abuse, suffering + trauma every shift, + are expected to deal with it.

PRIMARY RESEARCH | WEEK ONE

- THE NURSE 'HACKATHON'

- o provides a unique experience for nurses to flex their innovation + receive the support + motivation to bring their ideas to life + improve human health.
- o a hackathon is a weekend event that brings nurses + people from other professions together to take on human health problems by creating solutions in a supportive setting with colleagues + mentors.
- o nurses are innate problem-solvers + frontline health workers.
 - ↳ hackathons encourage nurses to voice their ideas + opinions to better equip the healthcare environment.

Key takeaways:

- o program to allow for nurses to express their ideas for change as experts in their environment.
- o ideas we grant, however all valid ones that arise are APPS 

2 'NurseHack4Health' Tracks

Track 1 -

- o nurse-led interdisciplinary teams formed within one health system.
- o solutions that catalyse a healthy environment for nurses + patients.
- o awards
 - ↳ \$150,000 in grant funding for idea

Track 2 -

- o individual nurse hackers on nurse-led interdisciplinary teams representing different organizations.
- o solutions that catalyse a healthy environment for nurses + patients.
- o award
 - ↳ Certificate program scholarship

LECTURE TWO | WEEK TWO

- NOTES ON LECTURE

Books to Read

- o designing for people - Henry Dreyfuss
- o design for society - Nigel Whiteley

Design Process

- o various design processes + methodologies that share basic features such as:
 - ↳ deal with complex/ambiguity (no one solution)
 - ↳ iterative
 - ↳ user focused
 - ↳ systems focused
 - ↳ visual communication (drawing/models/data/cad/etc.)
 - ↳ reframes problem
 - ↳ visionary
- o it's important to understand how you did what you do - for you + the client. your process will become one of the most important aspects of any project (your path), + might even serve to differentiate you from your competitors.
 - ↳ you will also be able to better communicate to clients + stakeholders throughout the process.

Qualitative Research

- o design of a study with selection of epistemic paradigm.
 - ↳ paradigm is a worldview of how study should be conducted, what constitutes legitimate problems, solutions, criteria of 'proof'.
- o an inquiry into building complex + the holistic picture.
 - ↳ with words, images, descriptions
 - ↳ reporting detailed views of informants/participants
 - ↳ conducted in natural settings
- o reality is constructed by the individuals, multiple realities exist
- o value-laden, biased
- o emerging design - categories identified during research process
- o context-bound
- o accurate + reliable through verification
- o what to do:
 - ↳ rich, complex data
 - ↳ fewer participants
 - ↳ helps understand meaning
 - ↳ the 'why' not just 'what' or 'how'

LECTURE TWO | WEEK TWO

- NOTES ON LECTURE + HOW TO CONDUCT INTERVIEWS/SURVEYS

o sampling

- ↳ event sampling
 - useful but limited by reliability
- ↳ retrospective sampling
 - very simple + memory biased
- ↳ repeated sampling
 - strong technique + reliable

Quantitative Research

o an inquiry usually based on testing a theory:

- ↳ composed of variables
- ↳ measured with numbers
- ↳ analysed with statistical procedures

o reality is objective + singular, apart from the researcher

- o value-free, unbiased
- o static design - categorises isolated before study
- o context-free
- o accurate, reliable through validity + reliability

Methods

o the philosophy or general principle that guides your research

o methods:

- ↳ what research questions are you answering?
- ↳ how does your experiment answer this?
- ↳ qualitative methods
- ↳ triangulation technique (2 or more methods applied to explore the phenomenon)

- ↳ participants
- ↳ conduct pilot study
- ↳ represent methodology graphically

Methods

o the tools to gather data

- ↳ surveys
- ↳ interviews
- ↳ questions

o methods

- ↳ interviews (structured, semi, unstructured) (text + audio)
- ↳ surveys (text)
- ↳ observations (text, audio, videos, images)
- ↳ think/talk-aloud
- ↳ protocols (text + audio)
- ↳ focus-groups

Sampling - for each method

o interviews:

- ↳ 1-3 participants (depending on length of interviews)

o surveys:

- ↳ from 5-10 (short answer survey)

o observations:

- ↳ 1-3 (depending on length)

o observations + concurrent protocols:

- ↳ 1-2 (depending on length)

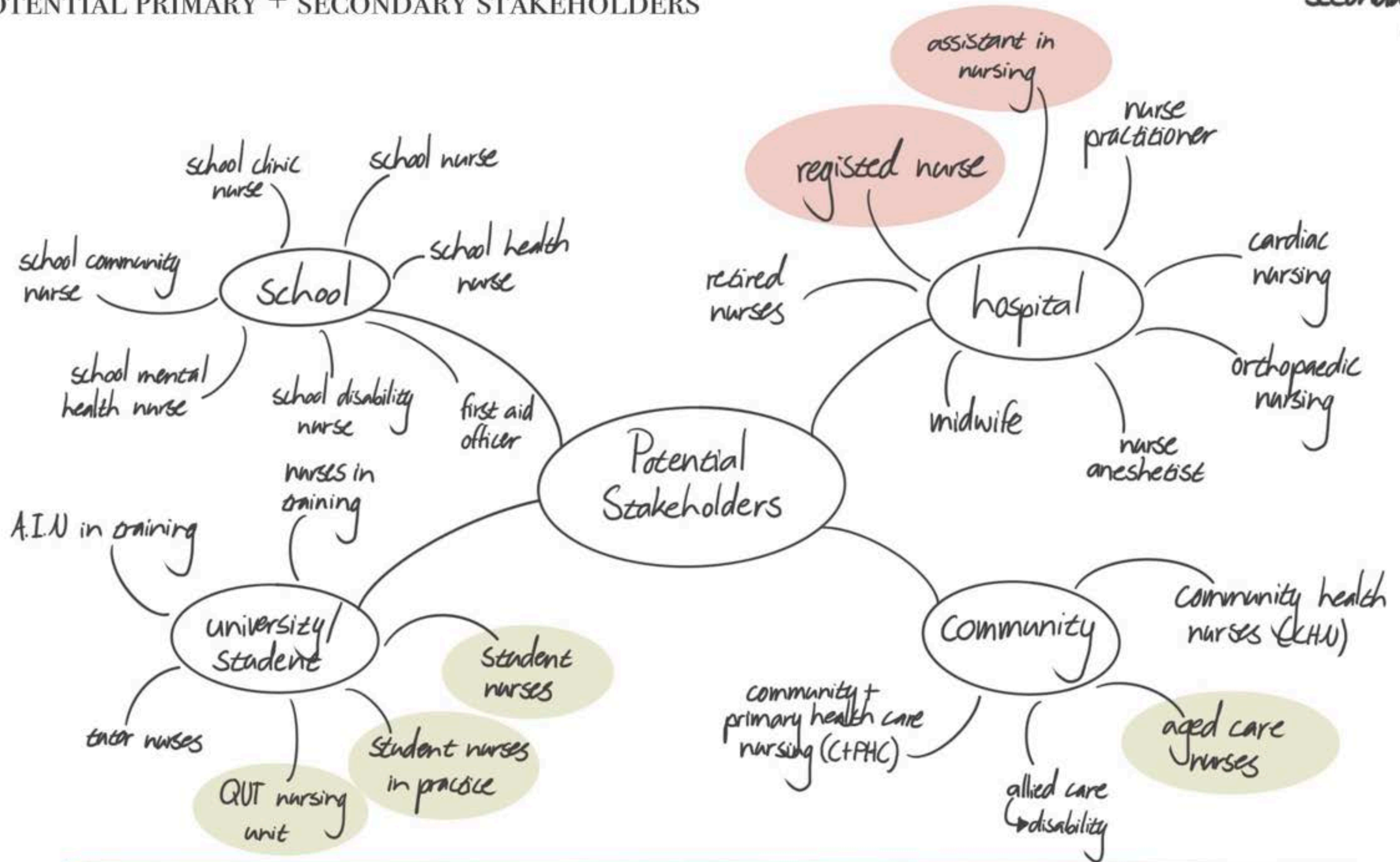
What you need to do:

1. research your topic (articles, resources, information, etc.)
2. benchmark existing products/concepts
3. decide how you will conduct your research (questions, participants, methods, etc.)
4. reach out to participants (consent)
5. conduct research (keep a good log of data)

PRIMARY RESEARCH | WEEK TWO

- POTENTIAL PRIMARY + SECONDARY STAKEHOLDERS

primary ○
secondary ○



PRIMARY RESEARCH | WEEK TWO

- NURSES + THEIR JOBS/ INTERACTIONS IN THE HOSPITAL ENVIRONMENT

National Library of Medicine 

Hospital nurse staffing + staff-patient interactions: an observational study

- existing evidence indicates that reducing nurse staffing and/or skill mix adversely affects care quality. nursing shortages may lead managers to dilute nursing team skill mix, substituting assistant personnel for registered nurses (RNs). however, no previous studies have described the relationship between nurse staffing + staff-patient interactions.

Methods

- 270 patients were observed over 238 hours of care. staff-patient interactions were rated using the 'Quality of Interactions Schedule'.
- multilevel regression models explored the association between staffing levels, skill mix + the chance of an interaction being rated as 'negative' quality, rate at which patients experienced interactions + total amount of time patients spent interacting with staff per observed hour.

Results

- 10% of the 3076 observed interactions were rated as negative. the odds of a negative interaction increased significantly as the number of patients per RN increased.
- when RN staffing was low, the odds of a negative interaction increased with higher HCA staffing. rate of interactions per patient hour, but not total amount of interaction time, was related to RN + HCA staffing levels.

Conclusion

- low RN staffing levels are associated with changes in quality + quantity of staff-patient interactions. when RN staffing is low, increases in assistant staff levels are not associated with improved quality of staff-patient interactions. beneficial effects from adding assistant staff are likely to be dependant on having sufficient RNs to supervise, limiting the scope for substitution.

Levels of Stress Among workplace Nurses:

- most of the studies reported that the majority of Australian Nurses experience a significantly moderate to higher level of stress during their working shift.
- some studies categorised the stressors as job-related; workload, administrative + budgetary, media.
- other studies reported environmental factors; job tension, role conflict, + ambiguity, patient-related stress, interactions with children or working with injured + dying patients.
- 2 papers indicated that workplace stress varies according to the time of the work shift + the geographical location of the nurses.
 - ↳ nurses working during workdays or morning/day + night shifts experience a significantly higher level of stress than nurses working afternoon shifts.
 - ↳ nurses in major cities + rural areas have significantly higher stress levels than nurses working in remote areas.
- a further 2 papers highlighted certain physical + psychological symptoms that show the presence of stress during nurses.
 - ↳ fatigue, frustration, anger, tears, distraction, defensiveness - psychological
 - ↳ illness or injury, tight muscles, feelings of exhaustion - physical

Causative Factor of Stress Among Workplace Nurses:

- workplace bullying
 - ↳ 3 papers recorded several situations of workplace bullying among nurses.
 - ↳ some studies highlighted that workplace bullying occurs through poor therapeutic relationships between nurses + patients, as well as among nurses.
 - ↳ workplace bullying can take the form of physical aggression + verbal aggression, as well as reactive behaviours, such as nurses withholding necessary support + lack of cooperation among nurses.

Key takeaway points:

- majority of Australian Nurses experience moderate - high levels of stress during their shift.
- common stressors are job-related or are environmental factors.
- workplace stress varies in severity, depending on location + time.
- both physical + psychological symptoms are factors related to stress.
- workplace bullying is prevalent between patient-nurse interaction, as well as nurse-nurse interaction.

Impacts + Outcomes of Stress (n=nurses)

o burnout

- ↳ nurses experience moderate to high levels of personal + work-related burnout.
- ↳ 2 papers indicated that the mean burnout score among a sample of 762 registered nurses was 54/100.
- ↳ in addition, about 36.4% (n=356 of 978) of nurses reported moderate work-related burnout, while 10.4% (n=102 of 984) reported moderate or higher client-related burnout.
- ↳ in a sample of 100 Australian nurses, 66.0% suffered burnout + 22.0% suffered severe burnout.

o psychological distress

- ↳ several studies highlighted that nurses experience moderate to high levels of psychological detachment from their work.
- ↳ most studies further expressed that nurses' psychological distress is largely associated with emotional dissonance, emotional labour, + emotional work of the nursing profession.
- ↳ the increasing emotional labour + emotional work of nurses contribute to low wellbeing.

- ↳ nurses working in very remote areas of Australia have significantly higher levels of emotional exhaustion than other nurses in major cities + rural communities.
- ↳ the emotional demand + emotional labour of the nursing profession encourages nurses to leave the profession.

Depression + Anxiety

- ↳ 4 papers highlighted that nurses experience moderate, severe, + extreme levels of depression + anxiety.
- ↳ ~20% of nurses in a sample of 1,037 reported a symptom of depression (17.3%) or anxiety (20.4%).
- ↳ 3 studies indicated that individual + environmental factors significantly contribute to increasing the burden of anxiety among nurses.
- ↳ 2 papers highlighted that the sector of nursing (aged care), as well as nurses with a very distressed profile, is significantly more anxious than nurses in other sectors.
- ↳ the type of work environment can invoke significant anxiety.

Levels of Resilience Among workplace Nurses

- 13 of the included papers focused on the resilience employed by Australian Nurses - recorded moderate levels of resilience.
- 2 papers recorded that the resilience scores differed according to the years of working experience.
 - ↳ the resilience score in a sample of 183 nurses was highest in the first year postgraduation, yet slightly declined until stabilizing around 3-5 years postgraduation.

Workplace Resilience Interventions for Nurses

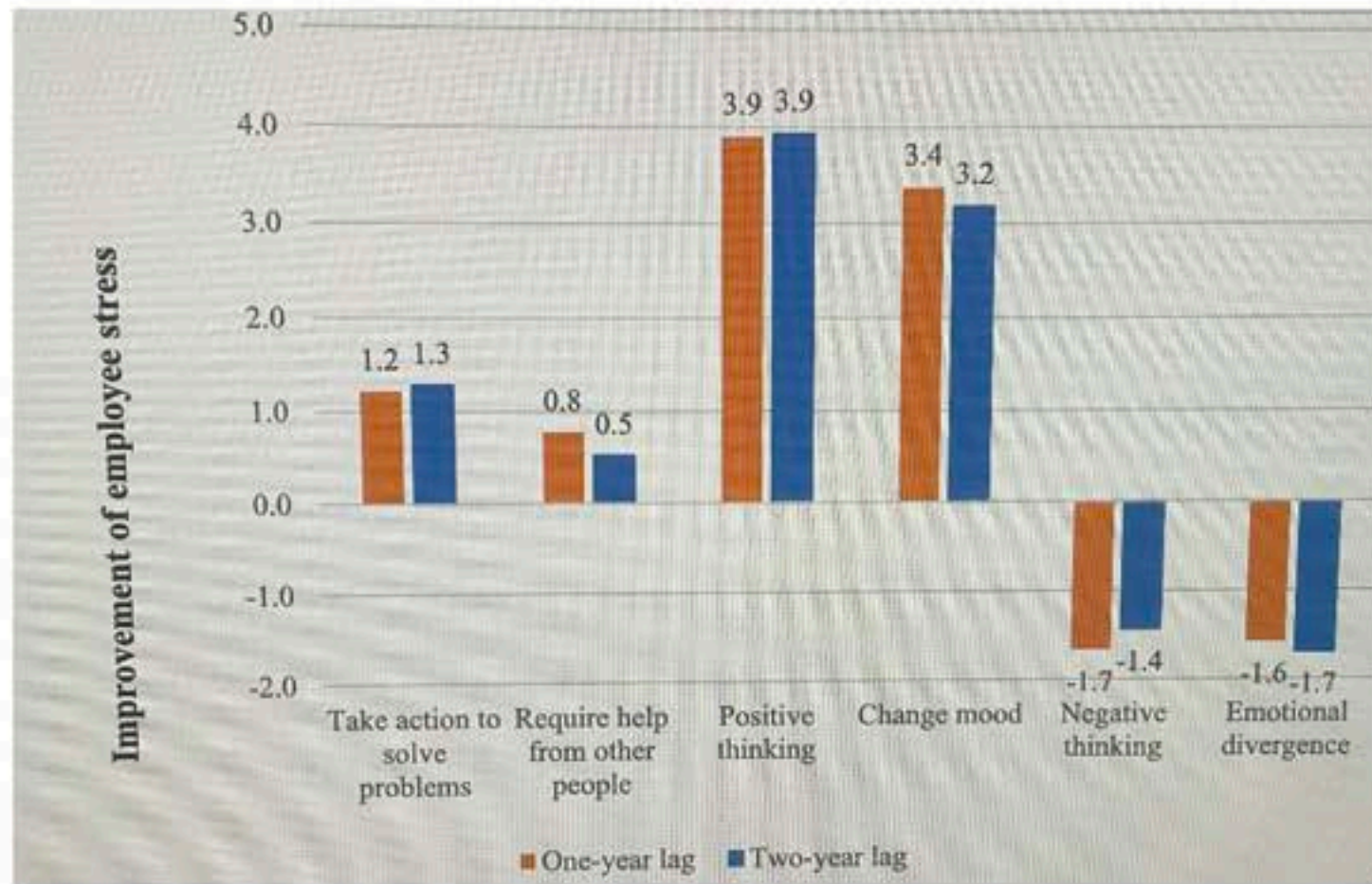
- 6 of the included papers identified 7 interventions that have been piloted to reduce stress, burnout + psychological distress among workplace nurses.
- 3 of the interventions were mindful self-care + resiliency interventions, while the other 4 included a work-based educational intervention to promote personal + adult resilience and mindfulness based stress reduction.
 - ↳ mindful self-care + resiliency interventions - 1-2 days educational workshop, followed by daily/weekly sessions over 4-24 weeks.
 - ↳ mindfulness-based stress reduction programme - 1 day, followed by daily sessions of 20min over 8 weeks.

↳ work-based educational intervention - conducted over a 6 month period. workshops are held over a whole day each month, onsite at the hospital

Effectiveness of Resilience Interventions

- the piloted resilience interventions were effective in mitigating the negative effects of workplace stress.
- most papers highlighted that the piloted interventions were practically feasible + positively accepted among workplace nurses. participants felt comfortable devoting resources to their own wellbeing.
- 94% of 21 participants who completed MSCR programme continued to use at least 1 learned practice in the workplace or at home during the weeks after the programme.
- resilience educational workshops helped mitigate negative effects on nurses' wellbeing. significant reductions on stress, depression, burnout, + omit negative affect.
- 45% of the 21 nurses who had burnout scores in the high range at pretest reduced to 15% at post-test + in the follow-up stage.
- the workshops helped improve the coping self-efficacy + self-regulatory process of the nursing workforce studied.

- LONG-TERM IMPROVEMENT OF PSYCHOLOGICAL WELL-BEING IN THE WORKPLACE: WHAT + HOW



○ the effects of various forms of resilience to job stress are depicted, based on the values given in the table above.

↳ of all the strategies, the 'think positively; it's not so bad' had the most positive impact on job stress, followed by the strategy of 'changing mood.'

↳ the long term impact of both items were greater than the impact of items relating to 'asking for help from other people!'

The Relationship Between Workplace Characteristics

- although the association between work environment improvement + employee job stress is widely documented, few studies focus on the long-term effects of high stress levels.
- enhancement in the work environment improve long-term employee job stress:
 - ↳ the study showed that high job demands with a low decision latitude had unfavorable effects on employee job stress levels. this suggests that there will be long-term effects on the job stress experienced by employees.
 - ↳ support from colleagues, family + friends, + bosses appear to have both positive + negative effects on employees' job stress levels.
 - ↳ the coefficient of 'support from the boss' had a negative value. this outcome indicates that this increases employees' job stress, possibly because the direct effect of a manager's support can be negative. this is related to general management of the workplace environment.
 - ↳ high psychological demands have the greatest unfavorable long-term impact on employees' stress levels. this result indicates the effects of a job are less than those of the psychological demands in the long term.
 - ↳ improvements in effort-reward + job security have long-term advantageous impacts on employee's mental health status. an effort-reward imbalance is also shown to be a stressor for employees.

- LONG-TERM IMPROVEMENT OF PSYCHOLOGICAL WELL-BEING IN THE WORKPLACE: WHAT + HOW

- ↳ in contrast, the results of work-related balance/job security + job control indicate that the effects of other stressors may continue to occur for years, possibly further reducing employees' psychological well-being.
- ↳ the simulation results indicate that the no. of employees under high loads of stress in 2018 could have been reduced by 58.8% by workplace improvements that reduced job demands + psychological demands + increased workplace fairness.

Strengthening Employees' Responses to Stress Improves Long-Term Job Stress:

- employees' responses to stress (coping strategies) were associated with the job stress they experienced - trying not to take the problem too seriously + thinking positively' reduce their stress levels.
- changing one's attitude by exercising gently or taking a break to consciously relax can produce favorable results.
 - ↳ this suggests that when employees experience a problematic situation, they may significantly reduce stress levels by taking a break or by doing moderate exercise to improve their mood.
 - ↳ if individuals can reduce their anger, talk to people they trust, or engage in some physical activity, their stress levels will improve in the long run.

- negative thinking appears to have an unfavorable impact on employees' job stress levels. stress-coping strategies demonstrated long-term favorable effects, even as negative thinking had the reverse effect.
- when employees took action to solve their problems, 2 years later, their stress levels were significantly improved.
- the long-term effects of employing coping strategies show their significant positive effect on employee job stress levels.
- maintaining well-organised strategies can keep the individual free from the destructive effects of job stress.
- employees should be encouraged to avoid harboring feelings of anger or directing their frustrations toward others + should aim to remove themselves from a stress-causing environment.

