10 MINUTES OF EMPATHY

Exploring Ways to create a better doctor-patient relationship

Critical & Process Document

Kanak Jaitli

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Exploring Ways of a better doctor-patient relationship

By

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"A Posse Ad Esse" from possibility to actuality

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Kanak

ABSTRACT

This thesis is an exploration into 'getting the human element back into the doctor-patient relationship, in the technology driven future of healthcare', within the 10minutes timeframe of a walk-in clinic, using design tools strategically.

'Care & comfort' between the doctor and the patient has been on the fall over the last decade. Population explosion, myriad of choices, technology boom and medical discoveries have all contributed towards this changing dynamic. In today's tightly timed clinic visits, there is a lot of repetitive questioning on the part of the patient, which leads to repetitive explanation from the doctor. The mind of the patient is often clouded with anxiety which leads to them being less receptive to the doctor's instructions. All this, coupled with a growing push towards digitisation of healthcare, sophisticated technology will soon provide diagnosis, treatment strategy and recommendations to the doctor, minimising their role as the sole decision making person. Penetration of smart technology into the intimate, personalized doctor- patient space brings the inherent risk of dehumanizing the relationship further. Thus, in this technology driven future of healthcare, it is important that we do not lose the 'human connection' between the doctors and the patients.

This thesis aims to examine the factors affecting the relationship, communication methods and emotions involved in the doctor-patient interaction area, using explorative and generative design methodologies. This work sits within the larger body of relational design, as the core focus is understanding people who communicate within stressful conditions. This thesis uses participatory design methods within a human centered design approach to understand the problem space. Stakeholder mapping, journey maps, evolution mapping, interviews, cultural probes and mental models are the design tools used to understand, categorise and organise the information within the research area. An approach similar to the one suggested in this thesis can be extrapolated for use in spheres beyond healthcare.

The thesis offers a set of design opportunities which can be carried forward for further research. The main inference shows that decreasing patient anxiety levels and introducing better communication methods can lead to improved human connection. Therefore, it offers possible design interventions which provide alternative ways of for enhancing the quality and content of the patient's experience and keeping it within the 'comfort zone' of reduced anxiety without sacrificing the benefits accruing from smart technology.

KEYWORDS

Doctor-patient interaction, 10min clinic time, technology in healthcare, human connection, participatory design, strategic research, design research, relational design.

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PREFACE

The decision of exploring the doctor-patient interaction was a result of an experience I had as an international student living alone in Vancouver. The walk-in clinic experience for me, was one of anxiety and stress. I forgot all my questions and concerns which I wanted to ask the doctor. I was taken aback by the impersonal and hurried interaction. It was the first time I had an interaction with a doctor, away from my comfort zone, which lasted less than 10 minutes. Having grown up with both parents being practicing doctors, I had taken for granted the ease and comfort with which my health issues were resolved and not realised that it was a privilege accessible only to a select few across the world.

It was this experience with the Canadian health care system that set this project in motion, directing my attention toward a better understanding of the doctor-patient relationship within the 10min context. As such, this study focuses on a small but crucial part of the healthcare system in Canada, which is so very different from Indian context, where I come from. At the same time it must be emphasised that certain emotions, which doctors and patients face, are universal across the world, be it Canada or India, despite very different healthcare systems and social fabrics. This project seeks to explore the doctor-patient relationship and the influence of digital technology on it.

INTRODUCTION

PROJECT RATIONALE

Technology is slowly but steadily creeping into the doctor's clinic. Electronic medical records have now become a common sight in almost all clinics. Doctors have started using apps, websites and information systems to understand symptoms and look up diagnosis. "The personal computer revolution, and the subsequent development of office management and clinical software, have made it rare to find a medical practice without some automation in place." (Shortlife, 1994) On the other hand, patients too, have a myriad options with regards to healthcare technology. It is not uncommon to find patients Google their symptoms and reach a diagnosis before going to the doctor. Add to this is the tightly timed walk-in clinic appointments, where patient concerns and questions are often dragged across multiple doctor visits, patients often do not voice their concerns due to the hurried nature of the doctor and are forgetful of the instructions given. "50% of patients leave the office visit without understanding what advice their physician gave." (Bodenheimer, Liang 2007) Thus, there is a lot of repetitive explanation and questioning, both on the part of the doctor and the patient. With a growing focus on optimisation through technology, the human contact between the doctors and the patients, is increasingly at risk. In the earlier days, patients' expectation of their doctor was framed within an understanding of 'care & comfort' rather than the current 'treatment & cure'. Population explosion, myriad options, technology boom and medical discoveries have all contributed towards this changing relationship dynamics. All these factors have been slowly eroding the quality of interaction between doctors and patients. As part of a growing push towards digitisation of healthcare, sophisticated technology will provide diagnosis and treatment strategy to the doctor, decreasing their role as the main decision making person. "Over the coming decades, face-to-face patient/ doctor contacts will become less common and exchanges between consumers and providers will increasingly be mediated by electronic devices." (Weiner, 2012) With better technology and optimisation comes a risk of dehumanisation of the doctor-patient relationship. As Edward Shortlife (1994), a biomedical informatician, physician, and computer scientist writes, "the message is clear: we are entering an era of computer controlled therapy that will drive a wedge between clinicians and patients, offering potentially competent but sterile, impersonal and dehumanizing care." Thus, in this technology driven future of healthcare, it is important that we do not lose the 'human connection' between doctors and patients.

RESEARCH QUESTION

How might we get the human connection back into the doctor-patient relationship, in the technology driven future of healthcare', within the 10min timeframe of a walk in clinic, using design tools strategically?