- WORKPLACE INTERVENTIONS TO PREVENT OR REDUCE PTSD + SYMPTOMS AMONG HOSPITAL NURSES

- the challenges of providing high-quality patient care in a stressful work environment with increasing responsibilities + limited resources can impact the mental + physical wellbeing of nurses.
- in recent years, researchers have begun to understand that nurses are at increased risk of experiencing PTSD - a mental health concern which was historically thought to primarily affect war veterans.
- in 7 of studies, the prevalence of nurses exhibiting at least 1 symptom of PTSD ranged from 6.7% to 24%; in the remaining 2 studies, up to 95.7% of nurses experienced PTSD symptoms.
 - ↳ therefore, an understanding of the evidence regarding workplace interventions for the prevention + intervention of PTSD among nurses is needed.
- nurses are both directly and indirectly exposed to traumatic events. both witnessing + experiencing critical events of workplace violence are contributing factors to the development of PTSD.
 - ↳ in a follow-up of 35 assaulted psychiatric staff, 17% had PTSD on average of 49 days after the event + 11% still did 6 months later.

- PTSD among nurses is not only prevalent: it can have grave impacts.
 - ↳ affected individuals may experience symptoms that cause psychological + physiological distress including intrusion symptoms, avoidance, negative cognitive + mood changes, recurring distress memories, hypervigilance, anger, fatigue, + trouble sleeping or concentrating.

Key Takeaway Points:

- nurses are at an increased risk in contracting PTSD, because of highly stressful environments + scenarios.
- nurses are exposed to traumatic events that occur on a daily basis in their work environment.
- contributing factors of psychological + physical abuse lead to a heightened chance of PTSD
- PTSD is not very well known in nursing as it is commonly associated with war veterans.

- WORKPLACE INTERVENTIONS TO PREVENT OR REDUCE PTSD + SYMPTOMS AMONG HOSPITAL NURSES

Implications for Preventing or Reducing PTSD among hospital nurses:

- a study of an intervention consisting of providing a booklet on trauma + coping reported worse outcomes compared to not providing the booklet at all

↳ this suggests that simple awareness + education interventions may be helpful.

- frequent exposure to chronic stressors, such as constant patient screaming, may compound the effects of critical events in contribution to PTSD symptoms.

↳ the high barriers to seeking diagnosis or treatment such as stigma surrounding mental illness, low mental health literacy, fear of negative social consequences + limited resources, also warrant the use of preventative interventions.

↳ nurses may develop PTSD through primary trauma (personally witnessed) + vicarious trauma (indirect, cumulative exposure).

- online supported interventions, aka e-interventions, are increasingly available to address psychiatric illness such as depression + psychosis.

↳ e-interventions are an increasingly popular mode of therapeutic delivery which should be further explored in terms of adherence, accessibility + the populations which gain the most benefit.

- a recent systematic review investigated evidence for risk factors for PTSD among nurses in psychiatric settings occurring before the traumatic event, during + after.

↳ there was no strong evidence base for choosing risk factors to target for PTSD prevention in this occupational group.

- larger studies on nurse subpopulations + multimodal + system-level interventions will enrich the available literature on this important issue + we need to inform nursing leaders + hospital administrators seeking evidence-based interventions for PTSD among nursing staff.

Indoor Environmental Quality (IEQ)

- it is estimated that in urbanized + industrial countries, people spend an average between 80% - 90% of their lives indoors.
- there are many factors influencing the indoor environment of a building. these factors could be biological, chemical, or physical, + they determine the indoor environmental quality (IEQ).
 - ↳ key factors of IEQ include air quality, thermal comfort, noise level, + lighting.
- previous studies reported on how poor IEQ could cause illness, adversely affect well-being, + reduce worker productivity.
 - ↳ giving workers greater control of IEQ factors, such as temperature adjustments or adjustable lighting increases overall perceived IEQ + improves productivity.
 - ↳ improving IEQ may increase productivity by between 0.5% - 5%.

- while costs of regulating the IEQ can be significant, the authors estimated that the potential financial benefits through savings in healthcare + gains in productivity outweighed the costs by a factor of 18 to 47.
 - ↳ in addition to health problems, poor indoor air quality also causes a decline in productivity for occupants who spend most of their workday in offices.
- acoustic comfort in buildings is the capacity to protect occupants from noise + provide a suitable acoustic environment to satisfy the purposes that the building is designed for.
 - ↳ 'unwanted sound' that prevents speech communication, activities + concentration - at high levels can cause hearing damage.
- Sufficient lighting levels are necessary to perform various visual activities effectively + accurately, + studies have shown that windows + daylight exposure have significant positive impact on the overall health + sleep of office workers.
 - ↳ changing light levels can also adversely affect eye fatigue, distraction, annoyance + difficulty in reading text.

Report Conclusions:

- o perceived indoor environmental satisfaction, with face validity, could potentially provide a useful tool for environmental health.
- o this is especially important in industries + work locations with access restrictions or health + safety considerations that could preclude environmental sampling.
- o higher satisfaction levels of perceived air quality, thermal comfort, noise level, + lighting, either individually or in combination with other aspects of IEQ were significantly associated with a reduction in stress at work.
- o from a public health viewpoint, the findings provide an effective means to support the development of risk perception + communicate the higher satisfaction levels of IEQ + its association with:
 - ↳ a reduction in stress at work - ultimately leads to increased work performance + productivity among workers as well as reducing absences due to sickness.

Key Takeaway Points:

- o people in urbanized + industrialized areas spend 80%-90% of their lives indoors.
- o IEQ is influenced by biological, chemical, + physical factors.
- o poor IEQ can lead to illness, reduced well-being + decreased worker productivity.
- o improving IEQ may increase productivity by 0.5% to 5%.
- o indoor air quality is ranked as a top environmental risk to public health.
- o perceived IEQ affects health, but co-effects + interrelationships are not well-studied.
- o higher perceived IEQ satisfaction is associated with reduced stress at work.
- o investing in IEQ improvements could lead to cost savings + increased productivity.

Introduction

- nurses die by suicide at a higher rate than the general population.
 - ↳ previous studies have observed mental health problems, including substance use, as a prominent antecedent before death.
- the purpose of this study was to explore the characteristics of nurses who died by suicide documented in the death investigation narratives from the 'National Violent Death Reporting System' from 2003-2017 using thematic analysis + natural language processing. 1358 subjects met these inclusion criteria.
- mental health/substance use, chronic illness, + chronic pain were seen to coexist in a complex, interdependent manner that appeared to be entangled in the nurses' narratives before death.

Results

- a total of 1,358 subjects were identified as having an occupation as a nurse + having an occupation as a nurse + having a diagnosed mental health condition in at least one of the NVDRS mental health-related structured data fields: a total of 601 subjects' narratives were reviewed.
 - ↳ the following themes were identified in the death narratives of nurses with mental health problems who died by suicide;
 - mental health treatment
 - poor general health + chronic pain
 - worsening mental health after bereavement
 - repeating a family member's suicide

Mental Health Treatment:

- medications, treatment, hospitalisations, or a combination of all 3 were frequently mentioned before the victim's death + identified by thematic analysis.
- subjects were found to be taking mental health related medications at the time of death.
 - ↳ some entries indicated non-adherence to pharmacological management, but most entries described 'current medications', 'prescribed' or 'was taking'.

Substance Use:

- substance use was identified as both the primary mental problem + also occurring with another mental health problem + also occurring with another mental problem by the thematic analysis investigators.
 - ↳ thematic analysis identified substances used including alcohol, medications, marijuana, + amphetamines.
- some narratives indicated victims were in active mental health treatment with prescription medications while continuing to use other substances.
- within this theme, suicide was deemed as an option when the victim was faced with an option that was deemed unacceptable.

Key Takeaway Points:

- the suicide rate of nurses is higher than the general public.
- medications, treatment + hospitalisation were frequently mentioned before the victim's death.

Worsening Mental Health after Bereavement:

- the thematic analysis investigators identified a cluster of cases in which the victim's depression had become worse following the death of a relative.
 - ↳ the suicides occur anywhere from the day of the death to decades later.
- when the suicide occurred on the same day, the victim either died by suicide in the immediate days after the death or within the same time frame of the relative's death.
- holidays + anniversaries were also vulnerable times delay between the family member's death + the suicide.

Mental Health Treatment:

- for victims who were currently receiving or had received mental health treatment previously, their suicides demonstrate the limits in our current treatments + system of mental health services for suicide prevention.
- mental health problems have previously been found to occur more often in nurses who complete suicide compared to other occupation + depression most common mental health diagnosis between matched nurses + non nurses who complete suicide.
 - ↳ treatment of depression is considered one of the most effective suicide prevention strategies.

Poor General Health + Chronic Pain:

- poor physical health + chronic pain were also identified themes in this study.
 - ↳ physical health problems have previously been identified as a suicide risk factor in female nurses compared to female non-nurses occur more frequently in nurses who completed suicide.
- chronic physical illness have been associated with suicides through a perceived burden;
 - ↳ isolation due to lack of belonging + feelings of distress, hopelessness + self-criticism.
 - ↳ chronic pain was also found as a 'chronic struggle' in nurses who completed suicide + who had job problems before their death.
- chronic pain + mental health have a connection on a neurological level.
 - ↳ shared neural circuits exist between chronic pain + depression in the anterior cingulate cortex (ACC) + the prefrontal cortex (PFC).
- because of these shared neural pathways, creating people with both mental health problems + chronic pain simultaneously may indicate a holistic approach to improve management + quality of life.

Key Takeaway Points:

- the victim's depression becomes worse following the death of a relative.
- treatment of depression is considered to be the most effective methods of suicide prevention.

LECTURE THREE | WEEK THREE

- LITERATURE REVIEW + METHODS

o watch ethics lecture ✓

o why research?

- ↳ justify position
- ↳ focus on an approach or method
- ↳ in-depth finding
- ↳ identify value/meaning
- ↳ understanding user needs/hidden needs
- ↳ under covering something novel

o objectives

- ↳ strategic position of human-centered design research
- ↳ relevance of qualitative research within design context.

o literature review: why?

- ↳ determine what has already been written on a topic
- ↳ provide an overview of key concepts
- ↳ identify major relationships or patterns
- ↳ identify any conflicting evidence

↳ provide a solid background to a research paper's investigation
- start of each chapter, have a figure to visually represent the literature following.

o literature review: it is not

- ↳ an annotated bibliography
- ↳ a list of available sources
- ↳ a list describing or summarising one piece of literature after another.
- ↳ based on non-academic sources (websites, news, corporate info)
- ↳ based on personal opinion.

literature review: how to?

o purpose?

- ↳ review existing available literature.
- ↳ determine the critical topic areas you should cover + relationship between these areas (usually keywords from your topic).

o do an extensive search of literature

- ↳ use a variety of sources that are relevant, current + author active.
- ↳ find common themes in the literature.
- ↳ use Google Scholar.

LECTURE THREE | WEEK THREE

- LITERATURE REVIEW + METHODS

o not bibliographical details

↳ publication title, date, author's names, page numbers + publishers.

o find focus

↳ take notes as you read + start to organise your review around themes (ideas)

↳ consider using a table or concept map to identify how the different sources relate to each other.

Academic Honesty

o plagiarism means that ideas, not your own, are used in an assignment without proper reference to their source.

↳ in short, plagiarism is presenting someone else's work as if you created + wrote it yourself.

o plagiarism is cheating + is regarded as grounds for failure, suspension + expulsion.

o if using AI, use to 'clean up' information + make sure to make clear that you have used the software.

Research Methods

o 2+ research methods

↳ surveys + interviews

- always inform people about the interview, what the data is used for, + make sure they provide confirmation that they understand this + provide consent.

↳ transcript

- interview promptly - otter.as, dragon anywhere, descript, etc.

↳ observation +/or think/talk aloud protocols

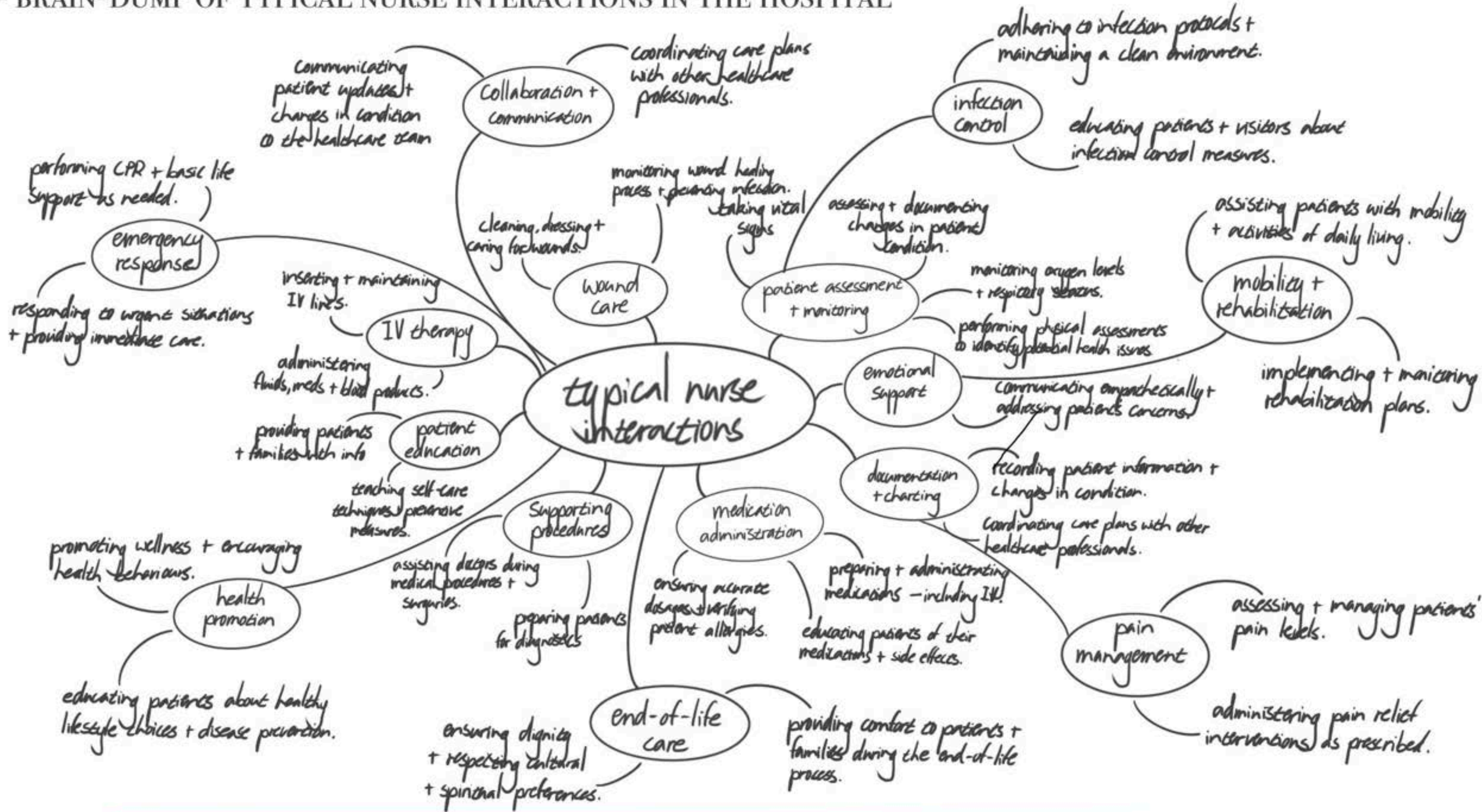
- always need to inform people about the observation, what the data is used for, + make sure they provide confirmation they understand this + provide consent.

What you need to do:

- o select 2 methods to utilise (minimum)
- o design + develop those methods
- o generate consent forms
- o recruit participants
- o deploy study methodically + rigorously
- o collect data methodically + rigorously.

PRIMARY RESEARCH | WEEK THREE

- BRAIN-DUMP OF TYPICAL NURSE INTERACTIONS IN THE HOSPITAL



PRIMARY RESEARCH | WEEK THREE

- CURRENT MENTAL HEALTH INTERVENTIONS FOR NURSES IN AUSTRALIA

1. Nurse + Midwife Support

↳ service offers 24/7 online + over-the-phone health support to people across Australia for free.

2. The Essential Network for Health Professionals (TEU)

↳ e-health hub that provides access to self-guided mental health check-ups + up to 5 free clinical sessions with a professional.

3. Employee Assistance Programs at work (EAP)

↳ EAPs are independent, confidential + free work-based programs designed to improve the emotional + psychological wellbeing.

4. Other online + phone help

↳ lifeline, beyond blue, kids helpline, mental health line, mensline australia, SAWE Australia, suicide call back service.

5. Face-to-face

↳ GP, psychiatrist, psychologists, mental health nurses.

both are lead by working nurses.

only government supported program.

general help not specific to nurses + healthcare professionals.

Key Takeaway Points:

- of the 5 options, only 3 were specific to healthcare professionals.
- 2 of the 3 options are run by healthcare professionals, for healthcare professionals.
- only 1 option is government lead + supported.

- online sources of support are not prevalent - could only find one website to list healthcare professional help.
- all forms of support are therapy based.

- occupational burnout related to stress in the workplace is experienced by nurses who are regularly confronted with trauma, suffering, + high workloads.
 - ↳ burnout can negatively impact patient care + have detrimental effects on nurses' physical + mental health.
 - ↳ mindfulness-based stress reduction programs have been researched as a potential holistic intervention for reducing stress + burnout in nurses through cultivating present awareness, emotional regulation, + positive thinking.
- a growing number of health care professionals are finding themselves unable to cope with high levels of stress, with studies reporting that up to 70% of intensive care unit (ICU) nurses + over 40% of hospital nurses experience work-related burnout.
 - ↳ burnout is characterized by emotional exhaustion, depersonalization, + decreased personal accomplishment, + is often a gradual process where the individual's physical + emotional capabilities are diminished after prolonged exposure to stress in the workplace.
 - ↳ the high demands of the health care system are often out of an individual nurse's control, + heavy workloads, lack of support, constrained resources, the emotional nature of the job, + inadequate staffing are major contributing factors.
- nurses suffering from burnout are at risk for experiencing physical + psychological symptoms, such as fatigue, anxiety, depression, + overall job dissatisfaction.
 - ↳ nurses are also more likely to abuse substances including caffeine, alcohol, + illicit drugs.
- burnout has also been shown to negatively impact an individual's personal relationships + home life, + is associated with higher rates of physical illness such as hypertension, heart disease, + sleep disorders.
 - ↳ dissatisfaction, disinterest, + overwork among nurses can also have negative impacts on job satisfaction + patient outcomes, as a result of decreased quality of care.
- inadequate staffing has been linked to inpatient mortality + adverse events for patients, including falls + medication errors.
 - ↳ understaffing also contributes to "time pressure", or stress that occurs when one has less time than needed to perform tasks, + time-pressure has been found to reduce the tendency to provide appropriate interventions.

-THE EFFECTS OF MINDFULNESS ON STRESS + BURNOUT IN NURSES

○ research has shown that higher levels of burnout potentiate rates of sick leave, absenteeism, tardiness + turnover. these factors can contribute to the overworking of staff members, further increasing the likelihood of nurses experiencing burnout.

↳ high levels of turnover + absenteeism can be costly for health care organisations that find themselves hiring + training new employees, in addition to paying overtime to existing employees when understaffing is an issue.

↳ burnout has also been noted as one of the main contributing factors to attrition + a gradual decrease in effectiveness among health care professionals.

○ prevention of burnout in nurses is aimed at promoting personal well-being + development of coping mechanisms for occupational stress + holistic therapies such as mindfulness meditation may be particularly effective.

Mindfulness Meditation

○ meditation is strongly associated with the concept of mindfulness, which involves active participation in the present moment + examination of the nature of reality.

↳ because of this association, it is often referred to as "mindfulness meditation."

○ mindfulness has been described as a shift in perspective + a detachment to sensations + thoughts, allowing one to accept rather than avoid unpleasant sensations + cravings.

↳ aversions + cravings promote stress + unhappiness by taking one out of the present moment + judging the current experience as 'good' or 'bad'.

○ the practice of mindfulness is aimed at maintaining a nonjudgmental view of experience, whether it be internal thought + emotion, or external stimuli such as sights + sounds.

↳ through repeated acceptance of unpleasant sensation, + nonjudgmental observation of the present, the individual may be better equipped to find a balance between environmental demands + the ability to cope with stress.

Theoretical Support for the Use of Mindfulness Meditation

○ self-transcendence may be used to support the practice of mindfulness meditation in treating stress + burnout in nurses, as it provides a framework for the "promotion of well-being in the midst of difficult life situations."

↳ self-transcendence, a form of self-awareness, is an internal component of holistic caring, as the ability to accept an adverse situation that cannot be changed contributes to inner growth, an overall sense of health, + well-being.

○ self-transcendence, as a characteristic of developmental maturity, is the capacity to expand personal boundaries, to enhance awareness of the environment, + to broaden the life perspective

↳ it is the ability to transcend or rise above life-altering experiences, such as the debilitating clinical environments that contribute to burnout in nurses.

- indicators of well-being include life satisfaction, positive self-concept, hopefulness, self-care, + a sense of meaning in life, all goals of interventions addressing stress + burnout in nurses.

↳ vulnerability is an "awareness of personal mortality or risk to one's well-being."

Mindfulness-based Stress Reduction (MBSR)

- the MBSR program developed by Kabat-Zinn in the 1970s, is the most widely used mindfulness meditation modality, + serves as the blueprint for many modern mindfulness programs.

↳ MBSR consists of engaging in guided meditations focused on cultivating non-judgmental awareness.

↳ the traditional program requires a lengthy time commitment, as it comprises 2.5-hr weekly group sessions + 45min daily meditations over 8 weeks, in addition to 1 full-day retreat lasting 6hrs.

- the program focuses on increasing mindfulness + attention through various techniques, including formal sitting practice + mindful movement.

↳ studies have found that MBSR programs significantly reduce psychological distress in a variety of populations, including patients with breast cancer + vascular disease, veterans, + uni students.

- nurses experience occupational stress + burnout at alarmingly high rates. nurses suffering from burnout are at a higher risk for depression + anxiety, in addition to physical illness such as hypertension.

↳ this can negatively impact the quality of patient care + put additional strain on the workplace.

- mindfulness meditation can improve self-awareness + well-being + may offer nurses the ability to achieve self-transcendence, an integral component of holistic caring, so MBSR is a promising holistic intervention for the prevention + treatment of stress + burnout in nurses.

Conclusions:

- mindfulness meditation has the potential to decrease stress + burnout in nurses by decreasing self-judgement + overidentification with experience, + by increasing resiliency, compassion, + emotional regulation.