PROJECT OBJECTIVES

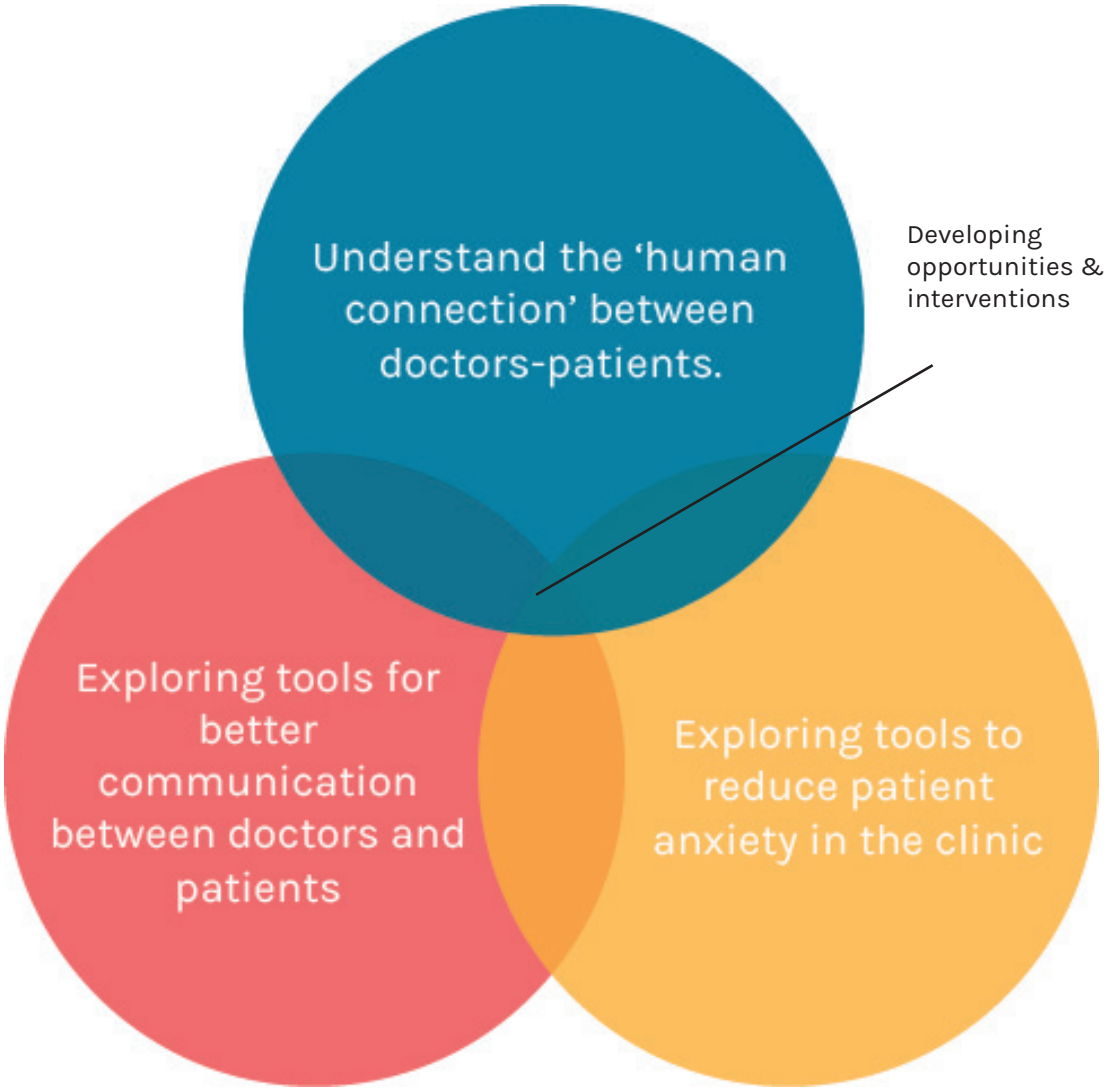


Fig 1: Kanak Jaitli, Project Objectives, 2018

SCOPE & LIMITATIONS

Situated within the service-interaction design fields, this thesis seeks to understand the human connection between doctors and patients and what makes their interaction unpleasant. The research is focused within the 10min timeframe between doctors and patients which can include walk-in clinics and specialist visits. The emphasis is on understanding how technology is changing the doctor-patient relationship within this limited timeframe. It does not seek to understand doctor-patient interactions within the emergency, surgical room context and family physician interactions. The thesis acknowledges that not all appointments are 10min and can be shorter and that not all patients experience anxiety during their appointment. Research into the doctor-patient relationship brought into focus the narrow 10min timeframe. Further research into the specific 10min timeframe can in turn lead to narrowing down the type of doctor-patient interaction (eg walk in, specialist etc). However, there is, much to be gained from looking specifically at walk-in-clinics, given that there has been a steady increase in patients visiting walk-in clinics and also the specific challenges it entails, like, difficulty in developing a relationship with changing doctors. The primary research is Vancouver specific but certain psychological findings can be true across borders. A more in-depth assessment of various cultural and systemic factors operating would make it relevant to larger contexts

STRUCTURE & METHODOLOGY

The structure of the thesis is divided into 3 main phases as shown below:

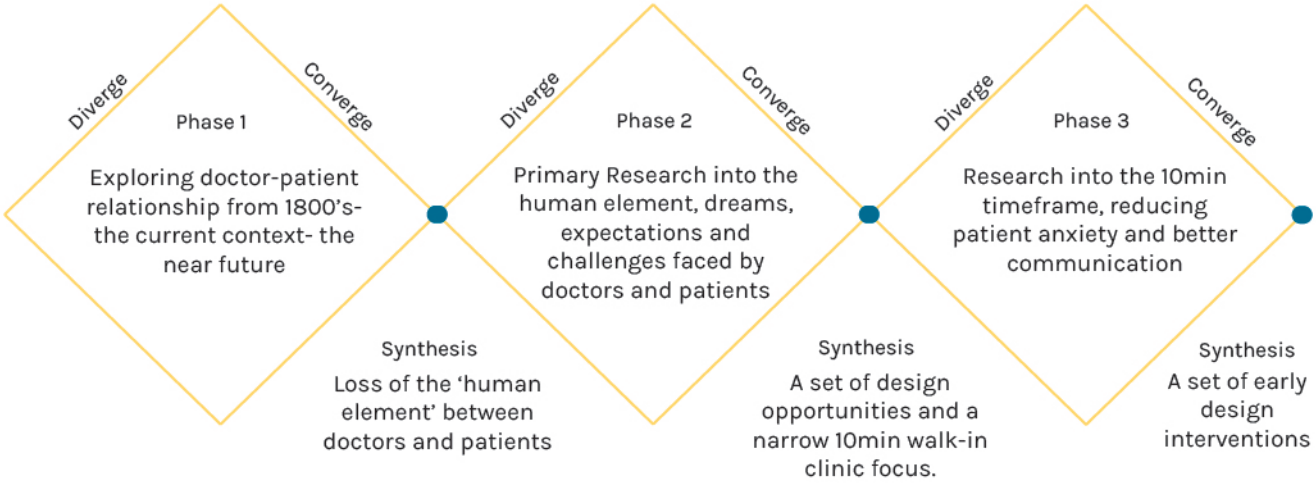


Fig 2: Kanak Jaitli, Thesis stages, 2018

This research project is an exploration into the 'fuzzy front end' (Sanders & Stappers, 2012) of the doctor-patient relationship. It is a project that focuses on problem finding vs. the traditional problem solving. The focus for design research has mostly been after an initial brief has been established. Seldom do designers get the opportunity to explore and navigate the problem area and establish research questions for themselves. Designers can spend time exploring or solving the wrong problem or worse, a problem that can eventually solve itself. The thesis loosely adopts the 'double diamond method' (design council, 2007) of a convergent and divergent approach with its four phases of discover, define, develop and deliver. Exploration of existing keywords lead to a set of questions for further exploration. The methods used for understanding and navigating phase 1 of the research area are evolution maps, stakeholder maps, journey maps, emotion graphs and literature review of key academic journals. (Refer to reference for details).

There is a predictive element in this research study. The consequent analysis and exploration of the doctor-patient relationship through the ages results in a prediction of how the relationship might unfold in the very near future. Though backed up with secondary evidence to support this prediction, the opposite can also be true. Although technology is identified as a dehumanising factor, this thesis does not suggest that all technology is dehumanising. The project seeks to find ways of using technology as a positive mediator for enhancing communication in the clinics.

PHASE 1:
THE DOCTOR-PATIENT RELATIONSHIP
THE THEORY OF RELATION, 1935

"As mentioned by Henderson 1935, a physician and a patient make up a social system. In any social system the sentiments and the interactions of the sentiments are likely to be the most important phenomenon". Hierarchy and passivity are endemic to this relationship where deep and complex emotions are involved. "A patient sitting in your office, facing you, is rarely in a favorable state of mind to appreciate the precise significance of a logical statement, and it is in general not merely difficult but quite impossible for him to perceive the precise meaning of a train of thought. The patient is moved by fears and by many other sentiments, and these together with reason, are being modified by the doctor's words and phrases, his manner and expressions." (Henderson, 1935) The doctor, being the medical expert, automatically assumes a higher, often, a more dominant position. This affects the way doctors and patients relate to each other and forms the basis of the theory of relation between physician and patients (Henderson, 1935) This relational aspect between doctors and patients is not improving through the recent years. Doctors and patients interact differently today than they did a century ago, albeit the emotions that flow within this relationship have remained constant. Many factors determine this shift in the doctor-patient dynamics. Social structure of the society, population explosion, level of education of both doctors and their patients, medical discoveries and the steady growth of technology to name a few. Thus, as Shortlife, 1994, writes, "Any effort to anticipate the effect of information technology on relationships between patients and physicians must be viewed in this larger context of social change."