Primary Outcomes: Stress

- nurses participating in a modified MBSR program had a significant decrease in work-related stress after 2.5hr sessions over 8 weeks, along with a retreat.
 - ↳ the sessions were focused on increasing attention + mindfulness through formal sitting practice as well as body scans, yoga, + mindful walking.
- most nurses who received the intervention received the intervention experienced at least a 50% reduction in stress when compared to nurses in the control group.
- almost all participants (96.4%) reported feeling that it was worthwhile to continue the practice after the program's conclusion, + 75% of participants rated the perceived benefit on their work performance at least an 8/10.
 - ↳ 3/8 participants who admitted to making errors at work before the intervention reported a decreased frequency of errors over 3 months post-intervention.
- after 8 weeks of MBSR training, nurses in the intervention group had no significantly lower levels of stress, depression, + anxiety.
 - ↳ nurses in the controlled group had no significant changes after 8 weeks of routine psychological support + activities.

Primary Outcomes: Burnout

- pre-intervention burnout scores indicated that all participants in a study of pediatric oncology nurses had high degrees of depersonalization + diminished personal accomplishment, in addition to significantly higher levels of perceived stress than the U.S national average.
- post-intervention, there were almost no changes in burnout or stress. However, all of the participants described experiencing a perceived benefit from the program, including increased inner peace, decreased stress + anxiety, increased self-awareness, anger management, improved inner peace, decreased stress + anxiety, increased self-awareness, anger management, improved relationships + improved focus.
- results included significant improvements in compassion, satisfaction, depressed mood, self-compassion, subjective quality of life, + burnout.
 - ↳ reduced levels of burnout remained unchanged by the 6-month follow up.

Key Takeaways:

- overwhelming amounts of stress + burnout are not completely malleable by interventions.
- there is no definitive process to eliminating occupational stress + burnout effectively.

- EFFECTS OF MINDFULNESS MEDITATION ON MINDFULNESS, MENTAL WELL-BEING, + PERCEIVED STRESS

- there appears to be a high level of mental health issues in health professional students such as depression, suicidal ideation, anxiety, addiction, + eating disorders which are on the rise.
- an area gaining in popularity is the use of relaxation techniques such as meditation or mindfulness to help students in high stress academic environments.
- mindfulness meditation is being aware of the present moment + not letting external or internal factors be distracting.
 - ↳ meditation does not involve trying to change your thinking by thinking some more. it involves watching thought itself.
- the use of a smartphone app to perform meditation is also an exciting area of exploration.
 - ↳ 'Headspace' - an app used to reduce symptoms in its participants.
- meditation has been proven to have a variety of health benefits, an example of such is stress reduction.
 - ↳ by participating in studies using meditation, medical students reduced stress, enhanced their educational experience, + became more confident + optimistic about their future.
 - ↳ another study also showed that mindfulness helped improve burnout symptoms, relaxation, + life satisfaction in nursing students.

Evaluation of perception of mindfulness meditation.

	None at all % (N)	A little % (N)	A moderate amount % (N)	A lot % (N)
How much value in mindfulness meditation do you see for yourself?	0	10.9 (7)	53.1 (34)	35.9 (23)
How much do you feel this experience has enhanced your learning abilities?	1.6 (1)	31.3 (20)	53.1 (34)	14.1 (9)
How much value in mindfulness meditation do you see for your future patients?	0	21.9 (14)	57.8 (37)	20.3 (13)

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
How likely are you to continue practicing mindfulness meditation?	0	15.6 (10)	6.3 (4)	51.6 (33)	26.6 (17)

- ↳ this table reports the evaluation of the participant's perception of practicing mindfulness meditation.
- mindfulness meditation significantly impacts stress, mindfulness, + mental well-being independent of these factors.
- this study also examined the influence of using an app to facilitate mindfulness meditation which may be more practical + feasible for students than participating in guided yoga + meditation sessions.
 - ↳ the app is relatively inexpensive + is affordable for pharmacy schools to purchase.

- EXPLORATION OF PSYCHOLOGICAL MECHANISMS OF THE REDUCED STRESS RESPONSE IN LONG-TERM MEDITATION PRACTITIONERS

- previous studies have linked contemplative practices, such as meditation, with stress reduction.
 - ↳ however, little is known about the psychological mechanisms underlying this relationship.
- this study compares the physiological stress response measured by changes in salivary cortisol, heart rate, heart rate variability, + the associated stress-related ratings in long-term practitioners.
- the results demonstrated that long-term meditation practitioners had faster cortisol recovery from stress, + experienced less shame + higher self-esteem after the exposure to social-evaluative threat.
 - ↳ long-term meditation practitioners scored higher on adaptive cognitive emotion regulation strategies, such as acceptance + positive reappraisal, + lower on maladaptive ones, such as catastrophizing.
- the cognitive emotion regulation strategy of acceptance mediated the relationship between meditation practice + cortisol recovery.
 - ↳ these results suggest that meditation practice is associated with faster recovery from stress due to the employment of adaptive emotion regulation strategy of acceptance, delineating a pathway underlying the positive effects of meditation on stress.

Contemplative Training + the Stress Response

- psychological stressors activate a distinct response through the limbic-sensitive "processive" stress pathway, leading to physiological changes orchestrated primarily by the hypothalamic-pituitary-adrenal axis (HPA) + the sympathetic-adrenal pathway (SAM).
 - ↳ the detrimental effects of repeated stress on neurons + the negative relationship between psychological stress + a number of physical + mental conditions.
- one of the most promising behavioural approaches aiming to attenuate the stress response is contemplative training, which consists of the use of various practices that originated mostly in eastern religions + spiritual traditions.
 - ↳ contemplative practice (CP) is defined as a form of training enacting a process of self-transformation through self-awareness, self-regulation, self-inquiry, + self-transcendence.
- recovery represents a separate mechanism underlying the pathophysiology related to stress exposure.
 - ↳ from a conceptual + clinical perspective, it is essential to consider both reactivity to + recovery from a stressor when evaluating approaches designed to lead to stress reduction.

- EXPLORATION OF PSYCHOLOGICAL MECHANISMS OF THE REDUCED STRESS RESPONSE IN LONG-TERM MEDITATION PRACTITIONERS

Psychological Factors of the Stress Response + Contemplative Training

- the psychobiological stress response has been previously linked to a number of psychological factors, such as primary cognitive appraisals, self-conscious emotions + cognitive appraisals, self-conscious emotions + cognitions + emotional regulation.
 - ↳ these psychological variables have not been sufficiently explored as potential mechanisms of the CPs effects on stress.

Primary Cognitive Appraisals

- according to the influential stress appraisal theories, the psychobiological response to stress is partially determined by how the situation is evaluated by a particular individual.
 - ↳ in the context of social evaluative threats, primary stress appraisals "threat" + "challenge" have been found to be related to the physiological changes in response to stress.
- CPs have the potential to alter the appraisal process.
 - ↳ preliminary empirical evidence suggests the CPs may be associated with attenuated threat appraisal.

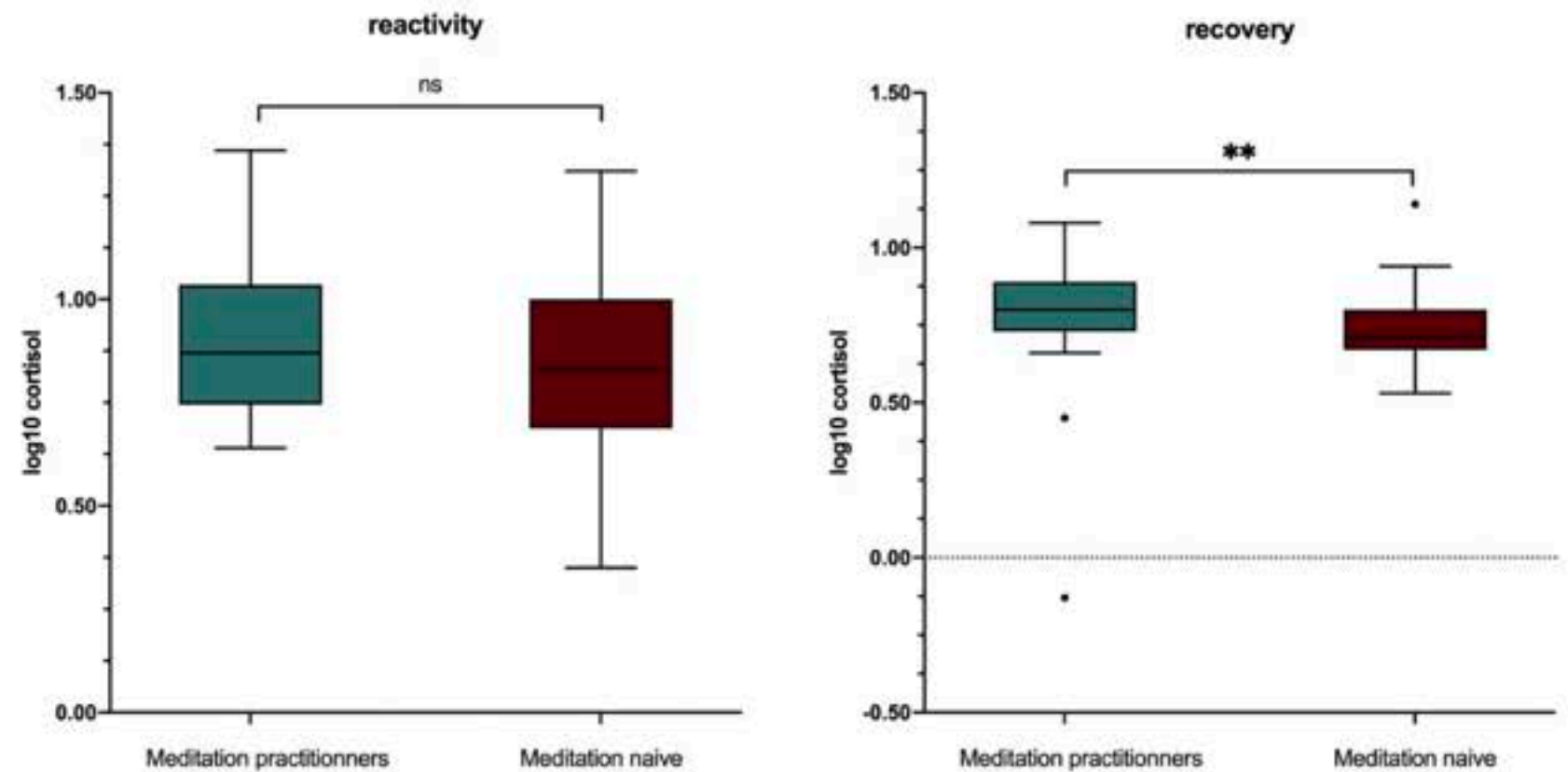
Self-conscious Emotions + Cognitions

- alongside cognitive appraisals, the stress response is associated with affective states. however, this relationship is complex, + defining the affective response is difficult.
- previous meta-analytical work suggests that general negative affect is poorly correlated with cortisol responses.
 - ↳ the stress response in the context of social evaluation appears to be more related to a particular type of affective state: self-conscious emotions.
- CPs have been found to be associated with shame reduction + positive effects on self-esteem.
 - ↳ some of the proposed mechanisms behind CPs effects on self-conscious emotion + cognition include self-compassion, nonjudgment, + reduced self-identification.

- EXPLORATION OF PSYCHOLOGICAL MECHANISMS OF THE REDUCED STRESS RESPONSE IN LONG-TERM MEDITATION PRACTITIONERS

Emotion Regulation

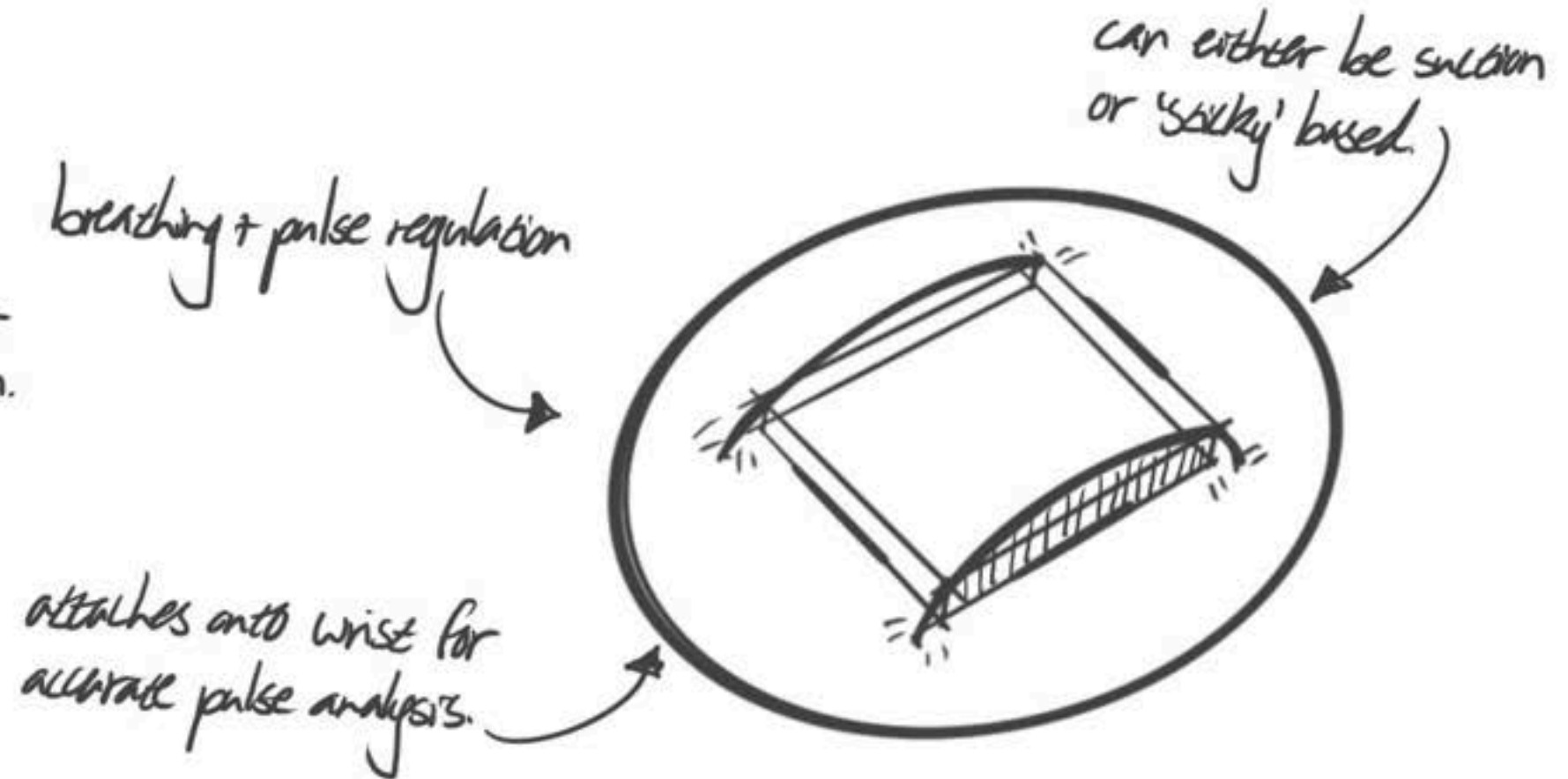
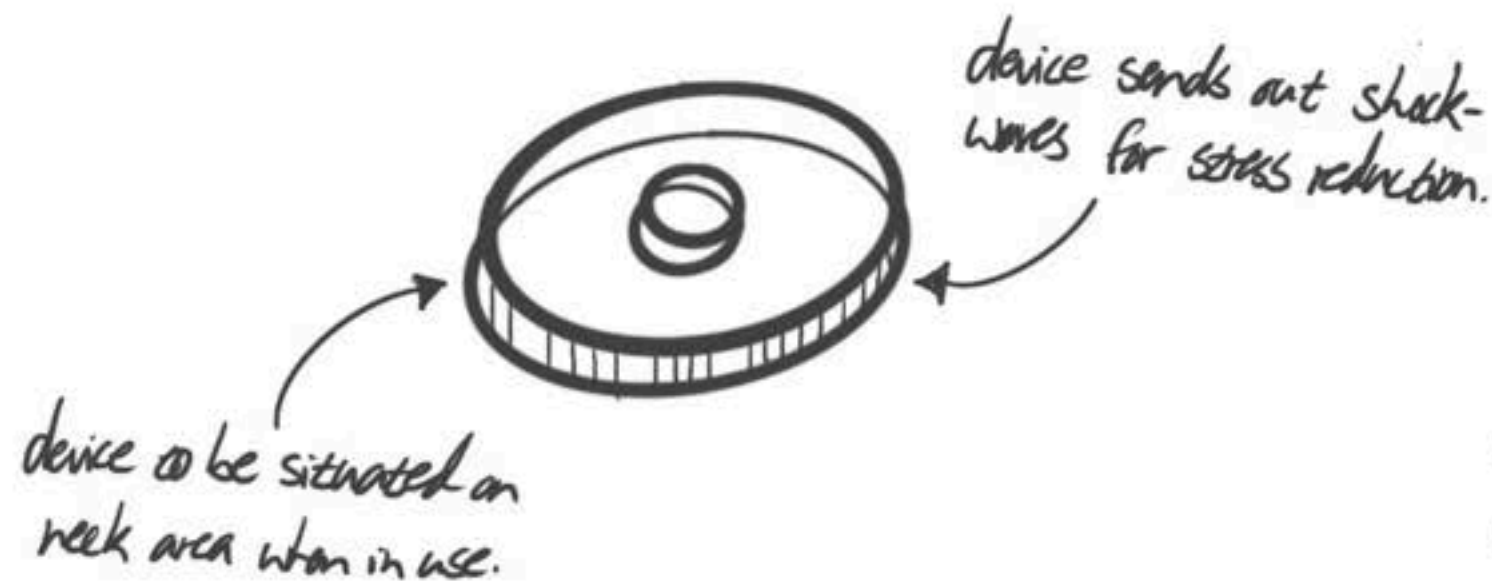
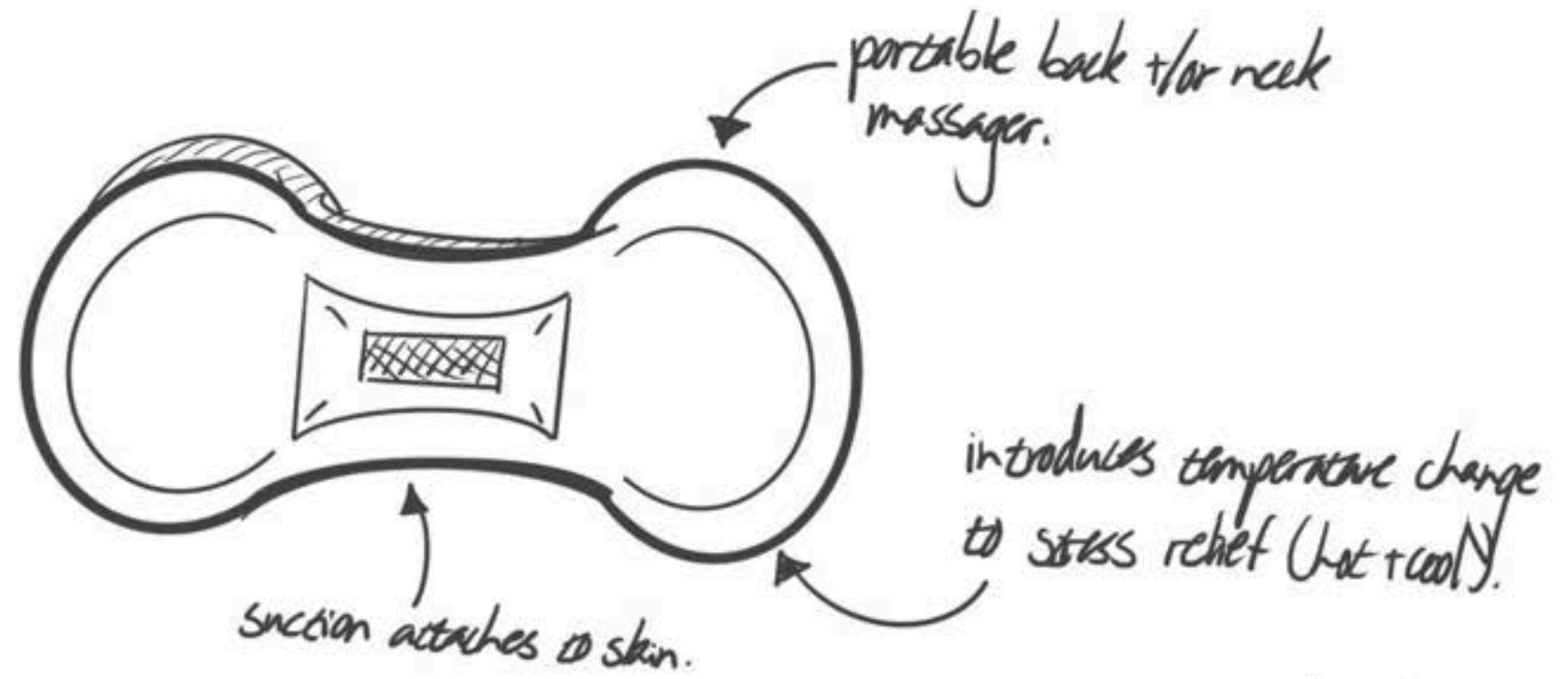
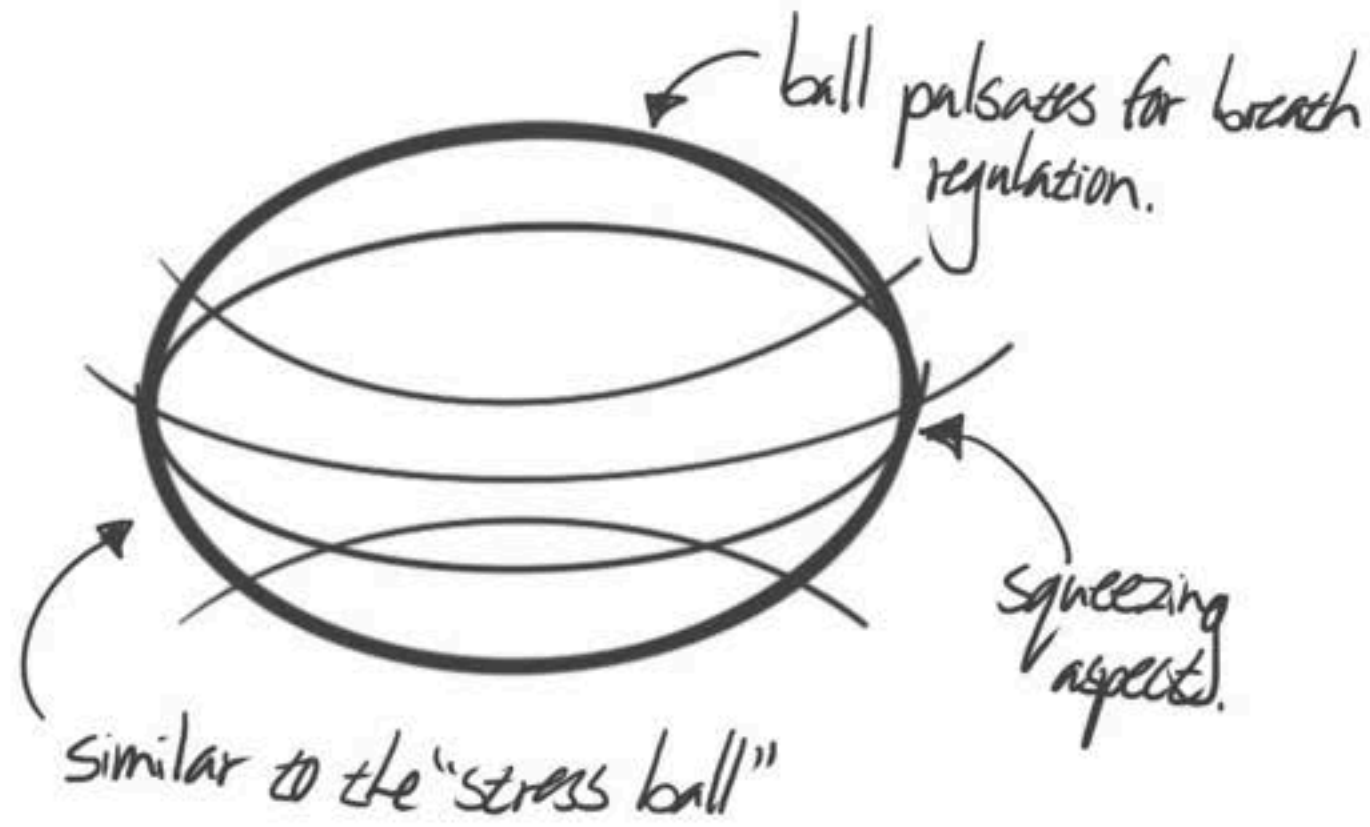
- emotion regulation (ER) is the process by which individuals influence when they have emotions, what type, + how they experience + express them.
 - ↳ ER represents another important psychological mechanism associated with the stress response!
 - ↳ specific ER strategies (perspective cognition) can lead to prolonged physiological activation or stress reactivity.
- focuses on the cognitive methods of managing emotionally stimulating information framework differentiates several distinct ER dimensions: acceptance, self-blame, blaming others, rehearsal on planning, positive refocusing, positive reappraisal, rumination, catastrophizing, + perspective taking.
- CRs have been positively linked to the recurrence to acceptance + positive reappraisal + negatively related to catastrophizing, rumination, + distraction.
- the results of this study suggest that long-term MP benefit from a more adaptive psychophysical response to social-evaluative stress than nonmeditators.
 - ↳ these findings extend the existing evidence linking CRs with a reduced psychological response to stress.



- ↳ group differences in the stress response study (reactivity + recovery) measured by salivary cortisol.
- this study adds important conceptual insights to the existing literature linking CRs with the existing literature linking CRs with the psychobiological stress response + offers an explanation of the possible mechanisms of this relationship
 - ↳ specifically, it shows that emotion regulation strategy of acceptance is a potential mechanism linking long-term CRs + physiological recovery from stress.

INITIAL IDEAS | WEEK THREE

- ROUGH SKETCHES + IDEAS FOR



- REDUCTIONS IN PERCEIVED STRESS FOLLOWING TRANSCENDENTAL MEDITATION PRACTICE ASSOCIATED WITH INCREASED BRAIN REGIONAL CONNECTIVITY AT REST

Transcendental Meditation (TM)

- TM is defined as a mental process of transcending using a silent mantra.
 - ↳ studies have shown that TM practice leads to decreases in stress + anxiety. however, whether these changes are relatively by specific morpho-functional brain modifications is still unclear.
- a classification of meditation practices in 3 broad categories has been recently proposed: focus attention, open monitoring + loving-kindness/compassion.
- TM has been considered to represent a particular type of mantra repetition technique within the category of focused meditation.
 - ↳ TM may actually constitute a distinct category a distinct category itself, named 'automatic self-transcending'.
- TM practice is a process defined of 'effortless transcending' in which the practitioner uses a mantra as a vehicle to reach a state of consciousness 'without concern'.
 - ↳ 'effortless transcending' is a particular sound that has no literal meaning to the practitioner.
- TM has been shown to promote psychological well-being, mostly in terms of reduced anxiety + perceived stress, reduced depression + improved coping skills.
 - ↳ similar to what had been observed in other meditation techniques.

- it is currently unclear whether the beneficial psychological effects of long-term TM practice are supported by morphofunctional brain changes within the same brain networks.
 - ↳ since TM + other meditation practices are associated with distinct patterns of brain activity, especially within the DMN, it is conceivable that their beneficial effects may be partially distinct brain modifications.
- the results indicate that psychological benefits of TM are correlated with an increase in DMN functional benefits of TM are correlated with an increase in DMN functional connectivity, involving the precuneus + the left parietal lobe, consistent with our hypothesis based on previous findings by our + consistent with our hypothesis based on previous findings by our + other laboratories indicating a role of DMN in anxiety + stress modulation.
 - ↳ it was found that TM practice is associated with an increased functional connectivity between the PCC + the right insula, in line with potential meditation-included changes in the balance in the balance between interoceptive + external awareness.

Effects of Meditation Practice on Depression/Anxiety/Stress

- following TM practice, the group of meditators reported a reduction in psychometric in psychiatric scores reflecting perceived depression, anxiety + stress in opposition to resilience + social skills.
 - ↳ TM has been shown to be effective in reducing psychological distress + enhancing quality of life in various clinical populations, including patients suffering from HIV, breast cancer + PTSD.

- REDUCTIONS IN PERCEIVED STRESS FOLLOWING TRANSCENDENTAL MEDITATION PRACTICES ARE ASSOCIATED WITH INCREASED BRAIN REGIONAL CONNECTIVITY AT REST

- TM protocols have been adapted to reduce personal distress while enhancing self-efficacy, resilience, assertiveness, self-determination, self-esteem, dispositional in high-risk social contexts, for example in ethnic minorities.

Anatomy-functional correlates of psychometric changes associated with TM practice.

- a reduction in perceived depression, anxiety + stress was associated with an increased connectivity of the PCC with the precuneus + the left parietal lobe.
 - ↳ these functional adaptations were not accompanied by detectable structural brain modifications, as no significant changes in cortical thickness were observed within the same regions.

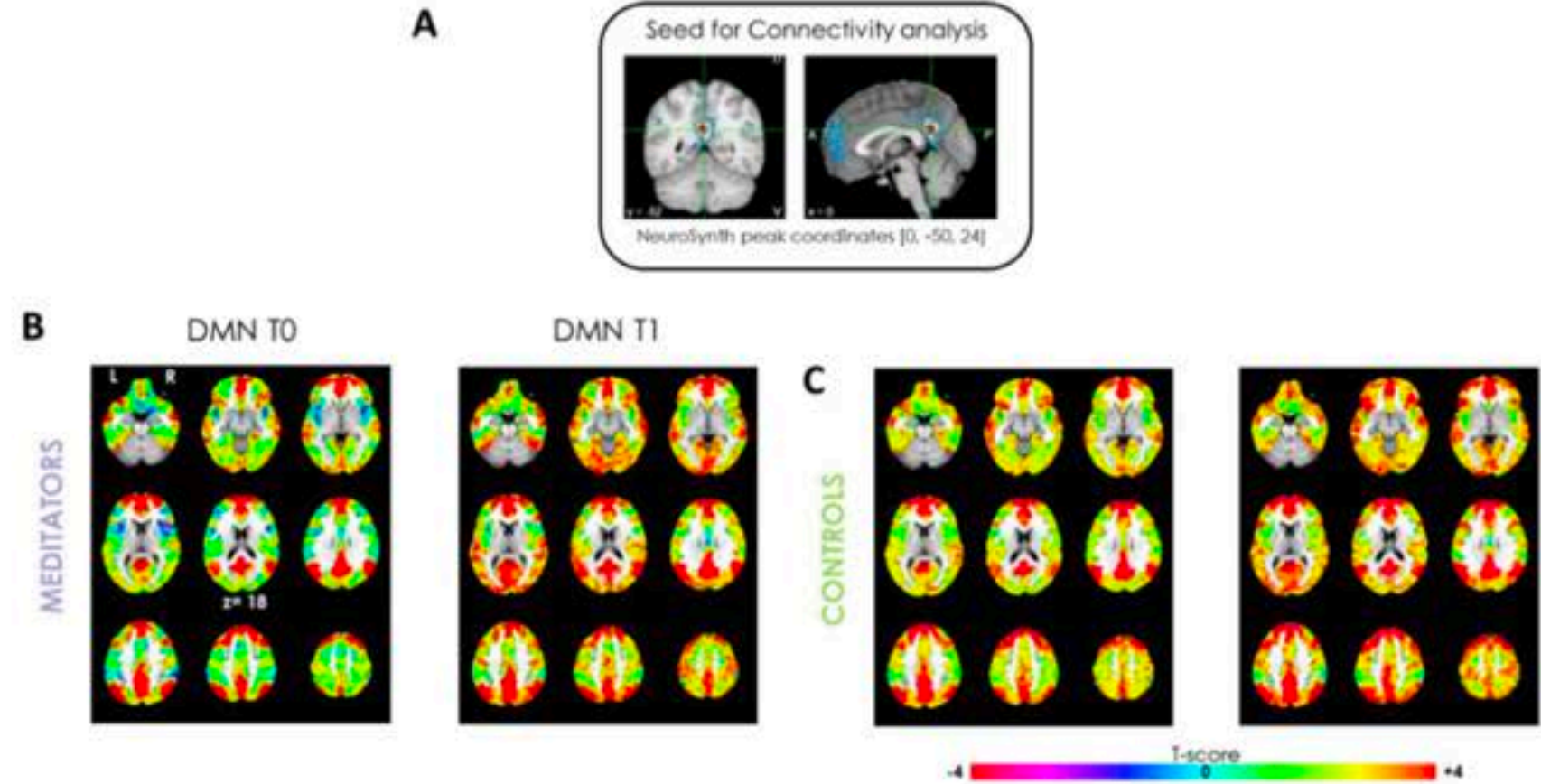
- the reduction in stress + anxiety may be mediated, at least in part, by a relative functional reorganization within the DMN network

↳ this view is supported by previous evidence indicating the existence of a negative relationship between activity in the posterior portion of the DMN + psychometric scores of anxiety + depression.

- decreased DMN strength in the parietal cortex has been associated with an increased neuroticism score, implying a higher vulnerability to psychological stress.

- an increased connectivity among the posterior regions of the DMN, including PCC, precuneus, angular gyrus + parietal cortex, correlated negatively with scores of anxiety + depression in healthy individuals.

↳ significant modifications within the DMN have been demonstrated in clinical populations suffering from depression +/or anxiety disorders, suggesting a pivotal role of this network in mood regulation + emotional processing.

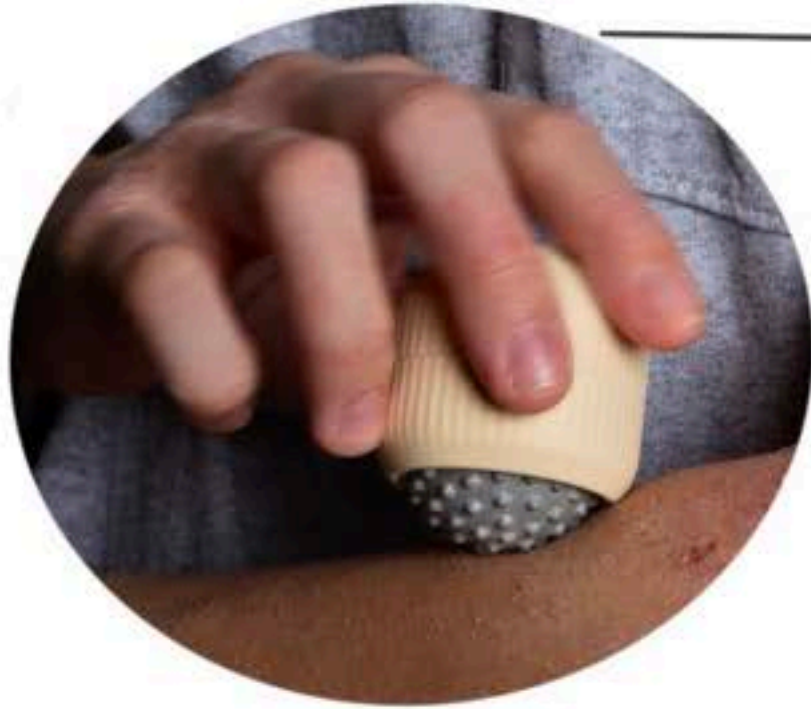


- (A) seed region used for Default Mode Network (DMN) connectivity analysis (NeuroSynth peak coordinates [0-50, 24]).

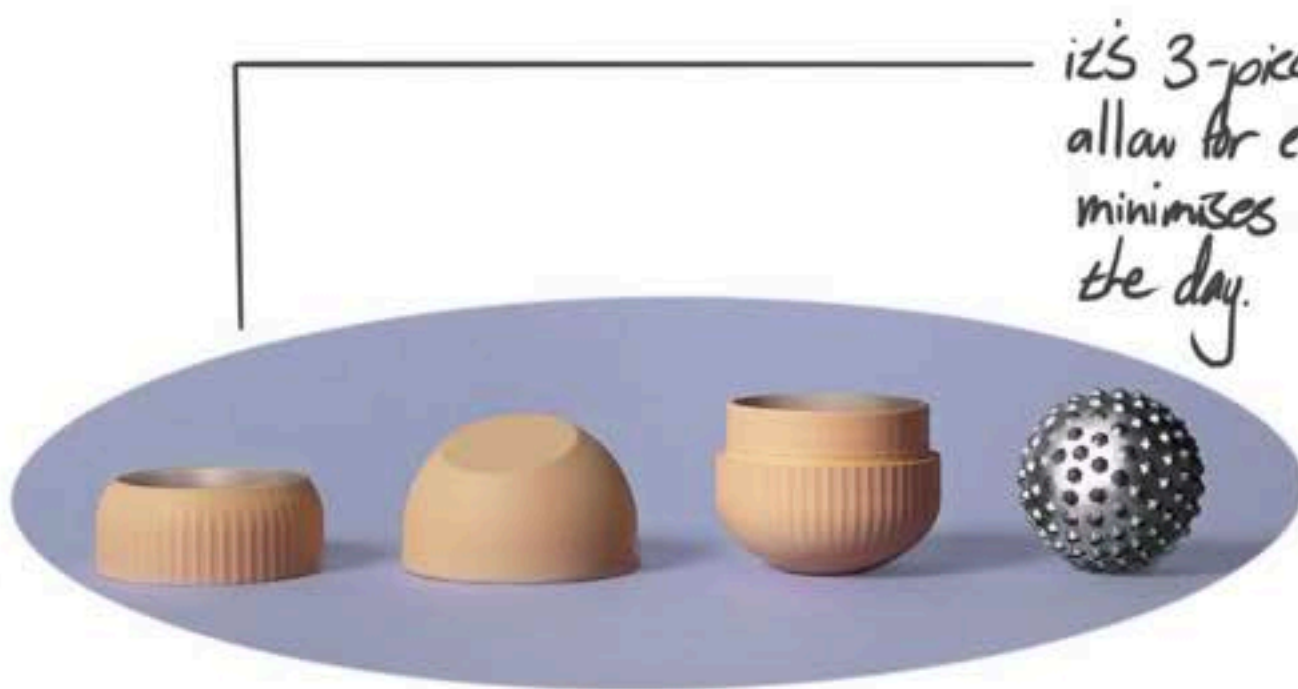
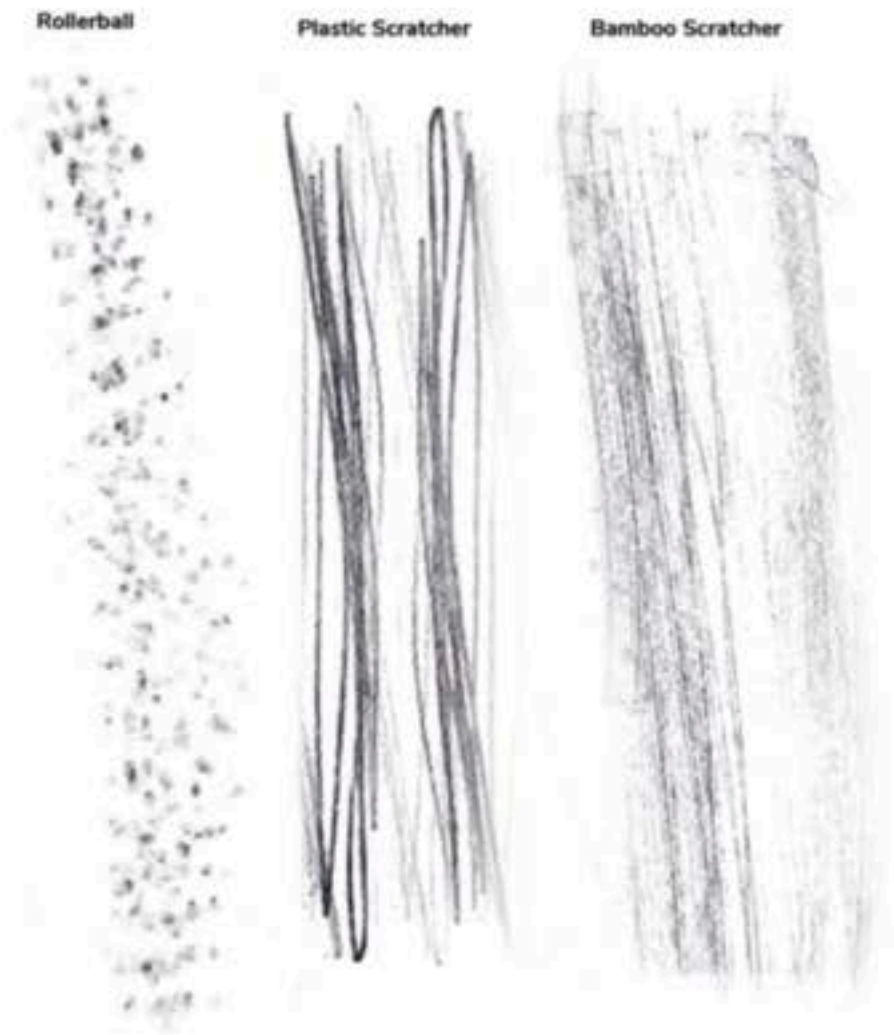
- (B) shown DMN connectivity maps to T0 + T1 in meditators, while (C) shows the equivalent DMN maps obtained in the control group.

- all results are unthresholded. in each panel, axial brain images are presented in inter-slice spacing of 5mm.

Designer: Koh Bei Ning | 'Rollerball Itch Relief'



a rollerball itch reliever that never scratches. most eczema patients struggle to resist scratching during a flare up, resulting in torn skin that causes them to become stuck in the endless itch-scratch cycle. this textured rollerball provides a sensation similar to scratching, while it's rolling mechanism ensures that skin is never torn.



its 3-piece case can be easily disassembled to allow for effortless cleaning + its seamless interior minimizes the accumulation of dead skin throughout the day.

stainless steel rollerball is cooling to the touch even at room temperature, so users can further soothe their inflamed skin.

- PAST STUDENT PROJECTS ALIGNING WITH MY CRITERIA, IMMEDIATE STRESS RELIEF

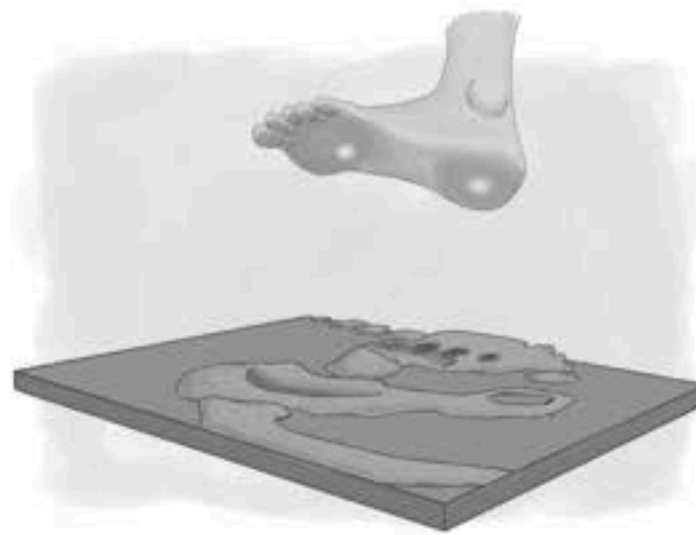
Designer: Fang Haw | 'KuaFu: Stress Relief in the Workplace'



'KuaFu' helps its users relax by massaging the Shi Mian + Yong Quan meridian points. Its distinctive ergonomic shape guides users' feet over its singular protrusion, massaging it while providing a surface to explore + rest users feet.