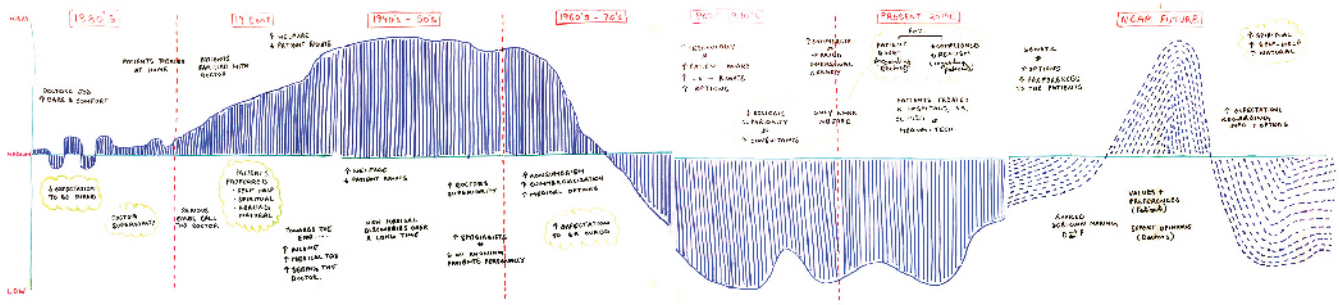


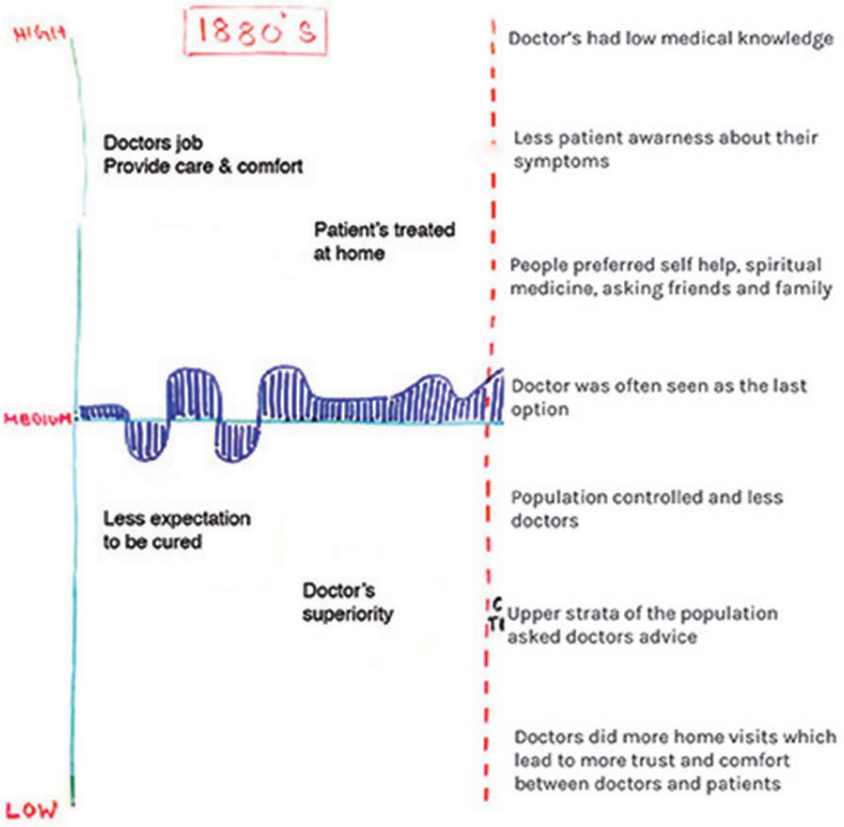
Fig 3: Kanak Jaitli, Evolution Map, 2018

Sources: The New England Journal of Medicine, 2012
The rise & fall of doctor-patient relationship, 2012
The Evolution of the doctor-patient relationship, 2007
Patients and Doctors — The Evolution of a Relationship, 2012

BACKGROUND

DOCTOR-PATIENT RELATIONSHIP IN THE EARLY 1800'S

The 1800's was the time when the modern day doctor-patient relationship started taking shape. The expectation between a doctor and their patient was centered around 'care & comfort'. This was mainly due to the factors shown in the diagram below.



The blue curve represents the fluctuating relational equation between doctors & patients.

Fig 4: Kanak Jaitli, Evolution Map-early 1800, 2018.

'The doctor found that it was less necessary to examine the patient but rather more important to be attentive to their needs and experiences manifest in the form of their symptoms. (Kaba & Sooriakumaran, 2007) During this period the relational curve was at the highest as the doctors listened to their patients and understood their sentiments. Thus, the focus was on the welfare of the patient. "This symptom based model of illness ensured the preservation of patient dominance throughout the period". (Kaba & Sooriakumaran, 2007)

Doctor-patient relationship in late 1800- mid 19th century

During the early and mid 19th century, there was a slow but gradual change in the context of the doctor-patient interactions. (factors shown below).

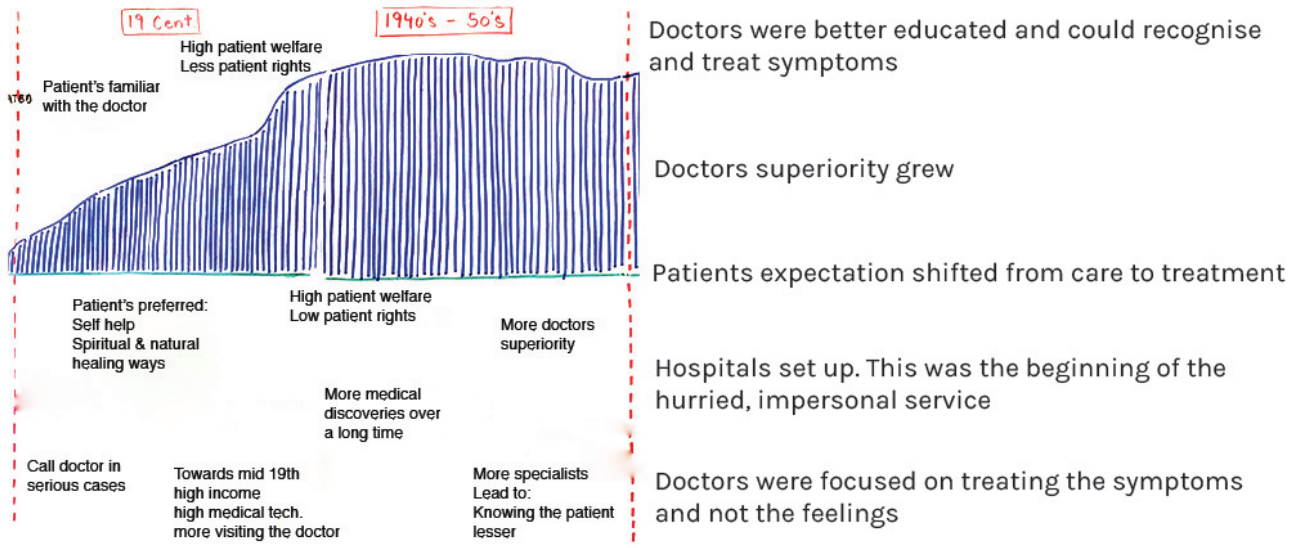


Fig 5: Kanak Jaitli, Evolution Map- mid 19th century, 2018.