Countless sketches + form studies were made in pursuit of between form + function.



User testing helped determine the optimal shape for effective stimulation of meridian points + ease of use.

- PAST STUDENT PROJECTS ALIGNING WITH MY CRITERIA, IMMEDIATE STRESS RELIEF

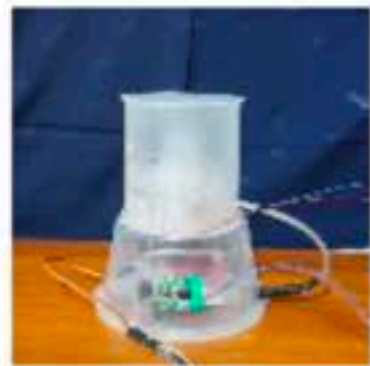
Designer: Teng Yan Wen | 'Bre' - A Breathing Guide Aroma Diffuser



'Bre' is an aroma diffuser that creates a calm environment in which the scent naturally invites people to breath with it.

it also guides people to do breathing exercises by releasing ring mists at a constant pace - representing the comes in a breathing exercise.

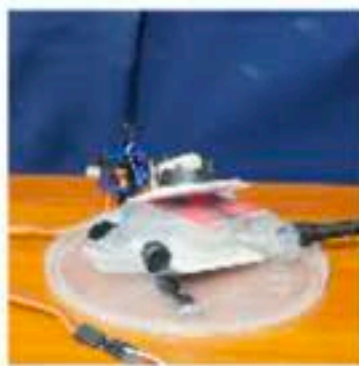
main components required in the product.



Casing



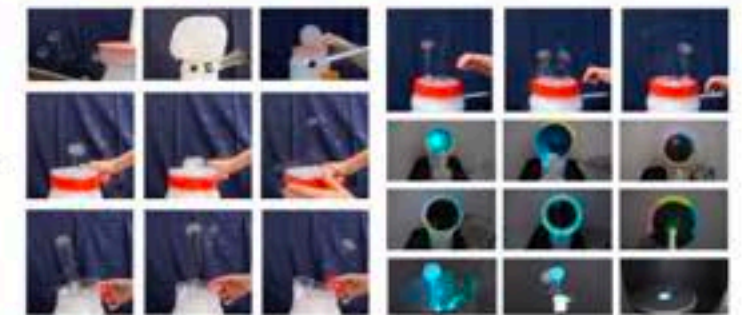
Body - Water compartment and mist maker



Base - Servo motor - air pump



explorations on visualising breathing.



- MEDITATION + THE BRAIN - NEURONAL CORRELATES OF MINDFULNESS AS ASSESSED WITH NEAR-INFRARED SPECTROSCOPY

- today, the practice of meditation can be seen as a mental or cognitive training which is accompanied with emotional well-being + amelioration of concentration + attention.
 - ↳ practicing over years makes it possible to keep this awareness continuously beyond daily meditation practice (trait).
- all this makes meditation interesting to the field of psychopathology + to the study of underlying functional, physiological + anatomical correlates of meditation on the brain.

Discussion

- in this study, there was a comparison of cortical patterns between meditation experts + a control group without meditation experience during mindfulness + a baseline condition using a background auditory stimulus + NIRS as a non-invasive, ecologically valid neuroimaging method.
 - ↳ in the baseline condition, the auditory cortex was activated in both groups with a somewhat more widespread pattern of activation in meditation experts.
 - ↳ in the mindfulness condition, there were no significant increase in hemodynamic responses in the control group, but significant activation in areas of the primary somatomarginal gyrus + Broca's area for meditation experts.
- the results show brain areas which are specifically active in meditation trained people while being mindful on an auditory stimulus.

Long-term effects of meditation practice (trait)

- as a more general effect, the fNIRS analysis revealed that main effects of the factor group indicated that meditation-experienced subjects showed significantly stronger activation in secondary + tertiary auditory brain areas as compared to the control independent of the specific task condition.
 - ↳ these results point at a more general effect of meditation training beyond the mindfulness-condition.
- areas highly active in a meditative state seem to stay active beyond the meditative task itself.
 - ↳ the findings strengthen the hypothesis that meditation training can foster specific long-term effects in the brain, which are not dependent on the task presented, but might represent lasting underlying resting-state changes.

- EFFECTS OF YOGIC BREATH REGULATION: A NARRATIVE REVIEW OF SCIENTIFIC EVIDENCE

○ yoga is a traditional practice from the ancient India culture + is considered to be the science of holistic living. various practices involved in the tradition of yoga include disciplined lifestyle, cleansing procedures, physical postures, breath regulation, concentration + meditation.

↳ 'pranayama' or breath regulation is considered to be an essential component of yoga + influences physiological systems.

○ breath regulation includes modulation of the pace of breathing, viz. slowing down or pacing the breath, manipulation of nostrils, chanting of humming sounds, retention of breath, etc.

Neurocognitive effects of yogic breathing

○ "as the breath moves, so does the mind, + mind ceases to move as the breath is stopped."

↳ an early review indicates that yogic breathing practices could influence the brain activity in different ways.

Changes due to pace of breathing

○ the pace of breathing modifies psychophysiological responses.

↳ this includes dynamic changes in multiple variables.

○ these changes indicate that breathing at a slow pace with internal breath hold could influence brainstem cardiorespiratory + autonomic regulating the Mayer wave patterns.

○ the modulation of ANS due to practice of slow pace Bhastrika is attributed to the enhanced parasympathetic activity.

Yogic breathing + oxidative stress

○ yogic breathing was also found to be an effective means to combat oxidative stress. it was found to lower the free radical load + increase the superoxide dismutase (SOD) among healthy volunteers, when compared to a control population.

↳ it was correlated to lower levels of cortisol + enhanced melatonin levels.

○ most yogic breathing practices lead to parasympathetic shift of the ANS activity, except high frequency yogic breathing (Kapalabhati).

↳ most yogic breathing techniques are found to have profound effects on autonomic functions.

Effects of yogic breathing on respiratory system

○ the training in yogic breathing is found to be an effective means of enhancing the pulmonary functions.

↳ slow breathing at 6 breaths/min showed an increase in vital capacity (VC) after 2 + 5 mins.

↳ increase in forced vital capacity after 2 mins, + increased in forced inspiratory vital capacity + peak inspiratory flow rate after 2, 5 + 10 mins.

○ a recent study demonstrated beneficial effect of 1 month training in combination of yogic breathing on pulmonary functions in competitive swimmers.

↳ the limited available evidence of yogic breathing on respiratory system indicates a positive trend of change in the respiratory physiology.

- HOW BREATHING CAN HELP YOU MAKE BETTER DECISIONS: 2 STUDIES ON THE EFFECTS OF BREATHING PATTERNS ON HEART RATE VARIABILITY + DECISION-MAKING IN BUSINESS CASES

The impact of stress on decision-making

○ scientific research has shown that acute stress not only affects individuals in the time they need to make decisions, but that stress may also continue to affect many facets of higher-order cognitive functions, including emotional memory, selective attention to emotional stimuli, working memory + altruistic punishment in an economic game, even hours after the induction of stress.

↳ this implies that not being able to cope with stress properly, may for example also prevent psychological detachment + mental recovery from work stressors, making individuals more prone to emotional exhaustion + burnout.

○ decision making under stress results in distortions in the information processing, generation of alternatives, the assessment of available choices, + finally in the stage of making a choice from among alternatives available to the decision-maker.

↳ when stressed, individuals tend to make more habitual responses than reflecting goal-directed choices, are less likely to adjust their initial judgment, + rely more on gut feelings in social situations.

The vagus nerve + its impact on decisions

○ the vagus nerve is the main branch of the parasympathetic nervous system, + is known to modulate stress responses.

○ the afferent fibers of the vagus end in the nucleus tractus solitarius (NTS), which in turn projects to the amygdala, the hippocampus + the hypothalamus + the parabrachial nucleus.

↳ the parabrachial nucleus itself projects to the thalamus + subsequently, the thalamus projects to the striatum, orbital frontal cortex + insula.

○ these last brain regions all take important roles in physiological, emotional regulation + in decision-making, making the vagus nerve particularly interesting for research.

○ activity of the vagus nerve can be measured + indexed by heart rate variability (HRV).

↳ heart rate (HR) is a vital sign, HRV is a measure of variations of heart rate + an important quantitative measure of cardiovascular regulation by the autonomic nervous system.

○ the vagus nerve does not only play an important role during the process of decision-making by integrating peripheral signals + by bidirectional communication to higher brain regions, which influence cognition.

↳ higher activation of the vagus nerve marks faster recovery from stress, which can aid the recovery process at the end of a workday + lower risks of burnout.

General Discussion

○ vagal activation leads to an improved memory as well as decision-making time + its activity is related to general decision-making performance.

○ HRV is positively correlated with activity in multiple prefrontal cortical regions such as the medial prefrontal cortex + the ventromedial prefrontal cortex, that play crucial roles in decision-making.

○ all these together may explain the better performance of those who did brief vagal breathing prior to the challenging task.

- DEVICE + NON-DEVICE-GUIDED SLOW BREATHING TO REDUCE BLOOD PRESSURE: A SYSTEMATIC REVIEW + META-ANALYSIS

- cardiovascular disease (CVD) continues to be the leading cause of morbidity in both the United States + worldwide, + hypertension is one of its most important risk factors.
 - ↳ when blood pressure rises, the risk of CVD increases.
- the current strategy to prevent the adverse health consequences of hypertension is to encourage medication adherence + lifestyle changes.
 - ↳ however, compliance with these strategies remains poor.
- non-device slow breathing, or pranayama, is the controlled breathing that lies at the heart of yoga.
 - ↳ observational studies have shown a blood pressure lowering benefit of pranayama for hypertensive + prehypertensive patients at low cardiac risk.
 - ↳ Mahajan et al. showed a reduction in blood pressure with short-term use of device-guided slow breathing.
- slow breathing showed reductions in blood pressure similar to those for antihypertensives which have demonstrated improved outcomes in low cardiac risk hypertensive + prehypertensive patients.
- both device + non-device-guided slow breathing are inexpensive interventions, easy to learn, + have minimal side effects.
 - ↳ pranayama may also be beneficial due to its effects on mental health.
- mental illness such as depression + anxiety + mental distress such as stress are potent risk factors for cardiovascular disease.
 - ↳ pranayama is a component of yoga, + yoga has been shown to improve mental health + reduce stress.
 - ↳ stress reduction may reduce all-cause mortality by 23% + cardiovascular mortality by 30%.
- stress reduction may also lower blood pressure.
 - ↳ pranayama's mental health benefits may help explain its greater effect on blood pressure reduction compared to device-guided slow breathing.
- while the decrease in blood pressure is promising, it had to be compared by weakness in the existing RTCs including large heterogeneity, relatively short follow-up periods, high risk of bias, + post hoc analyses of low risk of bias results showing an insignificant decrease in blood pressure.
 - the intensity of the intervention could certainly play a role in the level of blood pressure reduction as we saw a trend toward greater reduction with increasing intensity.
 - slow breathing may modestly reduce systolic + diastolic blood pressure.
 - while non-device-guided slow breathing may have even a greater effect compared with device-guided slow breathing, this is based on a small body of evidence as only 2 non-device-guided studies were included.
 - ↳ slow breathing may be beneficial for treating hypertension in patients with hypertension or prehypertension who are at low cardiac risk, especially for patients who wish to avoid medications initially.

- EFFECTIVENESS OF PROGRESSIVE MUSCLE RELAXATION, DEEP BREATHING, + GUIDED IMAGERY IN PROMOTING PSYCHOLOGICAL + PHYSIOLOGICAL STATES OF RELAXATION

Progressive Muscle Relaxation

- progressive muscle relaxation (PMR) is an actively engaging relaxation technique developed by Edmund Jacobson in the 1920s.
 - ↳ PMR involves participants actively contracting muscles to create tension + progressively releasing this.
- the routine is repeated until participants acquire complete relaxation. this technique utilizes the principles of neuronal 'top-down' + 'bottom-up' processing to achieve results.

Deep breathing

- diaphragmatic breathing, is a technique that is based on the notion that mind + body integration produces relaxation.
 - ↳ the technique requires participants to contract the diaphragm, slowly inhaling + exhaling.
- deep breathing appears to amplify blood oxygen levels, massages the inner organs located in or close to the abdomen + possibly stimulates the vagus nerve.
- deep breathing has been shown to have a positive impact on various factors like stress, anxiety, + negatively affect in numerous studies.

Guided Imagery

- guided imagery is a method for creating stress + anxiety in which one replaces disturbing memories with positive mental imagery.
 - ↳ this involves instructional guidance that invokes sensory experiences + behavioural + physiological responses.
- sensory + contextual engagement are a key focus of this technique.
 - ↳ the instructional guidance + the strong focus on the engagement of participants help gain greater perceptual detail of the images generated which creates a more realistic mental representation during the relaxation exercise.

Discussion

- levels of relaxation following the stress relaxation exercises were significantly higher for the relaxation groups as compared to the control group.
 - ↳ after the exercises, none of the relaxation groups differed from one another.
- the guided imagery technique showed effectiveness in inducing senses of both psychological + physiological relaxation, similar to the effects of guided imagery for surgery patients, hospital nurses working during the COVID-19 pandemic, + healthy adults.

- STRESS RECOVERY DURING EXPOSURE TO NATURE SOUND + ENVIRONMENT NOISE

autonomic nervous system

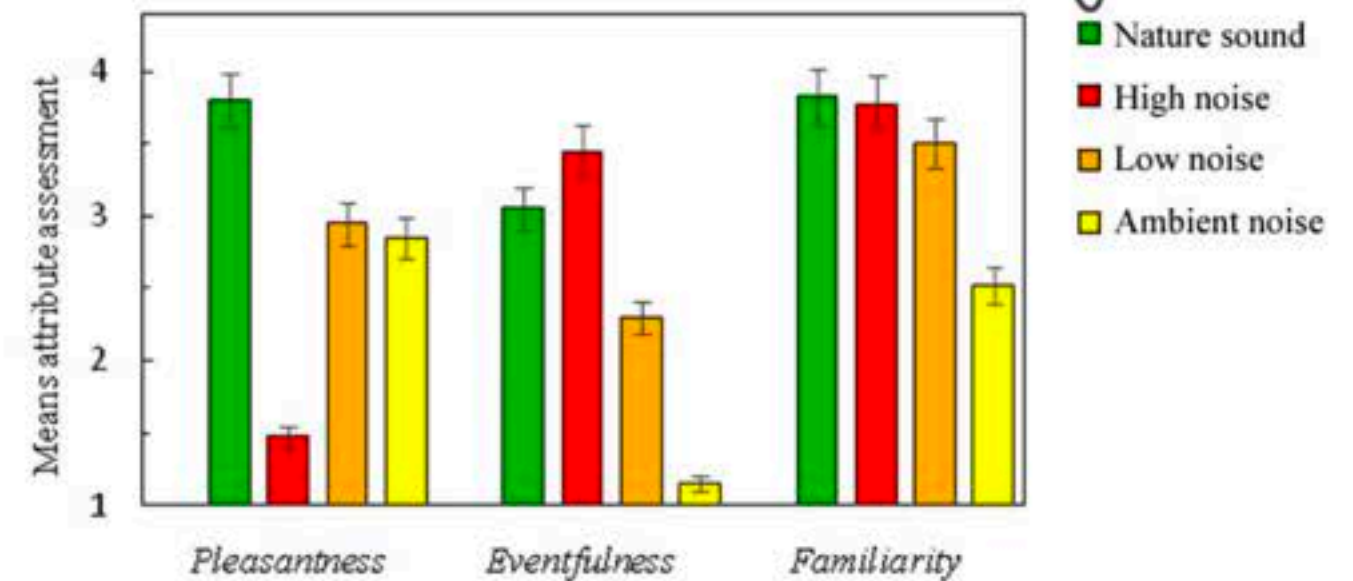
- the autonomic nervous system controls various body functions: the sympathetic branch primarily controls activation + mobilization, + the parasympathetic branch controls restoration + relaxation.
 - ↳ sympathetic activity can be indexed by skin conductance level (SCL) + parasympathetic activity can be indexed by the high frequency part of the power spectral density of heart rate variability.
- psychological stress can be elicited by factors such as failure to achieve + marital problems, psychological stress also often has physiological consequences.
 - ↳ in the laboratory, psychological stress is commonly induced by mental arithmetic + speeded script tasks.
- psychological recovery is associated with a decrease in sympathetic activation + an increase in parasympathetic activation.
 - ↳ as physiological stress recovery should be faster during exposure to pleasant than to unpleasant sounds, we hypothesized that a SCL should decrease faster + HF HRV increase faster during pleasant nature sound than during less pleasant noise.

experimental sounds

- nature sound
 - ↳ a mixture of sounds from a fountain + tweeting birds
- high noise
 - ↳ road traffic recorded close to a densely trafficked road.
- low noise
 - ↳ the same noise as above, but set to a lower average sound pressure level.
- ambient noise
 - ↳ constant low level ambient noise, mainly caused by ventilation systems of the buildings surrounding the yard.

perceptual assessment of experimental sounds

- the perceptual assessment of the sounds showed that the nature was perceived as more pleasant than the noises. this confirms that the selection of sounds was successful, as the goal was to find a nature sound that was more pleasant than any of the noises.
 - ↳ the low noise + the ambient noise were similar in perceived pleasantness whereas the high noise sound was rated as the least pleasant sound.
 - ↳ the perceptual evaluation also showed that the high noise was perceived as more eventful than the other sounds.
 - ↳ the ambient noise was the least eventful + also the least familiar sound, probably because it contained no distinct sound sources + therefore was perceived as an undifferentiated background noise.



- mean values of perceptual attributes for the nature sound + the high, low + ambient noises. error bars represent the standard error of the mean.

Discussion

- the main purpose of this study was to test whether physiological stress is faster during exposure to pleasant nature sounds than to noise.
 - ↳ SCL during the nature sound was lower than for the noises
- the difference was statistically significant only between the nature sound + the high noise, detailed analyses of the recovery functions showed that half-life SCL recovery was 9-37% faster during the nature sound than during the noises.
 - ↳ these results suggest a faster recovery of the sympathetic nervous system during the nature sound.
 - ↳ because HF HRV showed no effects of experimental sounds, this null finding suggests that the parasympathetic activation may be less affected by sound during recovery.
- the present results suggest that recovery from sympathetic arousal is affected by type of sound (nature sound vs noise)
 - ↳ recovery was faster during the nature sound compared with the noises, including the low noise + the ambient noise.
- the mechanisms behind the faster recovery could be related to positive emotions, evoked by the nature sound as suggested by previous research using non audio film stimuli.
 - ↳ other perceptual attributes may also influence recovery. the ambient noise was perceived as less familiar than the other sounds presumably because it contained no identifiable sources.

- an effect of sound pressure level can be seen in the difference between high + low noise, this difference is in line with previous psychoacoustic research + its not a surprise considering the large difference in sound pressure level.

Conclusions

- the present results suggest that after psychological stress, physiological recovery of sympathetic activation is faster during exposure to pleasant nature sounds than to less pleasant noise of lower, similar, or higher sound pressure level.

- SOUND THERAPY INDUCED RELAXATION: DOWN REGULATING STRESS PROCESS + PATHOLOGIES

Stress + its relation to music

- the use of music has consistently been found to reduce stress levels of patients in clinical settings.
 - ↳ studies have contrasted music to verbal distraction, concluding that although the methods were comparable for the reduction of stress, music was more effective in the reduction of blood pressure.
- music has been paired with other therapeutic techniques to reduce stress as well.
 - ↳ in a study of pediatric patients, group music therapy sessions, including singing, + instrument playing, were found to decrease observed stress in children before surgery.
- guided imagery + music together were found to decrease pain + stress in patients undergoing elective colorectal surgery.

How emotions cause stress + how music alleviates it: CUS process

- music + its calming effects have been demonstrated to have a large emotional component.
 - ↳ when pleasant music is heard the brains motivation + reward pathways are reinforced with positive emotion mentally linked to the music.
- the emotionalized memory includes many somatic markers that accompany emotion + set the feeling tone, feels right to the person.
 - ↳ music + the emotion it imparts can be viewed as a process reinforcing a positive belief so that rational thought can not hinder the strength of the belief.

nitric oxide

- the origin of music as a method of stress release has its roots in the early development of the auditory system.
 - ↳ the nitric oxide (NO) pathway is thoroughly involved in the development + function of the sensory systems, + specifically in the development of the cochlea.
- cochlear nerve fibres enter the brainstem + are routed through the thalamus to the auditory cortex.
 - ↳ it has been demonstrated that it is along this path that the emotion centres within the limbic systems are activated.

Conclusion

- the music induced relaxation peripherally appears to be mediated by a system of regulation involving NO, as neurotransmitter + as a locally acting hormone.
- NO has been shown to be necessary molecule in the development of the auditory system, which is required to enable music to act as a relaxant.
 - ↳ the complex nitric oxide signaling system is the primary + fundamental method by which music acts as a relaxation device.

- THE EFFICACY OF A BRIEF NATURE SOUND INTERVENTION ON MUSCLE TENSION, PULSE RATE, + SELF-REPORTED STRESS: NATURE CONTACT MICRO-BREAK IN AN OFFICE OR WAITING ROOM

Environmental design

- there is a growing recognition that environmental design impacts health + well-being.
 - ↳ creating environments with natural elements to promote well-being is both intuitive + scientific.
 - nature contact is a design feature or exposure that is especially important in public health, + past research findings have shown a consistent correlation between nature contact exposure + health outcomes.
 - ↳ nature contact exposure has been associated with reduced stress, improved attention, improved recovery following surgery + enhanced well-being among many populations.
 - most of the previous applied research has taken place in healthcare or workplace setting + focused on indoor features such as window view, natural sunlight planes.
- ### implications for practice
- findings consistently show that natural elements are healthful design features of indoor environments.
 - ↳ such as potted plants, a window view, natural sunlight
 - nature sounds also appear to be a health-promoting exposure that should be explored.
 - significant stress reduction occurred very early in the nature sound listening group - as early as 7 mins of listening
 - health promoters + design professionals may use nature sounds to create healthy offices.

objective

- this experimental study was designed to examine the effect of nature sounds on physiological + psychological stress.

conclusions

- this study highlights the potential benefit of even very brief (less than 7 mins) exposure to nature sounds.
 - ↳ brief nature sound 'booster breaks' are a promising area for future research with important practical implications.

- EXPLORING THE EFFECT OF SOUND + MUSIC ON HEALTH IN HOSPITAL SETTINGS: A NARRATIVE REVIEW

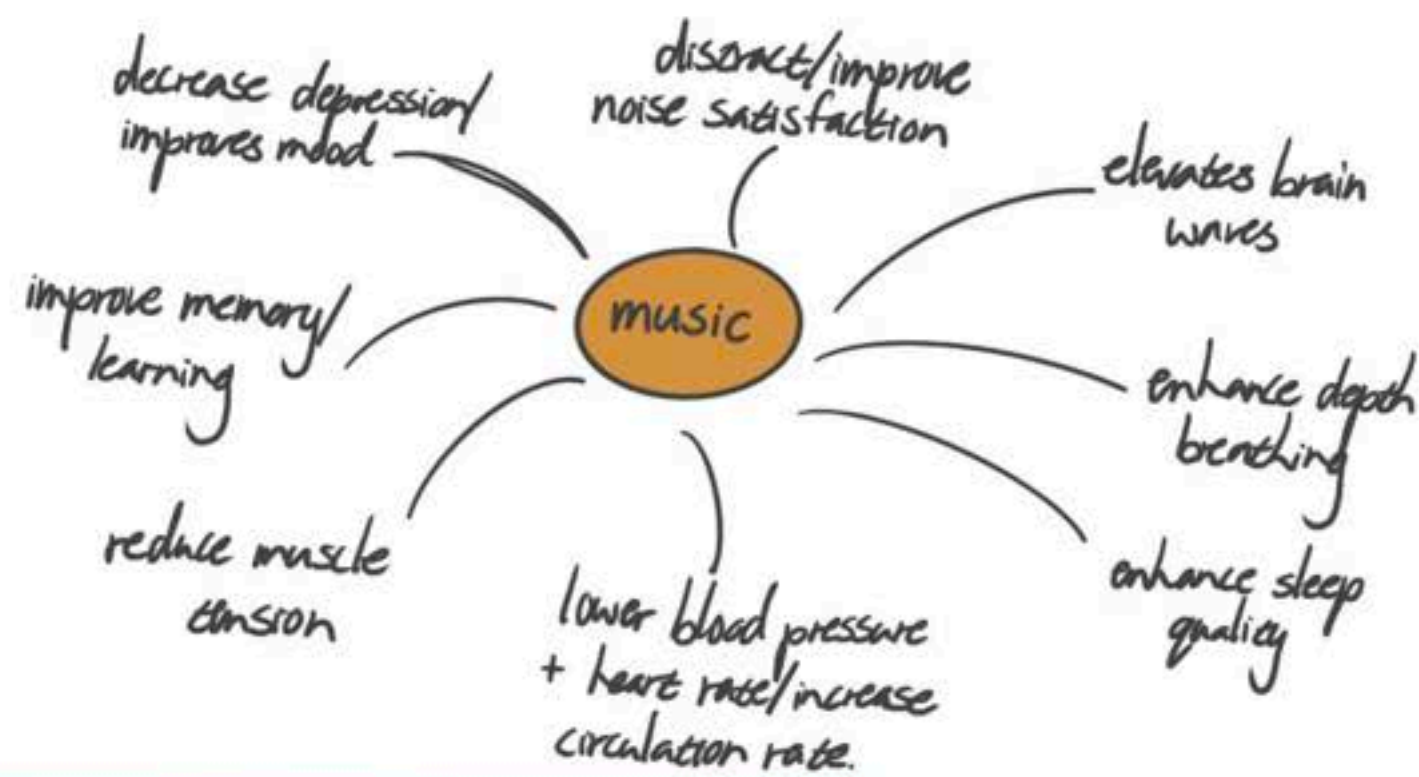
Sound in hospital spaces

- undesirable sound experience is a major complaint among patients + staff because of diverse mechanical sounds, + a wide range of services + functional units present in these spaces.
 - ↳ sound pressure levels in hospital environments have increased progressively since the 1960's with dramatic increases of 57-72 dB during the day + 42-60 dB at night.
- sound that affects hospital occupants emanates from numerous sources such as low frequency sounds from heating, ventilating, + air-conditioning systems + medical audible alarms.
- the detrimental effects of low frequency sounds seem to have an impact on people + are more intolerable than higher forms of sound.
 - ↳ bothersome sounds can alter memory, increase agitation, aggressive behaviour, + depression or anxiety.

sound, stress + health

- hospitals can be an exceedingly stressful place, + for patients being in a hospital can be a stressful experience.
 - ↳ not all individuals perceive sound similarly, some may find it disturbing + others not.
- stress has been conceived as a response to a stimulus that disturbs the physical or mental equilibrium of an individual + can be perceived as either positive or negative by an individual.

- psychological stress occurs when an individual perceives that environmental demands ~~two~~ or exceed their adaptive capacity.
 - ↳ perceived chronic stress may contribute to negative behavioural change, psychological + physiological responses.
 - the major cause of environmental ambient stressors in hospital settings could be associated with excessive sound, glare, + inadequate air quality.
 - ↳ excessive sound activates stress hormones elevates blood pressure, increases the risk of cardiovascular disease, neonate defects, + can cause changes in the immune system.
- psychological perspectives of music + emotion



emotional response to music

o emotional response has been defined as an abrupt response to certain stimuli with a duration ranging from between a few seconds to minutes.

↳ psychologists have developed models to include cognitive appraisal, episodic memory, emotional contagion, brain stem reflex, + visual imagery, as well as musical expectancy + evaluative conditioning.

o a variety of positive emotions can be simulated + perceived by music.
o it has been shown that any stimuli that is pleasant, can induce a positive effect that may lead to improved performance on cognitive tasks.

MUSIC + STRESS

o listening to relaxing music decreases stress + anxiety, + reduces cortisol levels, heart rate, + blood pressure in people across all ages.

↳ music interventions have also shown to reduce cortisol levels before, during + after invasive surgical procedures.

o a study by Phipps et al. found music as an effective medicine for reducing heart rate, respiration rate, perceived anxiety, depression, negative mood + the emotional burden of patients admitted in a neuroscience unit.

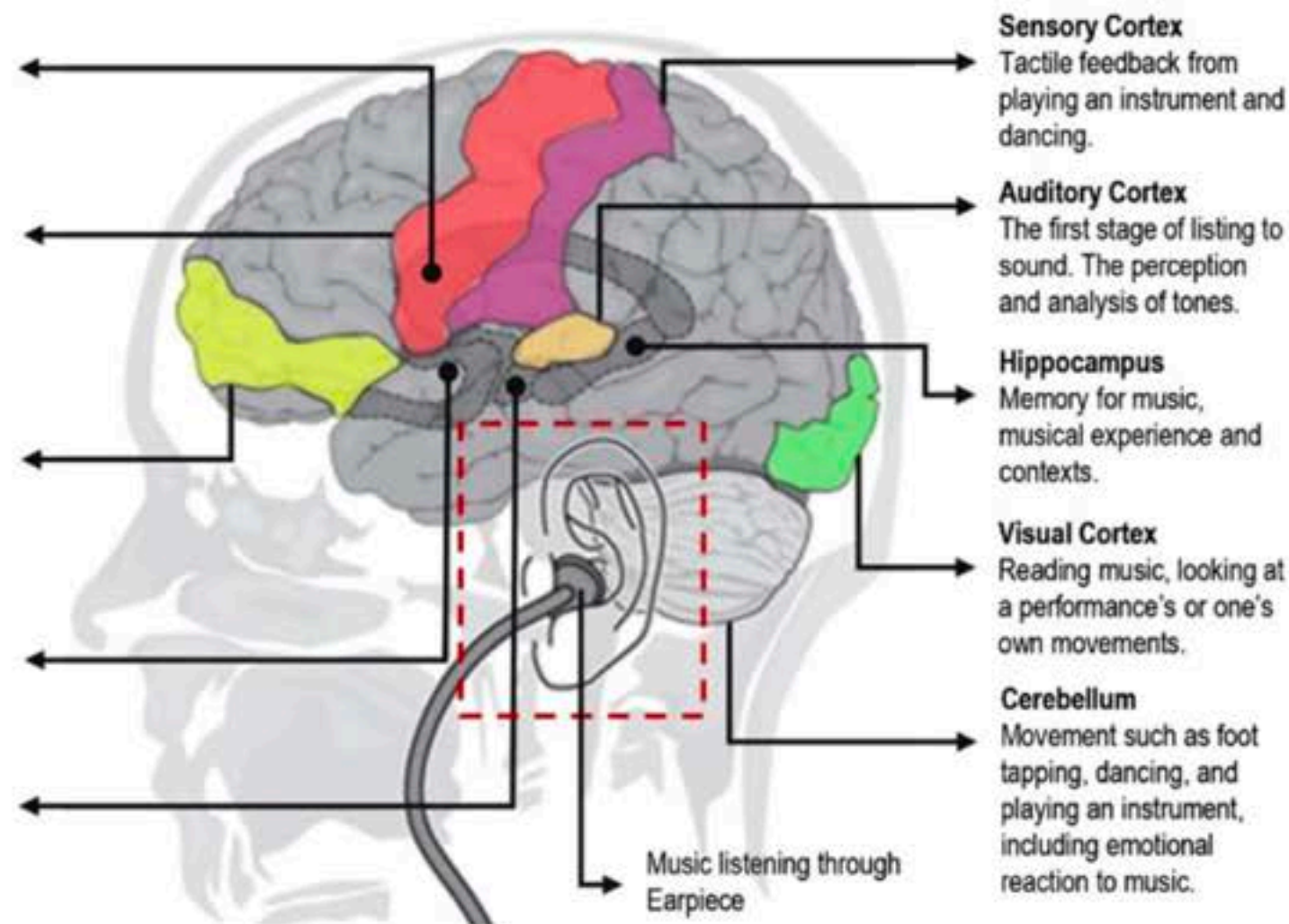
Corpus Callosum
Connects left and right hemispheres.

Motor Cortex
Movement, foot tapping, dancing, and planning an instrument.

Prefrontal cortex
Creation of expectations, violation and satisfaction of expectation.

Nucleus Accumbens
Emotional reactions to music.

Amygdala
Emotional reaction to music.



↳ musical perception effects on different parts of the brain.

- PERSONALITY + COPING: INDIVIDUAL DIFFERENCES IN RESPONSES TO EMOTION

abstract

o abundant evidence links personality with emotion via coping. alternatively, personality can be viewed as an emergent property of responses to the experience of emotion.

↳ dispositions to control, approach, escape, + avoid one's emotional experience underlie diverse traits, including positive + negative urgency, trait emotional approach + avoidance, alexithymia, + emotional expressiveness.

personality

o relationships among emotion, coping, + personality can theoretically be organised in 7 ways.

↳ the most common way to consider whether personality might affect how people cope with stress, which has implications for their emotional outcomes.

↳ personality + coping are considered to be related but distinct + to have emotional consequences.

Coping + emotion

o in a stress-appraisal-coping sequence, personality can influence any point of the sequence: exposure to stressors, reactivity to or appraisal of stressors, or response to or coping with stressors.

↳ emotion can appear in various parts of the sequence.

o emotion leads people to focus on a particular set of needs or stimuli out of all the possible needs or stimuli to which people could possibly attend.

↳ by highlighting important elements of the environment, emotion mediates cognitive + behavioural responses.

o emotion prepares people for action in response to the stimuli - prepare for action.

↳ emotion also appears to prepare the body for action.

o coping with emotion can include behaviours elicited by emotion, regardless of whether the behaviours are intended to or actually do regulate emotional experience.

↳ some behaviours might even seem to be peripheral to the eliciting emotion, such as destructive celebratory behaviours after a favoured team's big sports win, but they follow from emotional experience.

↳ people respond differently to emotion.

neurobiological underpinnings of responses to emotion

o from a functionalist point of view, the experience of emotion is adaptive in that it calls attention to a person's needs.

o functionally, negative emotion also signals the presence of problems or threats - in the extreme, even life-threatening problems.

↳ in a well-functioning person, negative emotion can lead to active problem-solving, which can take multiple forms.

conclusion

o factors, including emotion type, emotion intensity, + motivations to approach or avoid emotion, all play important roles in coping + behavior in response to emotion.

- EXISTING PRODUCTS ALIGNING WITH MY CRITERIA, IMMEDIATE STRESS RELIEF



revitive ultrasound is designed to relieve pain by supporting the healing process to aid tissue repair. whether it's gardening, cycling, looking after the kids, going for a walk or a physically demanding job, the ability to move with freedom is vital to your everyday life. revitive ultrasound supports your body's natural healing process so you can get back to your best.

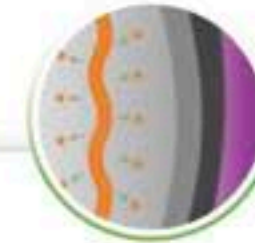
uses high frequency therapeutic sound vibrations that stimulate the skin's tissue cells.

helps speed up the healing process by aiding in the transport of essential ions + nutrients to the cell in order to repair the body + relieve pain at the source.



Sound Vibrations

The sound waves emitted by Revitive Ultrasound stimulate tissue and cells beneath the skin's surface.



Rebuilding

Stimulating the cells in this way encourages better transport of the proteins needed for the repair and rebuilding of tissue.



Back To Your Best

Increasing the properties required for tissue repair helps relieve pain to get you back to your best as quickly as possible.

PRIMARY RESEARCH | WEEK FOUR

- EXISTING PRODUCTS ALIGNING WITH MY CRITERIA, IMMEDIATE STRESS RELIEF



The Homedics Shiatsu Neck + Shoulder Massager with Heat delivers deep kneading Shiatsu massage to soothe tired muscles.

massage:

↳ the massage offers different speed options + soothing heat. use for your neck, back, + shoulders.

infrared heat:

↳ uses invisible electromagnetic waves to provide warmth + comfort to muscles. this does not directly feel 'hot' in temperature.

rechargeable battery:

↳ the cordless massager has a built-in rechargeable battery for total convenience + ultimate portability.



PRIMARY RESEARCH | WEEK FOUR

- EXISTING PRODUCTS ALIGNING WITH MY CRITERIA, IMMEDIATE STRESS RELIEF



○ 3 scientifically calibrated speeds

↳ choose between 1750, 2100, 2400 percussions per minute, each scientifically calibrated.

○ ergonomic grip

↳ triangle ergonomic design to the mini's unique shape, resulting in a smooth, ergonomic grip that is easy to hold while reducing strain on your hands + wrists.

○ 150-minute total battery life

↳ on the go relief to be ready when you need it. up to 150 minutes of sustained run time.

○ quietforce technology

↳ harnessing the power of Theragun quality treatment in an agile device, 'QuietForce Technology'.



QX35 Motor with QuietForce Technology™



150-Minute Total Battery Life



Compact, Portable Design



3 Speed Settings

SURVEYS + INTERVIEWS | WEEK THREE

- SURVEY QUESTIONS + SOFTWARE

OPEN-ENDED QUESTIONS

1. WHAT ARE THE MOST COMMON SOURCES OF STRESS YOU ENCOUNTER DURING YOUR NURSING SHIFTS?
2. CAN YOU IDENTIFY SPECIFIC SITUATIONS OR TASKS THAT CONSISTENTLY CONTRIBUTE TO HEIGHTENED STRESS LEVELS?
3. HOW FREQUENTLY DO YOU EXPERIENCE BURNOUT SYMPTOMS SUCH AS EMOTIONAL EXHAUSTION OR DEPERSONALISATION?
4. WHAT STRATEGIES DO YOU CURRENTLY EMPLOY TO MANAGE STRESS DURING OR AFTER YOUR SHIFTS?
5. ARE THERE ANY PARTICULAR WORK-RELATED FACTORS THAT YOU BELIEVE HAVE A POSITIVE IMPACT ON YOUR MENTAL HEALTH?
6. HAVE YOU OBSERVED ANY CHANGES IN YOUR COLLEAGUE'S BEHAVIOUR OR MOOD DUE TO STRESS? IF YES, PLEASE PROVIDE EXAMPLES
7. ARE THERE ANY ORGANISATIONAL POLICIES OR PRACTICES THAT YOU FEEL COULD BE IMPROVED TO BETTER SUPPORT NURSES' MENTAL HEALTH WELL-BEING?
8. DO YOU FEEL ADEQUATELY TRAINED + PREPARED TO HANDLE EMOTIONALLY CHALLENGING SITUATIONS, SUCH AS PATIENT EMERGENCIES OR DIFFICULT CONVERSATIONS WITH FAMILIES?
9. HOW DO YOU PERCEIVE THE AVAILABILITY + EFFECTIVENESS OF SUPPORT SYSTEMS FOR MANAGING STRESS IN YOUR WORKPLACE?

SCALE-BASED QUESTIONS (1-5)

1. PLEASE RATE THE FREQUENCY OF STRESS YOU EXPERIENCED DURING YOUR SHIFTS
2. HOW EFFECTIVELY DO YOU BELIEVE YOUR CURRENT COPING MECHANISMS MITIGATE WORKPLACE STRESS
3. HOW WILL DO YOU THINK THE HOSPITAL'S MANAGEMENT SUPPORTS NURSES' MENTAL WELL-BEING
4. PLEASE RATE YOUR LEVEL OF AGREEMENT WITH THE STATEMENT: "I FEEL ADEQUATELY PREPARED TO HANDLE EMOTIONALLY CHALLENGING SITUATIONS AT WORK"
5. HOW OFTEN DO YOU FEEL A SENSE OF ACCOMPLISHMENT + FULFILMENT FROM YOUR WORK AS A NURSE?
6. HOW SATISFIED ARE YOU WITH THE AVAILABILITY OF MENTAL HEALTH SUPPORT RESOURCES PROVIDED BY YOUR WORKPLACE
7. PLEASE RATE THE EXTENT TO WHICH COMMUNICATION + TEAMWORK CONTRIBUTE TO REDUCING STRESS IN YOUR WORK ENVIRONMENT
8. HOW FREQUENTLY DO YOU FIND TIME FOR SELF-CARE ACTIVITIES OUTSIDE OF WORK HOURS?
9. HOW SUPPORTED DO YOU FEEL BY YOUR COLLEAGUES DURING TIMES OF INCREASED STRESS
10. PLEASE RATE THE IMPACT OF WORKLOAD ON YOUR OVERALL MENTAL WELL-BEING

SURVEYS + INTERVIEWS | WEEK THREE

- SURVEY QUESTIONS + SOFTWARE

Survey of Nurses' Stressors and Mental Health

Questions Responses 23 Settings

Survey of Nurses' Stressors and Mental Health

Hi there, I hope this survey finds you well. My name is Nikita Hancock, and I am a student enrolled in industrial design program at QUT. As I embark on my final year project, I am enthusiastically exploring the development of a product aimed at providing immediate stress relief to nurses in their demanding hospital work environment. At this initial stage of my design process, I am seeking the invaluable insights of experienced nurses and nursing students with professional exposure.

This survey focuses on mental health, stressors, and triggers that may manifest in the challenging healthcare workplace. In accordance with ethical standards, all responses provided will be treated with the utmost confidentiality, ensuring complete anonymity for all participants.

Please view Consent Form attached below:

<https://drive.google.com/file/d/1sxlMHxW1YVaRw0sPDxGpHm3o6wKSmxM/view?usp=drivesdk>

**Please note that by submitting this form, you will consent to the factors provided in the form above.

Please rate the frequency of stress you experience during your nursing shifts:

1 2 3 4 5
Very Rarely Very Often

How effectively do you believe your current coping mechanisms mitigate workplace stress?

1 2 3 4 5

How well do you think the hospital's management supports nurses' mental well-being?

1 2 3 4 5
Poorly Excellent

Please rate your level of agreement with the statement: 'I feel adequately prepared to handle emotionally challenging situations at work.'

1 2 3 4 5

What are the most common sources of stress you encounter during your nursing shifts?

Long answer text

Can you identify specific situations or tasks that consistently contribute to heightened stress levels?

Long answer text

How frequently do you experience burnout symptoms such as emotional exhaustion or depersonalisation?

Long answer text

What strategies do you currently employ to manage stress during or after your shifts?

Long answer text

Are there any particular work-related factors that you believe have a positive impact on your mental health?

Long answer text

SURVEYS + INTERVIEWS | WEEK THREE

- SURVEY CONSENT FORMS

PARTICIPANT INFORMATION FOR CAPSTONE RESEARCH PROJECT – Survey –
Endeavoring to Create and Immediate Stress Relief Product for Nurses

Research team/individual: Nikita Hancock

Principal Researcher:	Nikita Hancock	Industrial Design Undergraduate Student
Unit Coordinator(s):	Rafael Gomez	Unit Coordinator
	Tim Williams	Unit Co-coordinator

School of Design/Faculty of Creative Industries, Education and Social Justice

Why is the study being conducted?

My name is Nikita Hancock, and I am a student enrolled in the industrial design program at QUT. As I embark on my final year 'Capstone' project, I am enthusiastically exploring the development of a product aimed at providing immediate stress relief to nurses in their demanding hospital work environment. At this initial stage of my design process, I am seeking the invaluable insights of experienced nurses and nursing students with professional exposure.

The purpose of this project is to gain an understanding into mental health, stressors, and triggers that may manifest in the challenging healthcare workplace. In accordance with ethical standards, all responses provided will be treated with the utmost confidentiality, ensuring complete anonymity for all participants.

You are invited to participate in this research project because you are a nurse and an expert in the field being studied.

What does participation involve?

Participation will involve completing a 20-item questionnaire with Likert scale answers (strongly agree – strongly disagree) and open-ended answers that will take approximately 10 minutes of your time.

Questions will include:

10 Likert questions and 10 open-ended questions that will both be indicative towards mental health and stressors in the nurse and medical environment.