"During the late 18th century hospitals emerged as places to treat patients who were underprivileged. Doctors now found themselves providing medical treatment for those who were traditionally regarded as more passive". (Kaba & Sooriakumaran, 2007) This saw a sharp change in the relational context, earlier doctors would sit and listen to their patients and their feelings. Now, the doctor was focused on the symptom within the body. "Doctors soon became separated from their patients politically, economically and socially." (Kaba & Sooriakumaran, 2007) The doctor now had the capability to understand that a symptom is different from the diagnosis. This resulted in the patient being dependent on the doctor. The relationship during this period was based on a paternalistic model. "This is the traditional model of the doctor-patient relationship, in which the doctor, as the expert, diagnoses the patient and decides on the appropriate treatment. In this model the patient has a passive role and no active involvement in the decision-making process." (Stavropoulou, 2012) The healthcare industry was being molded into a seeker-provider service. "Little social mingling remained, and the doctor-patient relationship became impersonal and remote, based upon negotiation and financial transaction." (Kaba & Sooriakumaran, 2007)

CONTEXT & FRAMING

1950'S- PRESENT DAY DOCTOR-PATIENT RELATIONSHIP

The changes in the social fabric of the society (as mentioned above) continued through the late 19th century to what we have today. The doctor-patient relationship has been, over the recent years, morphing into a more impersonal, hurried and fleeting transaction. The relational equation between the doctors and their patients was falling continuously. Walk-in clinics sprang up due to an increase in patient's expectation for good healthcare and also to balance the decreasing availability of family physicians. (Brown, Sangster, Ostbye, Barnsley, Matthews & Ogilvie, 2002)

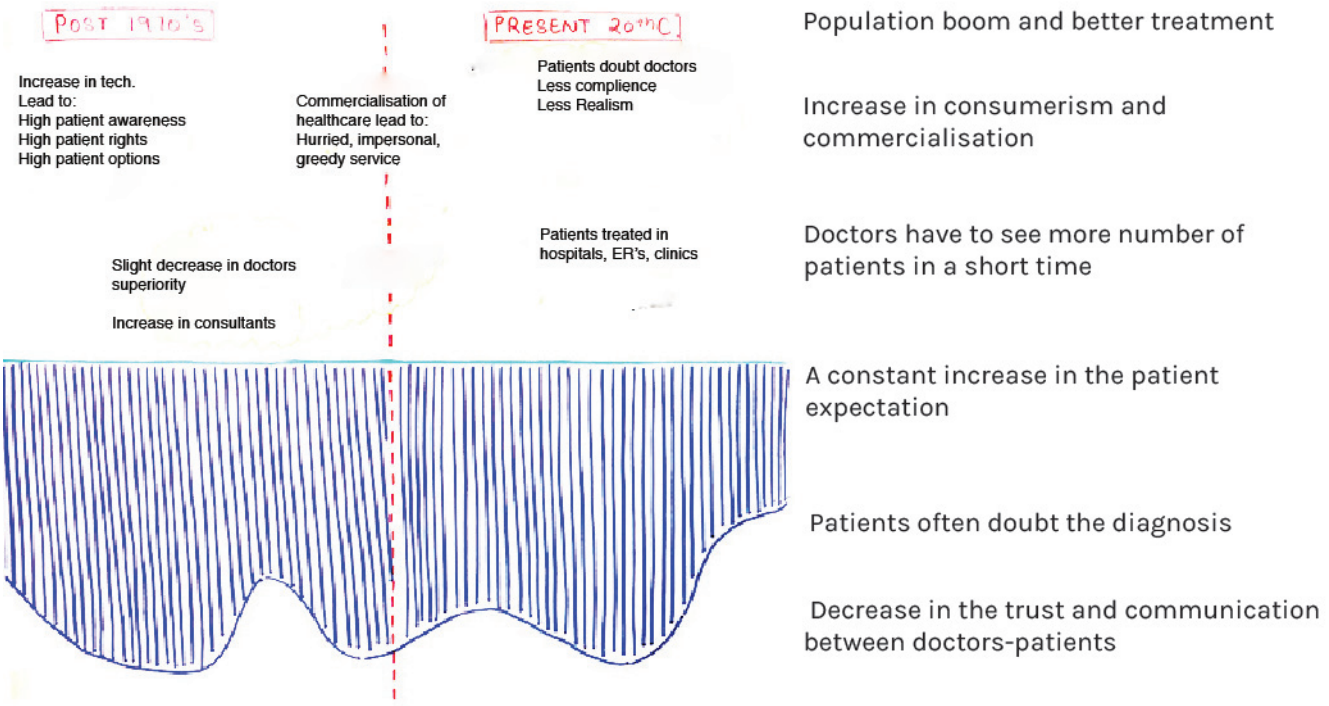


Fig 6: Kanak Jaitli, Evolution Map- present day, 2018.

There is today, a short timeframe of interaction between a doctor and their patient, which usually limits itself to 10-15 mins. "The 15 min visit does not allow the physician sufficient time to provide the variety of services expected of primary care." (Bodenheimer, Liang 2007) These services usually include diagnosing the patient and also providing emotional support relating to the diagnosis. In the current scenario, a patient is often looked at as an entity that needs to be treated quickly, often ignoring their emotional needs. "Thus, there is a need for a fundamental shift in the way in which we approach healthcare—one that recognizes the patient as a whole person, not a collection of treatable symptoms." (Emily Carr University Health design lab, 2014).

THE STAKEHOLDERS

Various stakeholders within the system affect the doctor-patient relationship. "As stated by design researchers Martin & Hanington (2012), stakeholder maps help to visually consolidate and communicate the key constituents of a design project, setting the stage for user centered research and design development." The diagram below shows the interactions between the core and direct stakeholders.