Your participation in this research project is entirely voluntary. If you agree to participate you do not have to complete any question(s) you are uncomfortable answering. Your decision to participate or not participate will in no way impact upon your current or future relationship with QUT. If you do agree to participate you can withdraw from the research project during your participation without comment or penalty. However, as the survey does not request any personal identifying information, once it has been submitted it will not be possible to withdraw.

You will be able to review your responses before submitting and save a copy of your responses after submitting the survey.

What are the possible benefits for me if I take part?

It is expected that this research project will not benefit you directly. The outcomes of the research, however, may benefit nurses in the future. You can request a brief summary of the outcomes of the study by sending this consent form to the research individual directly.

What are the possible risks for me if I take part?

There are no risks beyond normal day-to-day living associated with your participation in this research project.

QUT provides for limited free psychology, family therapy or counselling services for research participants of QUT research projects who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please call the Clinic Receptionist on **07 3138 0999** (Monday–Friday only 9am–5pm), QUT Psychology and Counselling Clinic, 44 Musk Avenue, Kelvin Grove, and indicate that you are a research participant. Alternatively, Lifeline provides access to online, phone or face-to-face support, call **13 11 14** for 24-hour telephone crisis support, if you are aged up to 25, you can also call the Kids Helpline on **1800 551 800**.

What about privacy and confidentiality?

All comments and responses are anonymous i.e., it will not be possible to identify you at any stage of the research, because personal identifying information is not sought in any of the responses and no traceable information is collected via the server or survey tool.

Any data collected as part of this research project will be stored securely on personal computers or password protected cloud storage systems (not on public storage systems). Data will be deleted once the project is complete at the end of the semester.

How do I give my consent to participate?

The submission or return of the completed survey is accepted as an indication of your consent to participate in this research project.

What if I have questions about the research project?

If you have any questions or require further information, please contact the researcher:

Nikita Hancock Nikitamaeliz@gmail.com 0448880661

What if I have a concern or complaint regarding the conduct of the research project?

The researcher is committed to research integrity and the ethical conduct of research projects. If you wish to discuss the study with someone not directly involved, particularly in relation to matters concerning policies, information or complaints about the conduct of the study or your rights as a participant, you may contact the Unit Coordinator on email (Rafael Gomez) r.gomez@qut.edu.au or (Tim Williams) tim.williams@qut.edu.au

Thank you for helping with this research project. Please keep this sheet for your information.

SURVEYS + INTERVIEWS | WEEK THREE

- INTERVIEW QUESTIONS

QUESTIONS

1. WHAT ARE THE MAIN STRESSORS THAT YOU + OTHER NURSES TEND TO ENCOUNTER AROUND THE HOSPITAL?
2. HOW DO YOU TYPICALLY UNWIND + RECHARGE AFTER A DEMANDING/INTENSE SHIFT?
3. HAVE YOU OBSERVED ANY INSTANCES WHERE FELLOW NURSES PROVIDED EXCEPTIONAL SUPPORT TO ONE ANOTHER DURING TOUGH MOMENTS?
4. IF YOU HAD THE CHANCE TO TWEAK CERTAIN ASPECTS OF OUR WORK ENVIRONMENT, WITH A FOCUS ON REDUCING STRESS, WHAT CHANGES WOULD YOU CONSIDER?
5. REFLECTING ON YOUR EXPERIENCES, HAVE THERE BEEN MOMENTS WHEN YOU QUESTIONED YOUR DECISION TO BECOME A NURSE DUE TO THE EMOTIONAL TOLL? HOW DID YOU WORK THROUGH THOSE MOMENTS?
6. COULD YOU NARRATE AN INTERACTION WITH A PATIENT THAT LEFT A LASTING IMPACT ON YOU EMOTIONALLY?
7. BALANCING THE DEMANDS OF WORK + PERSONAL LIFE CAN BE QUITE THE CHALLENGE. ANY TIPS OR STRATEGIES YOU'VE FOUND EFFECTIVE IN MAINTAINING THE EQUILIBRIUM?
8. IN YOUR VOTE, HOW CAN NURSES CONTRIBUTE TO EACH OTHER'S WELL-BEING + MAINTAIN A POSITIVE ATMOSPHERE WITHIN OUR HOSPITAL'S SETTING?
9. ARE THERE ANY SUPPORT SERVICES THAT ARE EASILY AVAILABLE + ACCESSIBLE TO YOU + OTHER NURSES?
10. HAVE THESE SUPPORT SERVICES ASSISTED YOU IN ANY WAY?

SURVEYS + INTERVIEWS | WEEK THREE

- INTERVIEW QUESTIONS

PARTICIPANT INFORMATION FOR CAPSTONE RESEARCH PROJECT [Focus Group: Nurses with Experience in the Hospital Environment]

Immediate Stress Relief for Nurses in the Hospital Environment

Research team/individual: Nikita Hancock

Principal Researcher: Nikita Hancock Industrial Design Undergraduate Student
Unit Coordinator(s): Rafael Gomez Unit Coordinator
Tim Williams Unit Co-coordinator
School of Design/Faculty of Creative Industries, Education and Social Justice
Queensland University of Technology (QUT)

Why is the study being conducted?

My name is Nikita Hancock, and I am a student enrolled in the industrial design program at QUT. As I embark on my final year 'Capstone' project, I am enthusiastically exploring the development of a product aimed at providing immediate stress relief to nurses in their demanding hospital work environment. At this initial stage of my design process, I am seeking the invaluable insights of experienced nurses and nursing students with professional exposure.

The purpose of this project is to gain an understanding into mental health, stressors, and triggers that may manifest in the challenging healthcare workplace. In accordance with ethical standards, all responses provided will be treated with the utmost confidentiality, ensuring complete anonymity for all participants.

You are invited to participate in this research project because you are a nurse and an expert in the field being studied.

What does participation involve?

Your participation will involve an audio/video recorded interview online via zoom or any other agreed location that will take approximately 20 minutes of your time.

This interview will include 10 questions that focuses on mental health, stressors, and triggers that may manifest in the challenging healthcare workplace.

Your participation in this research project is entirely voluntary. If you do agree to participate you can withdraw from the research project without comment or penalty. You can withdraw anytime during the interview. If you withdraw within 2 weeks after your interview, on request any information already obtained that can be linked to you will be destroyed. Your decision to participate or not participate will in no way impact upon your current or future relationship with QUT.

You will be able to review a transcript of your responses after the interview. This will be sent to you via email.

What are the possible benefits for me if I take part?

It is expected that this research project will not benefit you directly. The outcomes of the research, however, may benefit nurses in the future. You can request a brief summary of the outcomes of the study by providing an email address.

What are the possible risks for me if I take part?

There are no risks beyond normal day-to-day living associated with your participation in this research project.

QUT provides for limited free psychology, family therapy or counselling services for research participants of QUT research projects who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please call the Clinic Receptionist on **07 3138 0999** (Monday-Friday only 9am-5pm), QUT Psychology and Counselling Clinic, 44 Musk Avenue, Kelvin Grove, and indicate that you are a research participant. Alternatively, Lifeline provides access to online, phone or face-to-face support, call **13 11 14** for 24-hour telephone crisis support. If you are aged up to 25, you can also call the Kids Helpline on **1800 551 800**.

What about privacy and confidentiality?

All comments and responses are coded (i.e., it is possible to re-identify you). A re-identifying code stored separately to personal information (e.g., name, address), will only be accessible to the research team/individual, and the code plus identifying information will be destroyed after research/project completion.

Any personal information that could potentially identify you will be removed or changed before the summary of results are disseminated or these data are shared with other researchers. The information that will be removed includes names, initials, place of work, occupation, education.

Any data collected as part of this research project will be stored securely on personal computers or password protected cloud storage systems (not on public storage systems). Data will be deleted once the project is complete at the end of the semester.

As the research project involves an audio/video recording:

- You will have the opportunity to verify your comments and responses prior to final inclusion.
- The recording will not be used for any other purpose.
- Only the named researchers will have access to the recording.
- It is not possible to participate in the research project without being recorded.

Every effort will be made to ensure that the data you provide cannot be traced back to you in reports, publications and other forms of presentation. For example, we will only include the relevant part of a quote, we will not use any names, or names will be changed, and/or details such as dates and specific circumstances will be excluded.

How do I give my consent to participate?

You can provide consent by confirming that you have read and understood the consent information via email.

What if I have questions about the research project?

If you have any questions or require further information, please contact one of the listed researchers:

Nikita Hancock Nikitamaelz@gmail.com 0448880661

What if I have a concern or complaint regarding the conduct of the research project?

The researcher is committed to research integrity and the ethical conduct of research projects. If you wish to discuss the study with someone not directly involved, particularly in relation to matters concerning policies, information or complaints about the conduct of the study or your rights as a participant, you may contact the Unit Coordinator on email (Rafael Gomez) raffo@qut.edu.au or (Tim Williams) tim.williams@qut.edu.au.

Thank you for helping with this research project. Please keep this sheet for your information.

CONSENT FORM FOR CAPSTONE RESEARCH PROJECT [Research Group: Nurses with experience in the Hospital Environment]

Immediate Stress Relief for Nurses in the Workplace Environment

Research team/individual: Nikita Hancock

Nikita Hancock Nikitamaelz@gmail.com 0448880661

Statement of consent

By signing below, you are indicating that you:

- Have read and understood the information document regarding this research project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions, you can contact the research team.
- Understand that you are free to withdraw without comment or penalty.
- Understand that if you have concerns about the ethical conduct of the research project you can contact me via email: Nikitamaelz@gmail.com
- Understand that the research project will include an audio recording.
- Agree to participate in the research project.

Please tick the relevant box below:

- I agree for the interview to be audio recorded.
 I do not agree for the interview to be audio recorded.

Name _____

Signature _____

Date _____

Please return the signed consent form to the researcher.

IDEATION | WEEK FOUR

- DESIGN DIRECTION TO CREATE CONCEPTS

CONCEPT CRITERIA:

CREATE 3 VASTLY DIFFERENT CONCEPTS TO PROPOSE AT PRESENTATION TO ADDRESS THE ISSUE OF PEAK/HEIGHTENED STRESS LEVELS OF NURSES IN THE WORKPLACE ENVIRONMENT. EACH THE 3 CONCEPTS WILL PRIMARILY SOLVE THE ISSUE BY PROVIDING IMMEDIATE STRESS RELIEF. EACH THE VIDEOS WILL BE A HANDHELD/WEARABLE DEVICE THAT IS EASILY ACCESSIBLE + COMPREHENSIBLE.

CONCEPT ONE:

THIS CONCEPT WILL FOCUS ON THE ASPECT OF TEXTURE + FEELING.

CONSTRAINTS:

- PULSATING BEAT - BREATHING PATTERN
- SMALL + HANDHELD
- CAN BE SQUISHED (CONTRACTED)
- ATTACHABLE TO UNIFORM

CONCEPT TWO:

THIS CONCEPT WILL FOCUS ON SOUND + ATMOSPHERE.

CONSTRAINTS:

- WEARABLE DEVICE
- CREATES A QUIET ENVIRONMENT
- USES CALMING SOUNDS TO DESCALATE STRESS LEVELS; NATURE, AURA, LOFI

CONCEPT THREE:

THIS CONCEPT FOCUSES ON THE INTERACTIVE ASPECT.

CONSTRAINTS:

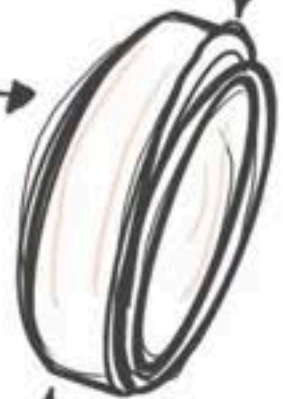
- ADAPTS WITH USER INTERACTION
- READS + IDENTIFIED PULSE
- BRINGS HEART RATE DOWN
- WEARABLE/HAND HELD DEVICE

IDEATION | WEEK FOUR

- CONCEPT IDEATION OF FORM

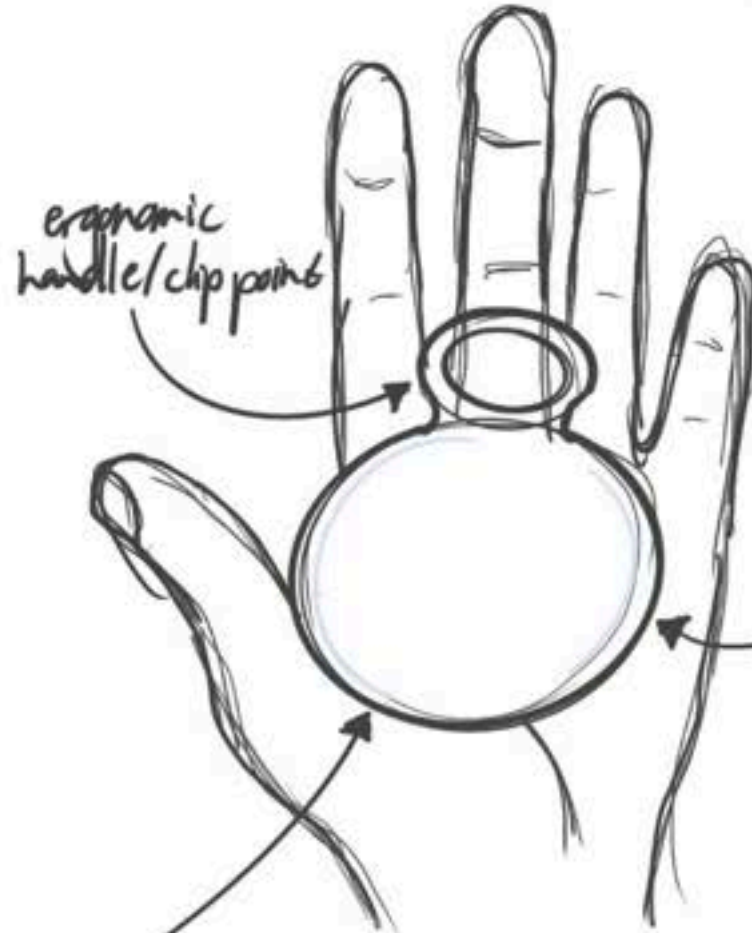
aligns with:
 concept 1 - —
 concept 2 - —
 concept 3 - —

a calming/fidget ring



ring uses vibrations + to articulate around the finger.

light is shown when active to mirror vibration path.



ergonomic handle/chip points

grips at back for finger security.

fits into palm of users hand.

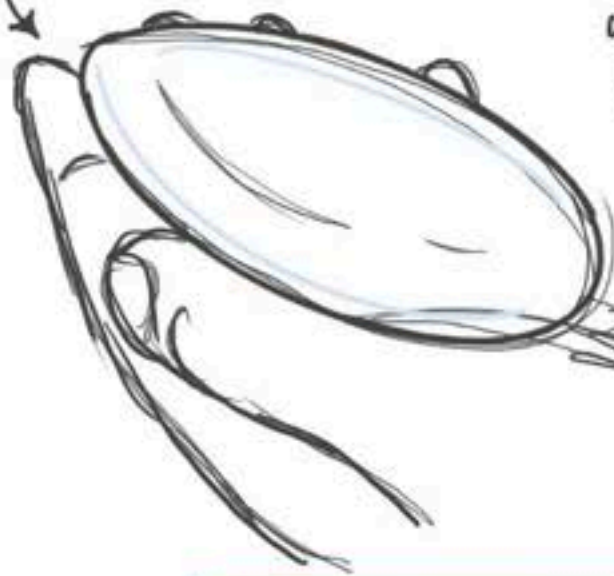
handheld device

can be squished + compressed when overwhelmed / stressed



small + can be easily stored.

stationary object that is handheld



uses light + sound to for a calming effect.

light pulses to induce breathing pattern.

same concepts, different shapes.

wearable wrist device to monitor heart rate



can be worn throughout the day

handheld device that allows user to squeeze.

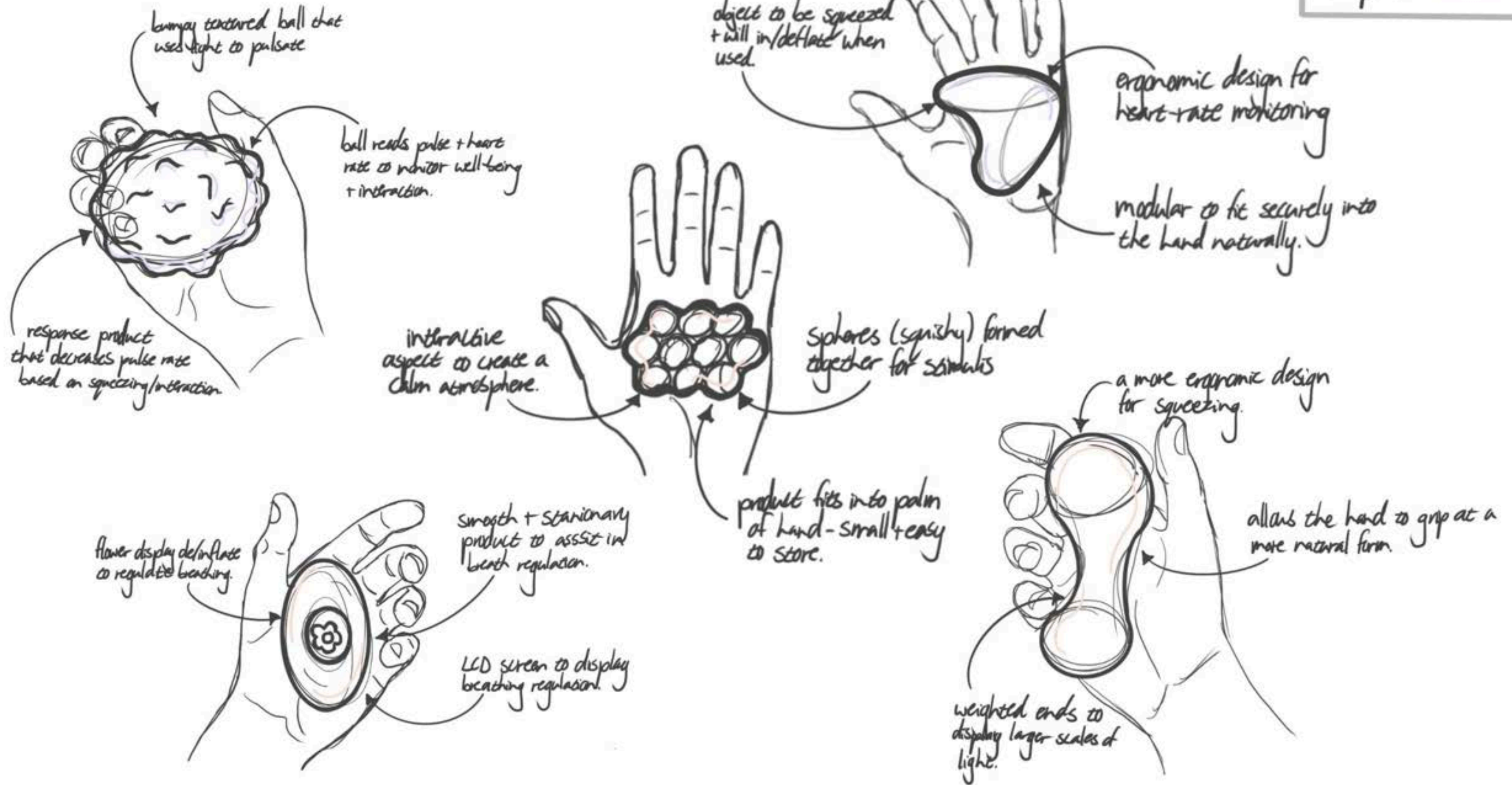


can be stored away in pocket.

IDEATION | WEEK FOUR

- CONCEPT IDEATION OF FORM

aligns with:
 Concept 1 - —
 Concept 2 - —
 Concept 3 - —



METHODS | WEEK FIVE

- HOW TO WRITE A LITERATURE REVIEW

Introduction

- why you are writing a review, + why the topic is important
- the scope of the literature - what aspects of the topic will be discussed.
- the criteria used for your literature selection (e.g. type of sources used, data range).
- the organisational pattern of the review.

Body Paragraphs

- historical background
- methodologies
- previous studies on the topic
- mainstream versus alternative viewpoints
- principal questions being asked
- general conclusions that are being drawn

Conclusion

- the main agreements + disagreements in the literature
- any gaps or areas for further research
- your overall perspective on the topic.