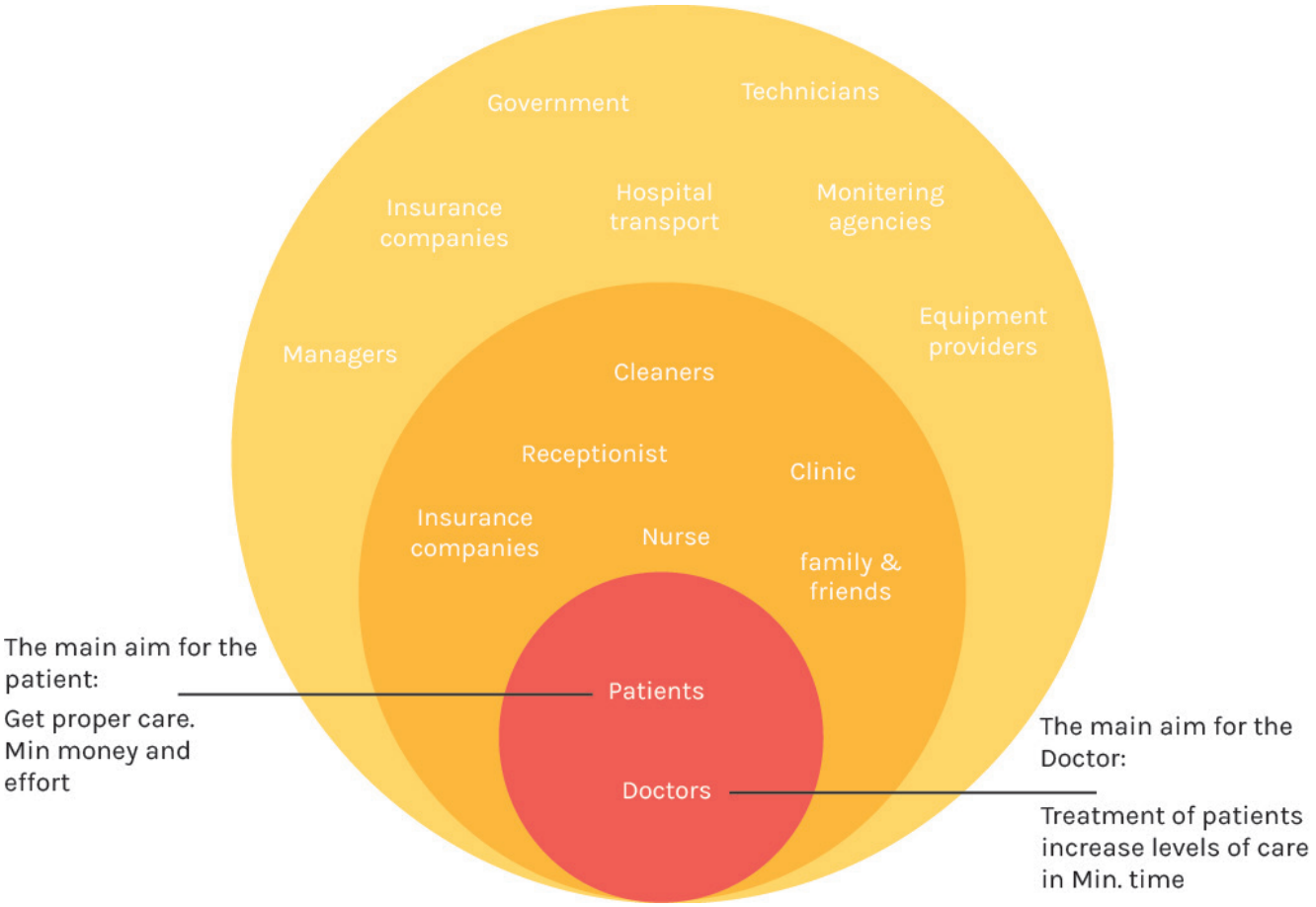


Fig 7: Kanak Jaitli, Stakeholder Interaction, 2018.

FACTORS AFFECTING THE RELATIONSHIP

The diagram below shows the major factors that affect a doctor patient relationship on a macro level.

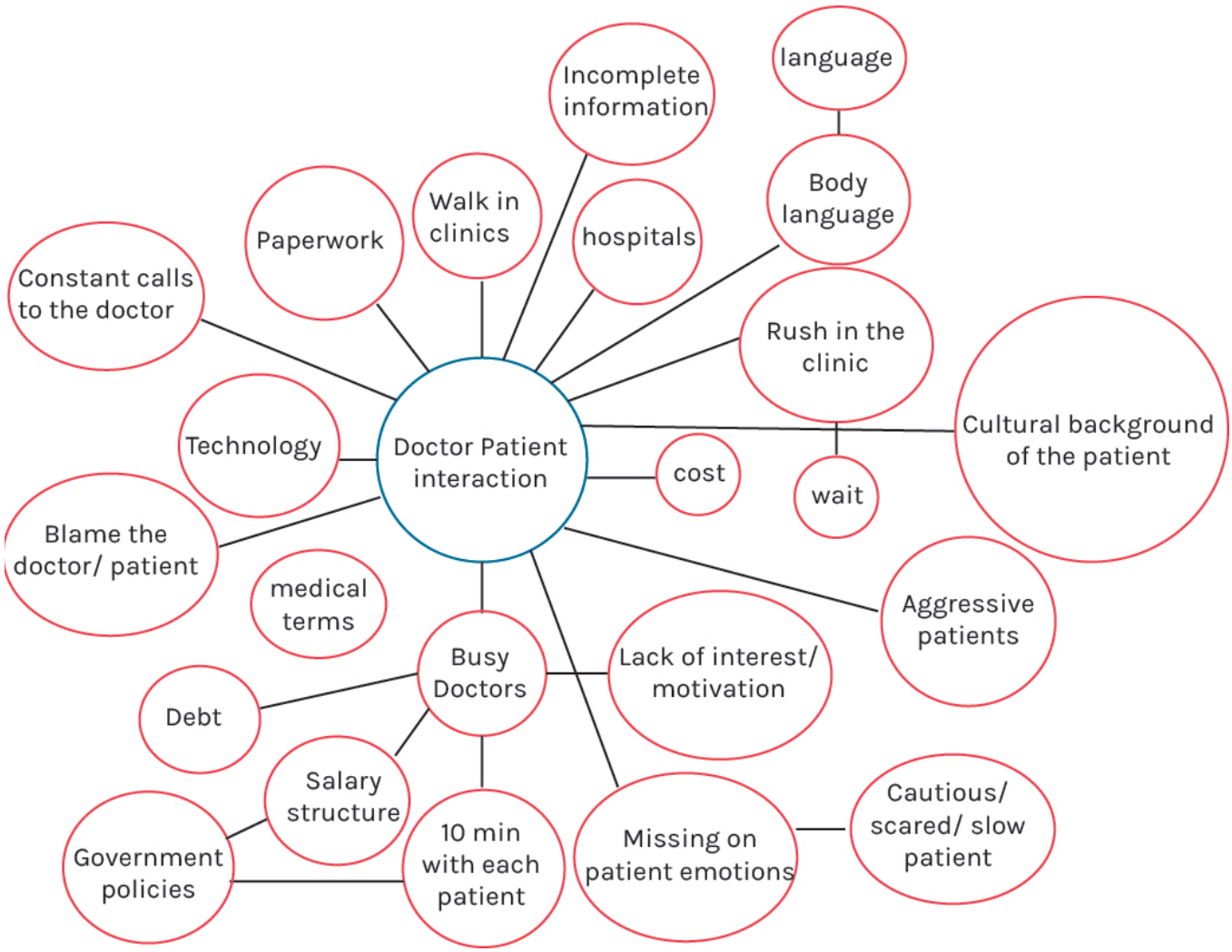


Fig 8: Kanak Jaitli, Factors at a macro level, 2018.

PATIENT'S JOURNEY IN THE CLINIC

A patient goes through a couple of phases during a visit to the walk-in clinic. To understand these phases and emotions within it, a patient journey map was drawn up (following page) based on personal views, participant contribution and review of available literature.

The experience usually begins with the patient waiting, having a conversation with the doctor and coming out with due medical recommendation. "In Canada, about 60% of the general population and 88% of seniors struggle with health literacy challenges." (The college of family physicians of Canada, 2016) "Physicians, according to 1 study, interrupted patients initial statement of their problem in an average of 23 seconds; in 25% of the visits the patient was unable to express his/her concerns at all." (Bodenheimer, Liang 2007)

(For detailed images of journey mapping, refer to appendix 'A01 Journey Maps')

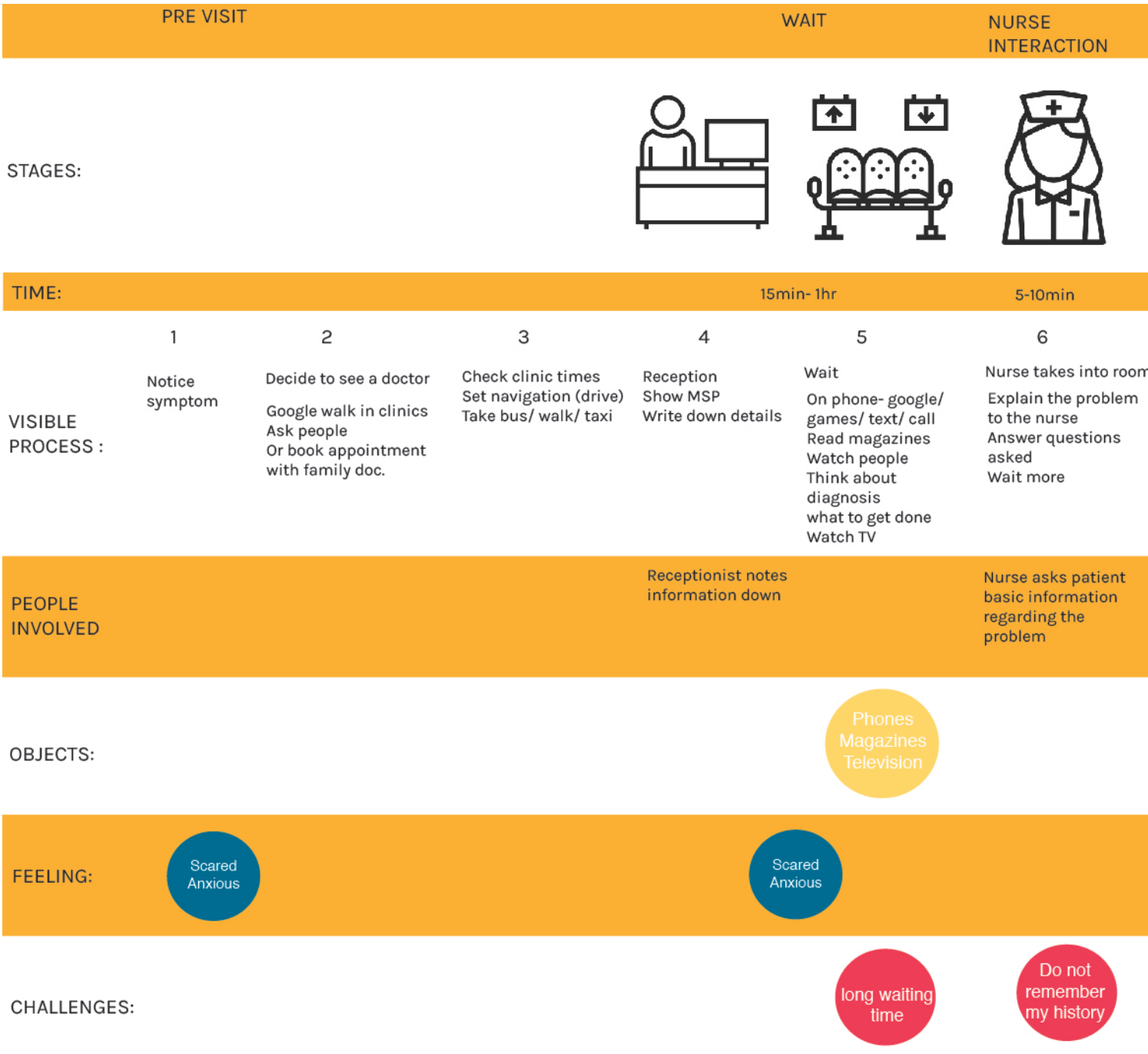


Fig 9: Kanak Jaitli, Patient journey map, 2018.

IN THE DOCTORS CABIN

POST VISIT

less than or 5 to 6 min

4 -5 min on average

7	8	9	10
Explain problem to the doctor Answer questions asked Wait till the doctor examines	Listen to the diagnosis Try to remember Ask any questions Try to interrupt the doctor, who is way to hurried	Doctor gets up to leave Take the priscription Follow up if needed	Ask nurse addiotinal concenrs Try to understand doctors handwrting Realise, you had more questions to ask Google concerns or remember till next visit
Doctor clocks the time Asks patients specific questions Checks sumptoms Frustrated by not clear replies	Starts to explian treatment rapidly Curt and to the point replies	Notices the time and gets up to leave Hands the priscription	nurse asks about the appointment Answers additional questions
EMR system	Websites/ Apps	Paper priscription	Brochures Leaflets
Frustration Fear Anxious	Fear Anxious	Over-whelmed Frustrated	Confused	Confused
Doctor in a hurry	Forgetting what needs to be conveyed	Medical terminilogy is confusing	Trying to keep up with the diagnosis	All verbal communication	Forgot the details	Google the details

These challenges often generate certain emotions within the patient which range from anxiety, frustration to being overwhelmed with information. These emotions often fluctuate within these stages. Ten participants were invited to map out how their emotions flowed during a recent interaction with their doctor. The emotions being: anxiety, fear, frustration and relief.