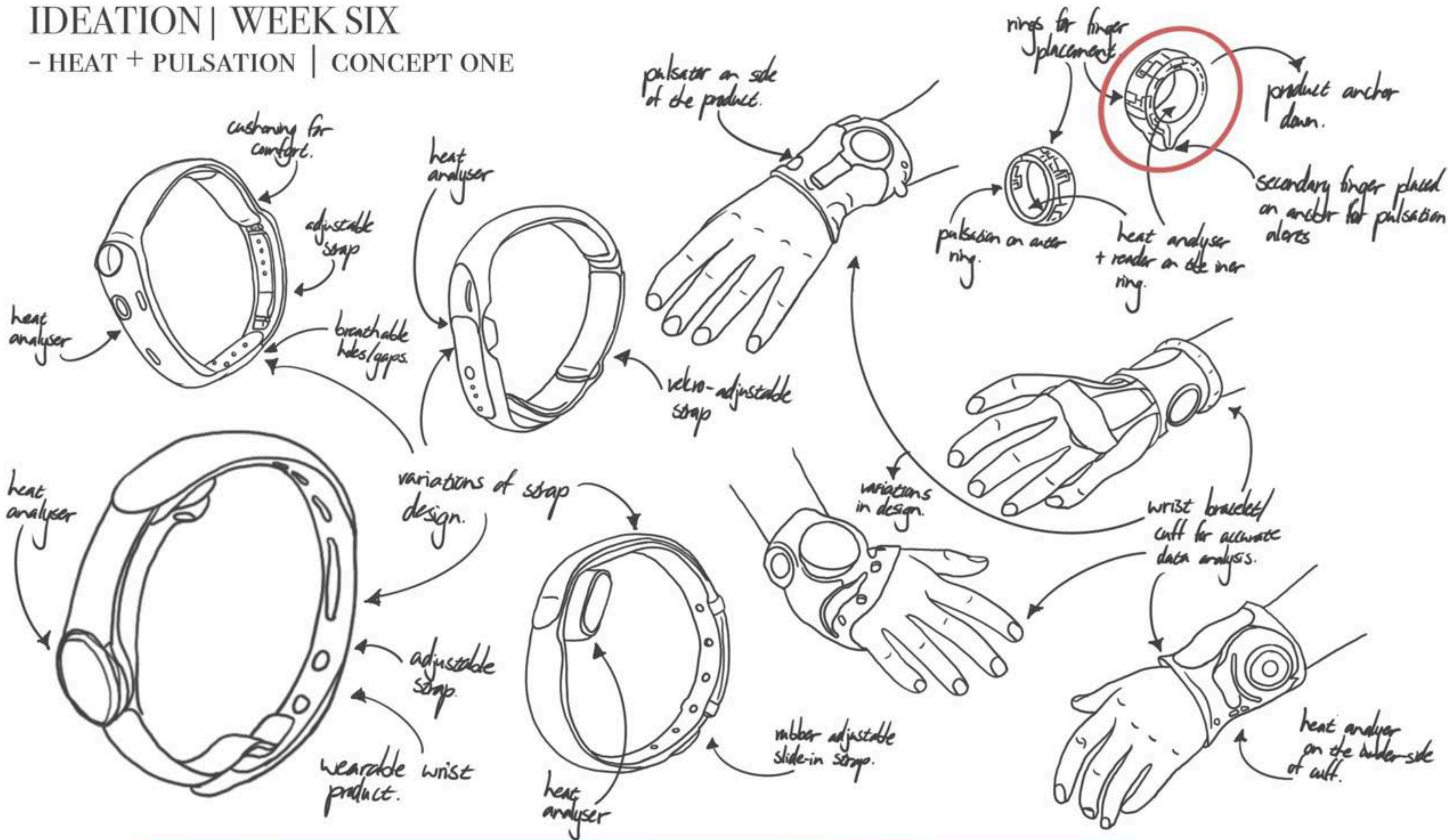
Checklist

have i:

- ☑ outlined the purpose + scope?
- ☑ identified appropriate + credible literature?
- ☑ recorded the bibliographical details of the sources?
- ☑ analysed + critiqued your readings?
- ☑ identified gaps in the literature + research?
- ☑ explored methodologies/theories/hypotheses/models?
- ☑ discussed the varying viewpoints?
- ☑ written an introduction, body + conclusion?
- ☑ checked punctuation + spelling?

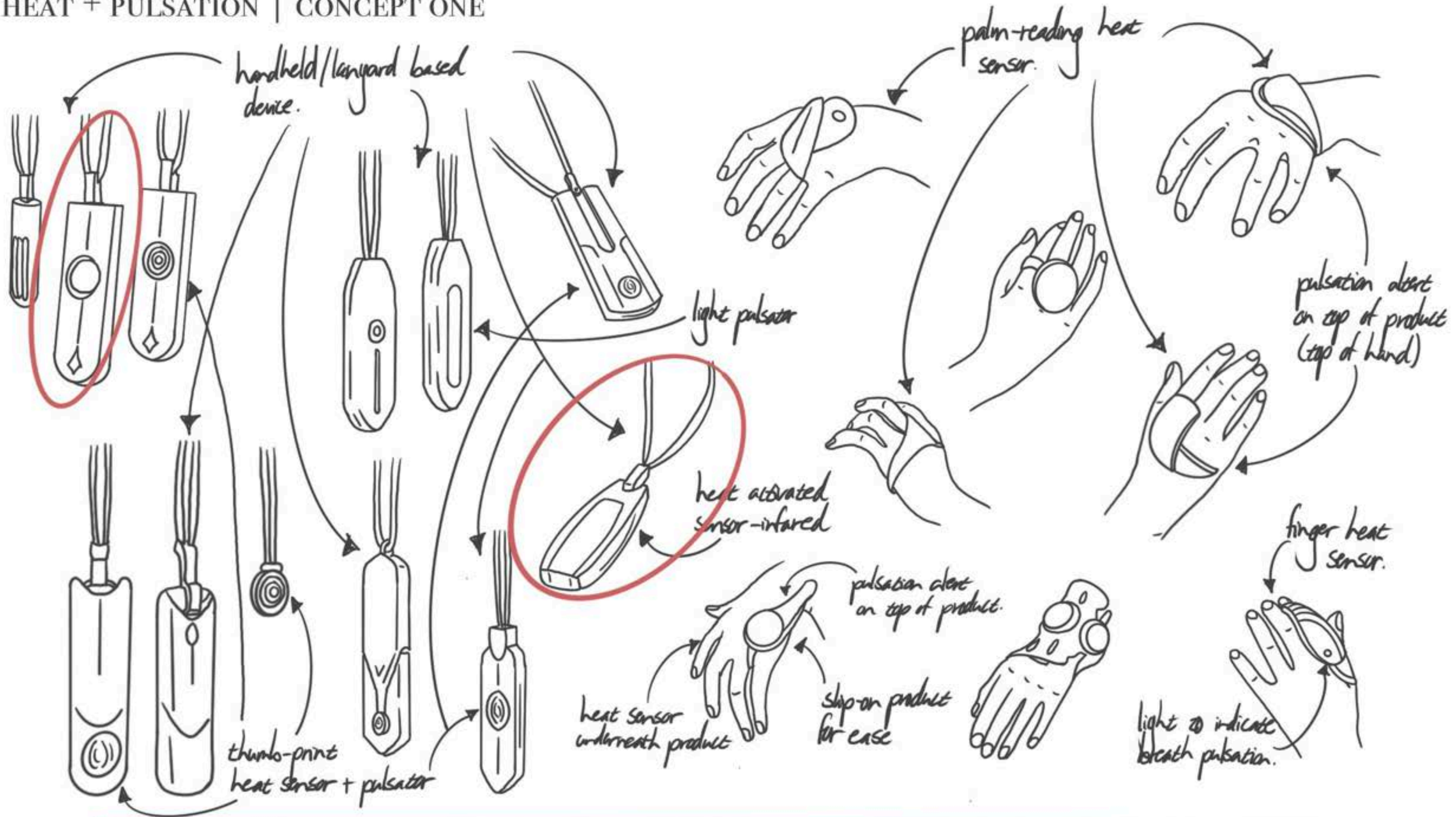
IDEATION | WEEK SIX

- HEAT + PULSATION | CONCEPT ONE



IDEATION | WEEK SIX

- HEAT + PULSATION | CONCEPT ONE



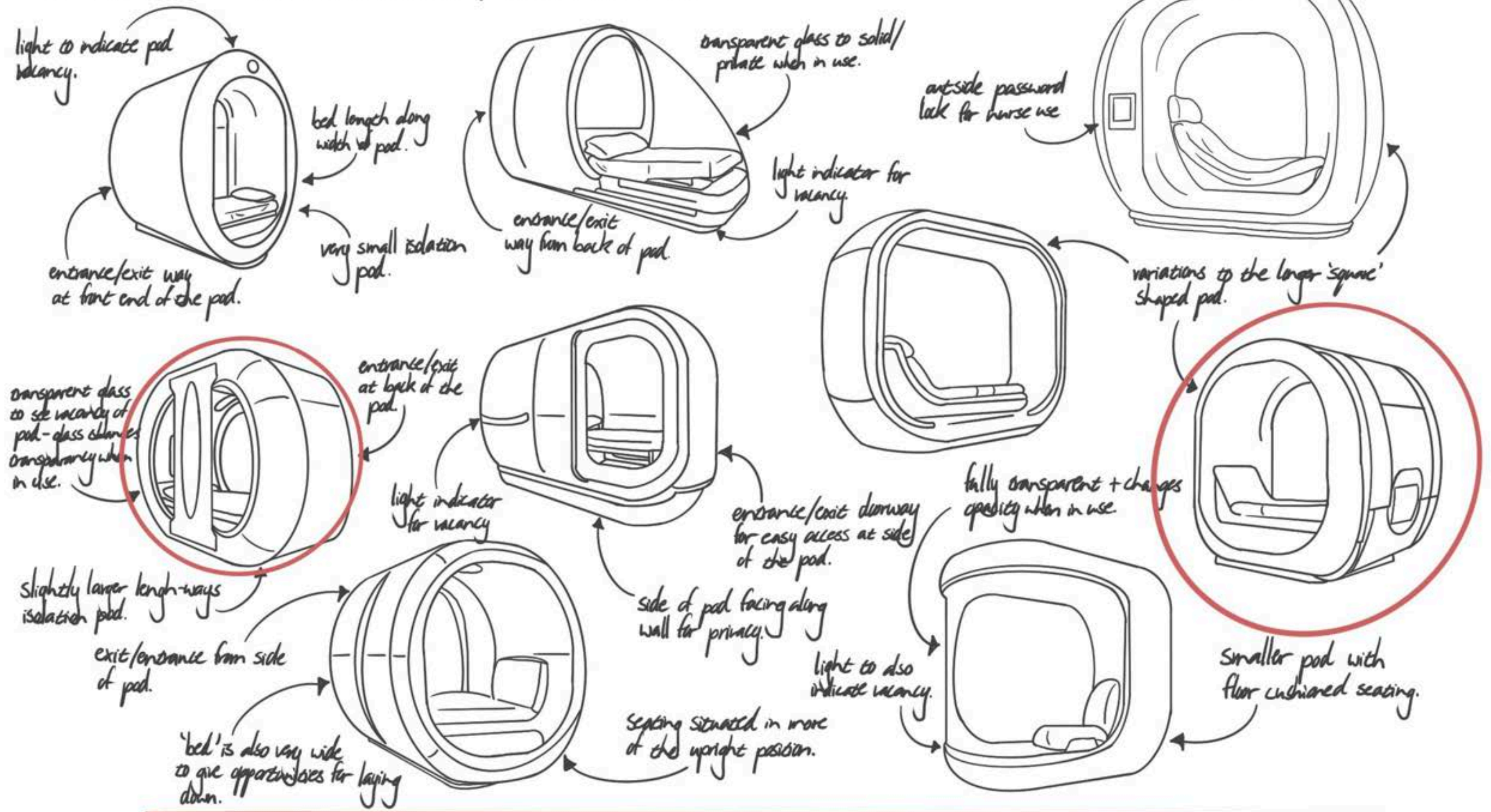
NIKITA HANCOCK

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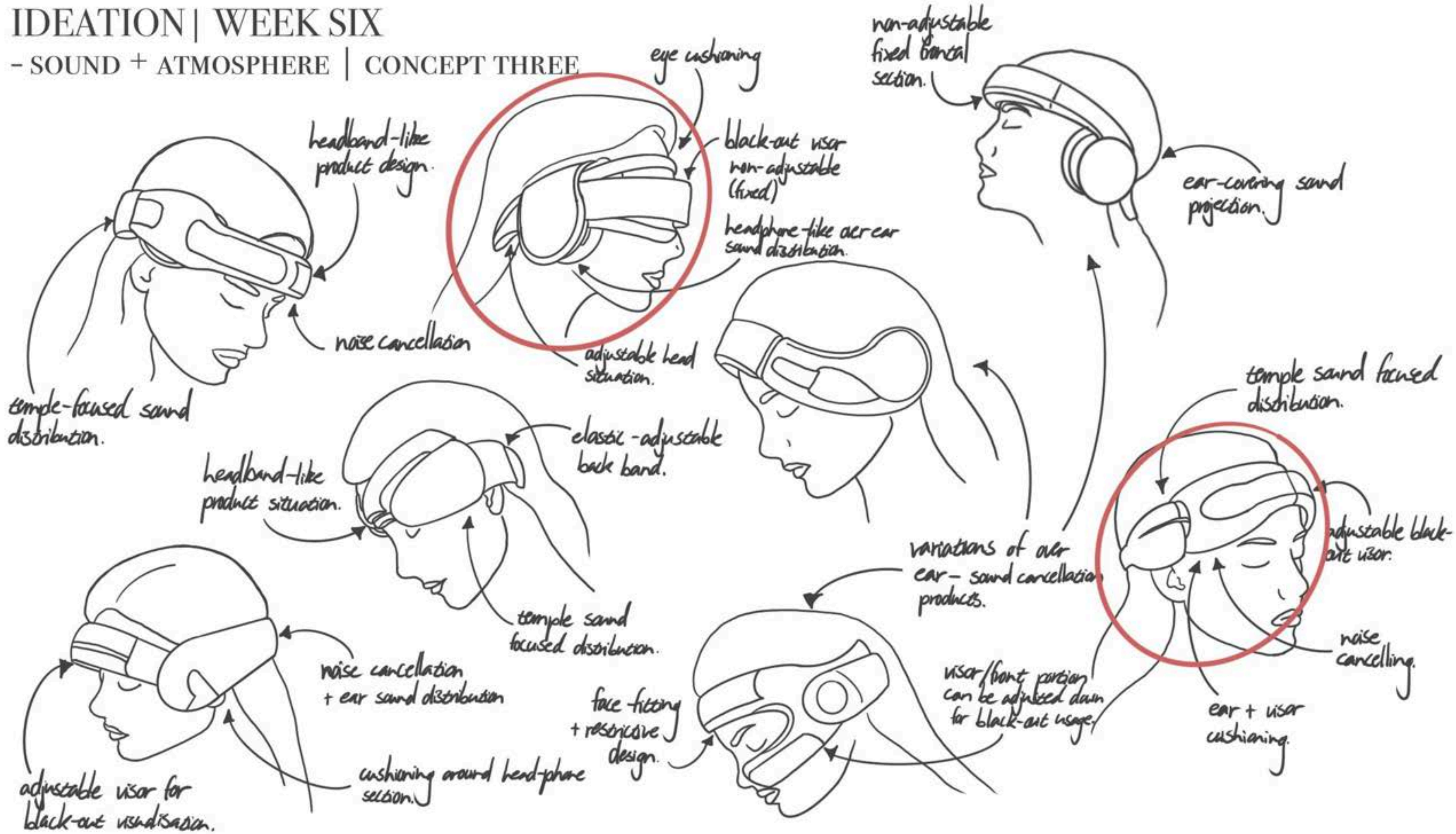
IDEATION | WEEK SIX

- ISOLATION + DECOMPRESSION | CONCEPT TWO



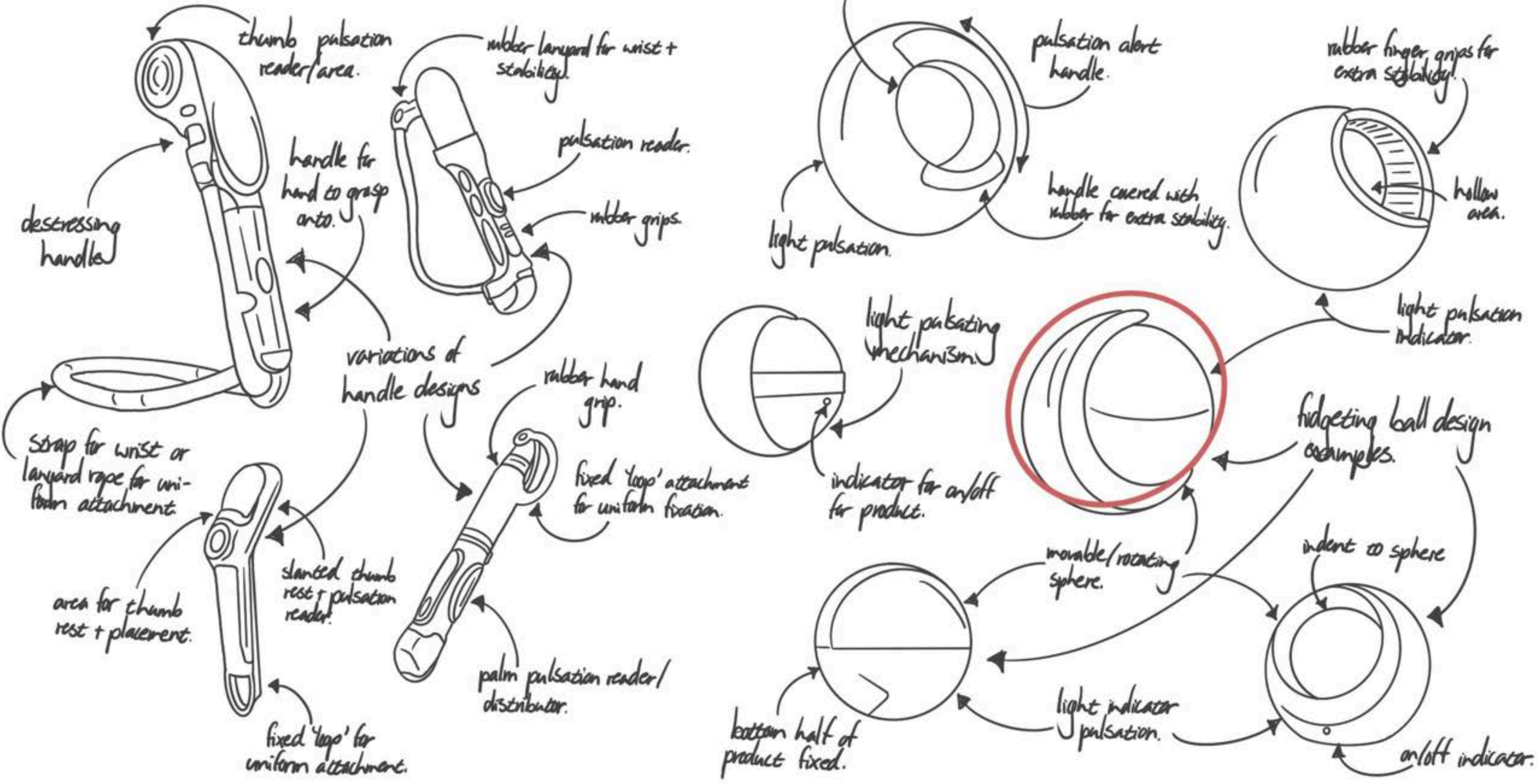
IDEATION | WEEK SIX

- SOUND + ATMOSPHERE | CONCEPT THREE



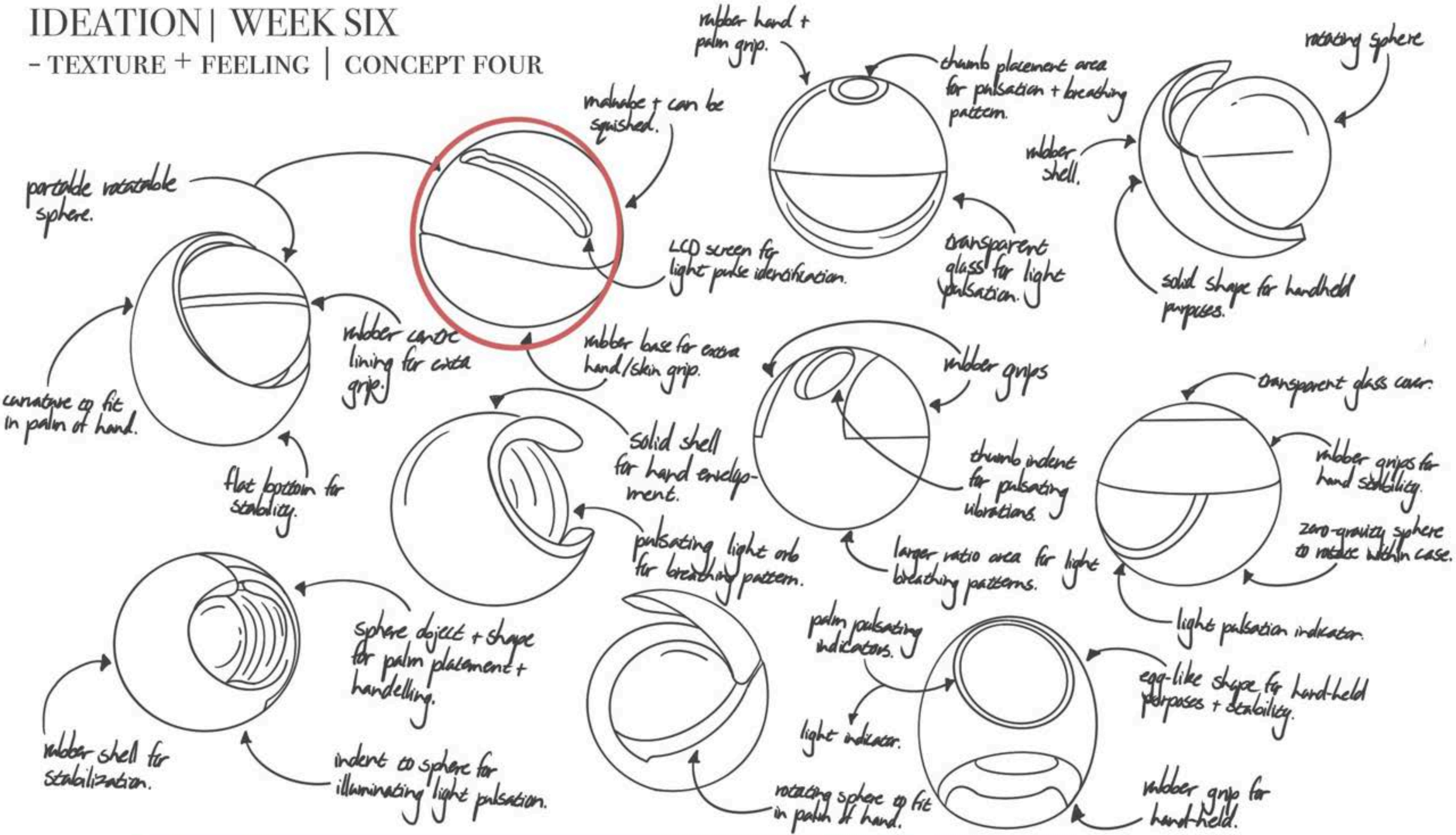
IDEATION | WEEK SIX

- TEXTURE + FEELING | CONCEPT FOUR



IDEATION | WEEK SIX

- TEXTURE + FEELING | CONCEPT FOUR



IDEATION | WEEK SIX

- USER INTERACTION + PULSE IDENTIFICATION | CONCEPT FIVE