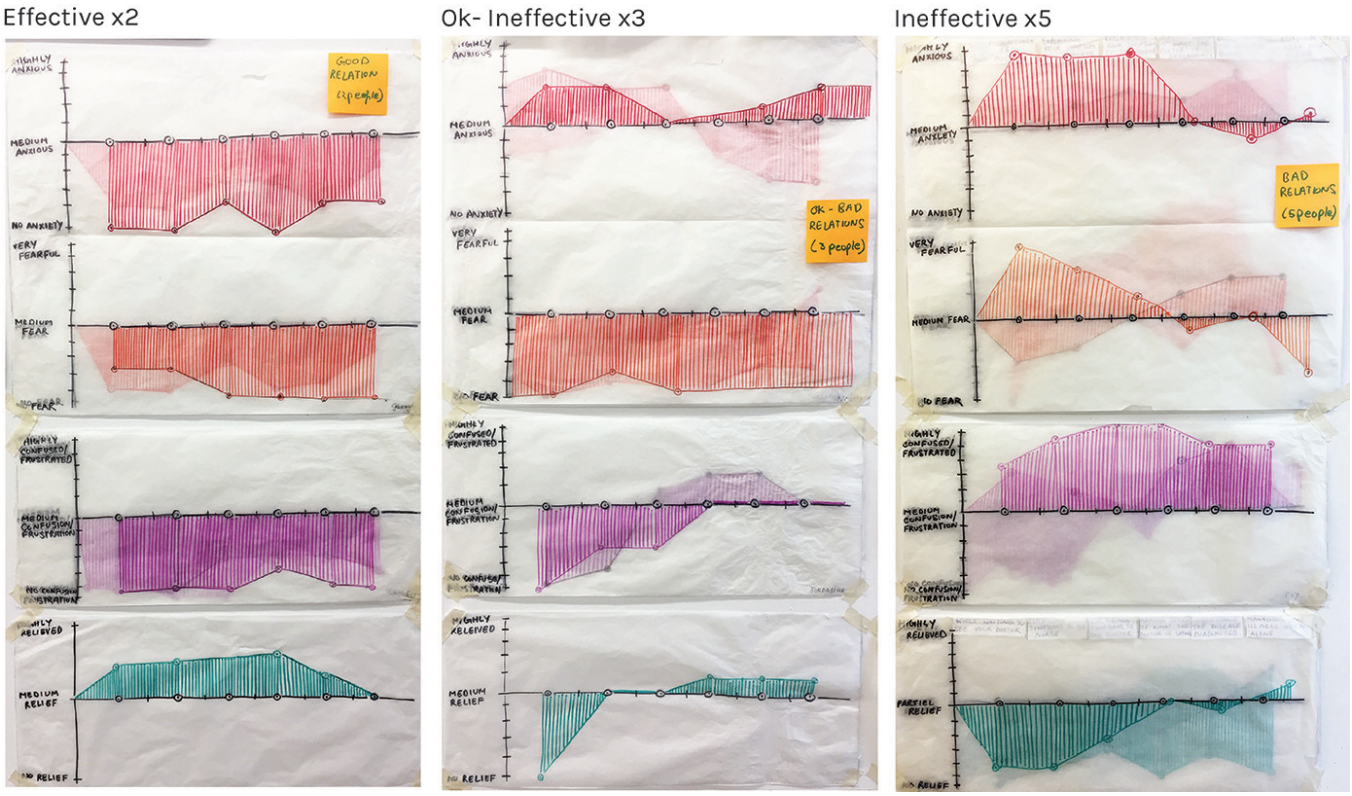


Fig 10: Kanak Jaitli, Emotion Flows, 2018.

Of these two people had a perfect and happy relationship with their doctor, but the rest of the eight had high levels of anxiety, fear and frustration especially when they are having a conversation with the doctor and as soon as they have finished the appointment. These mapped emotions point towards certain elements which make relationships successful vs. unsuccessful.

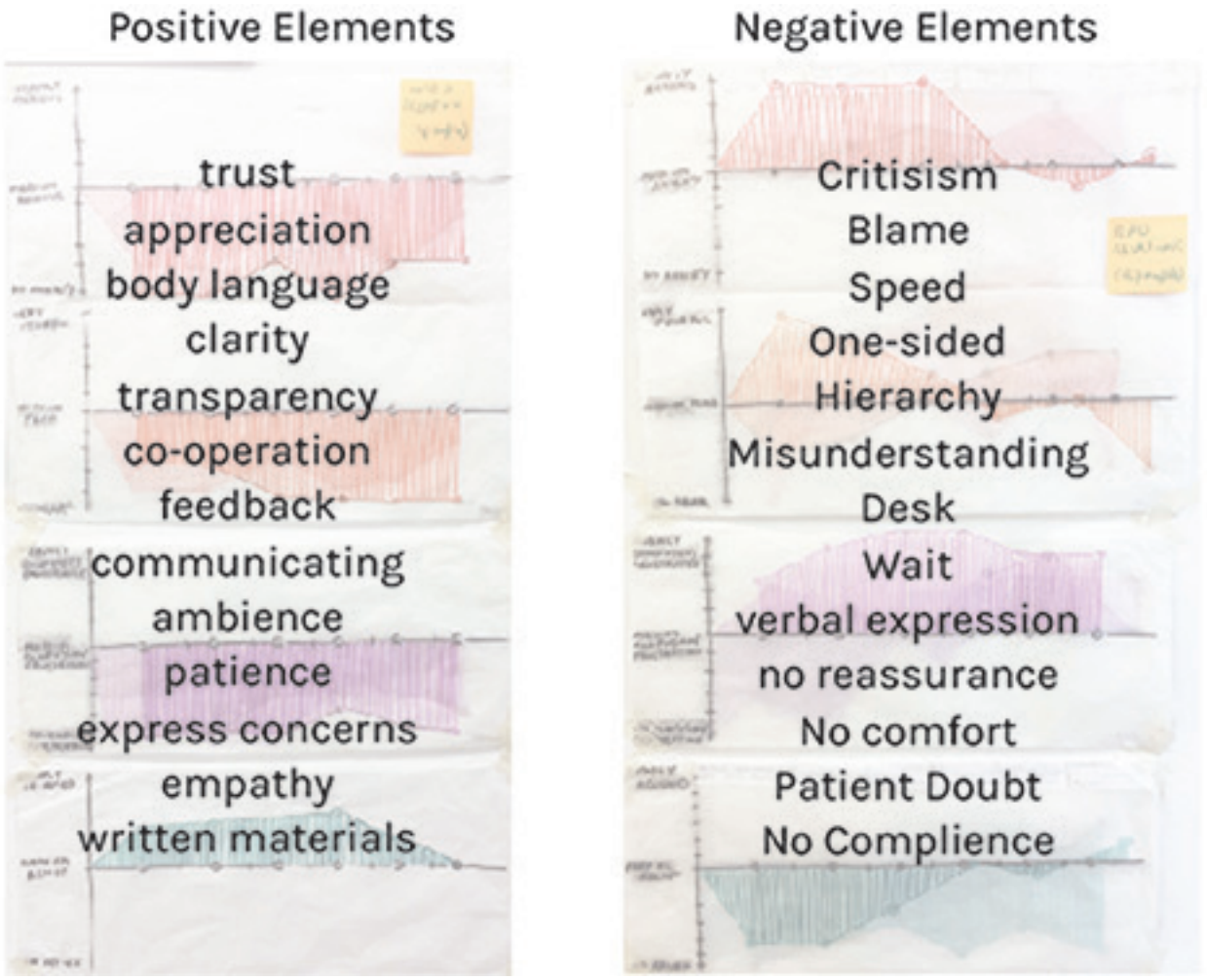


Fig 11: Kanak Jaitli, Elements in successful and unsucessful relationships, 2018.

"In today's patient centered model, doctor-patient relationship must take into account not only the application of technical knowledge, but also communication of information calculated to assist the patient to understand, control, and cope with overpowering emotions and anxiety." (Kaba & Sooriakumaran, 2007)

COMMUNICATION BETWEEN DOCTORS & PATIENTS

Systematic theory of communication- John Wallen, (Chinmaya &Vargo, 1979)

Doctors and patients, each have their own set of motivations, desires and attitudes which come into play when they communicate. When both doctors and patients come from different perspectives, there is bound to be a difference of opinion when they interact. John Wallen, in his systematic theory of communication, lays out an approach of dealing with conflict, a method of joint inquiry (Wallen 1967). "In the spirit of joint inquiry, the persons in conflict present all their points of view, that is, all their differences, to ensure that the total problem is understood, not just one part of it." (Chinmaya, Vanrgo 1979) "It is how the conflict is dealt with that is constructive or destructive". (Chinmaya, Vanrgo 1979). When anxiety and frustration present themselves in the doctor's clinic, be it from the patient's or doctor's side, it can cause hurdles in the way of achieving a satisfactory interaction. These emotions can change the behavior of the patients and doctors, which results an entire shift in the way they communicate. "Feelings can express themselves in bodily changes, in action, and in words." (Wallen, 1968) "It is our failure to recognize and to deal with the manner in which these emotions interfere with interpersonal relations that is the source of difficulty, not the existence of these emotions." (Chinmaya, Vargo 1979). Thus, for a successful relationship, there needs to be trust and open communication between doctors and patients. Patients should be able to show their emotions to the doctors and the doctor in turn should be able to recognize these patient emotions. "When you talk with the patient, you should listen first, for what he wants to tell, secondly for what he does not want to tell, thirdly for what he cannot tell." (Henderson, 1935) It is this open communication that is endangered in today's hasty approach.

On a more technical level, the communication between the doctor and the patient is predominantly by written and oral means.

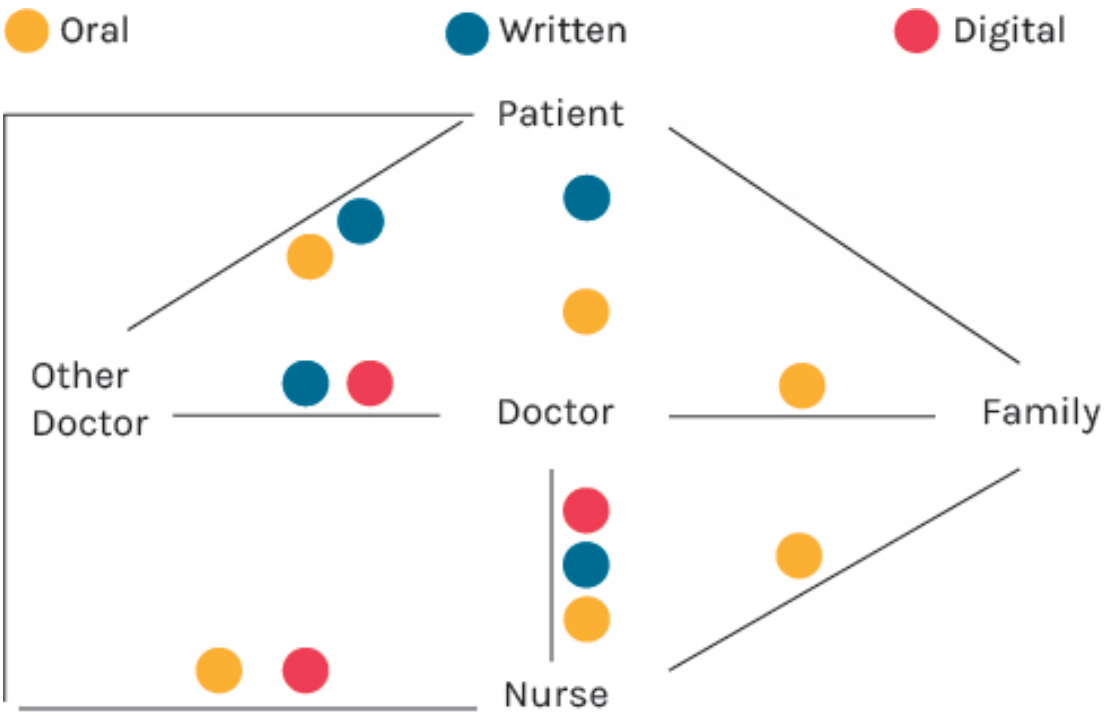


Fig 12: Kanak Jaitli, Communication methods, 2018.

Written being a prescription, oral being use of words and digital being EMR (electronic medical records) and apps. "Some physicians now give electronic copies of care plans or patient health information directly to the patients." (Duke, Frankel & Reis, 2013) Thus, since most of the communication is oral, the patient usually forgets the details of their diagnosis or fails to grasp the crux of the discussion.

The communication between the patient and doctor has gradually moved away from the paternalistic model in the early 90's to a more recent model of shared decision making. "This model was developed by Charles et al. (1997), who argue that there should be four specific characteristics for shared decision making to be effective: Both the physician and patient are, to some extent, involved in the treatment decision-making process. Both parts share information. Both take steps to participate in the decision-making process by expressing treatment preferences. A treatment decision is made and both the physician and the patient agree on the treatment to be adopted." (Stavropoulou, 2012). Even though this model has not yet been fully integrated into the healthcare system today, there is a gradual shift towards bringing the patients preferences into the forefront. With the easy access of online sources, patients can now make decisions independently and consult a variety of sources before adhering to the doctor's recommendations. This is a beginning for the shared decision making model which will be carried forward into the near future.

RELATIONSHIP IN THE NEAR FUTURE

Post 1970's saw a rise in digital technology which brought a subtle but growing change within the relationship. The earlier years saw a rise in patient welfare but a steady decrease in their right and awareness. Technology, has to a certain extent, brought the patient's rights, awareness and their knowledge of medical options back into the forefront. The most common example of technology being used in the doctor's clinic, is the EMR (electronic medical record) system. The transformation from the earlier Doctor-patient relationship to the Doctor-computer-patient relationship over the years is almost complete not only in advanced countries like Canada but in almost all urban cities across the world. With governments of most countries, Canada included, are spending increasing money and effort into digitising and introducing IT (information technology) into the doctor's clinic, it will soon not be uncommon to have an element of 'technology accompanied visit' to the doctor's clinic.
(Duke, Frankel & Reis, 2013)

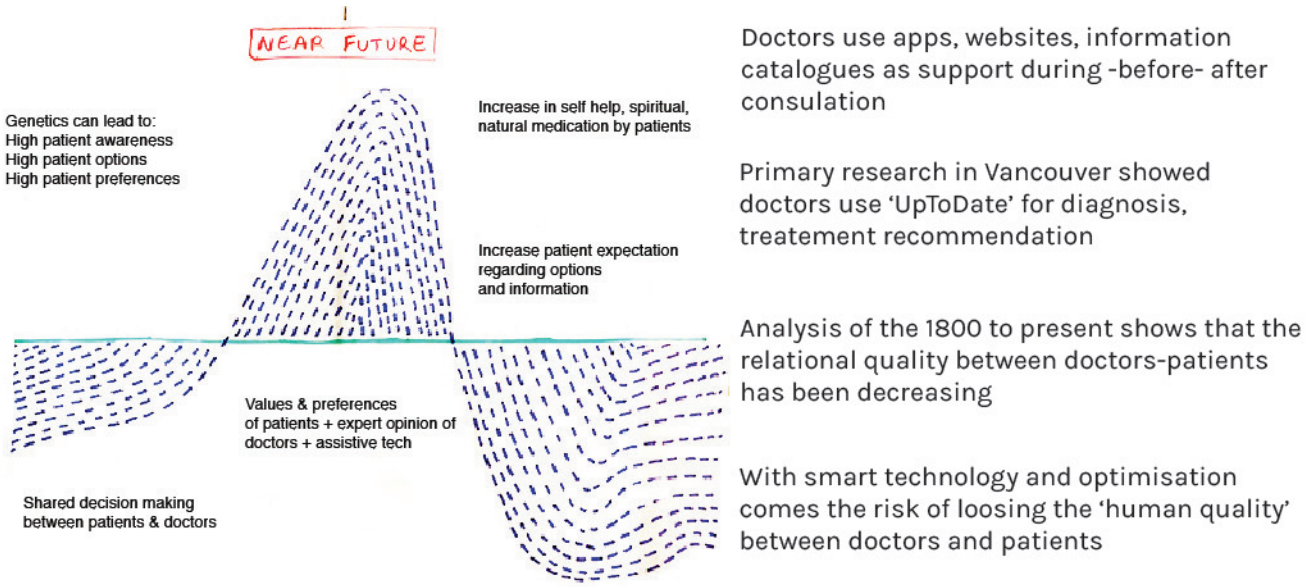


Fig 13: Kanak Jaitli, Evolution map- Near Future, 2018.

"No one really believes that computers will replace physicians, but there is still a gnawing concern that such machines will detract from those aspects of medical practice that have drawn physicians to the field in the past." (Shortlife, 1994) Technology can only take over the 'human connection' if we let it. The crux of patient-doctor relationship lies in this relational equation between them, as evidenced through the earlier sections. Human beings, are quick adopters of change, in this case, technology driven change. But we also have the key to be smart adopters and recognise the need to keep human connection alive where necessary. "As computers become increasingly woven into the fabric of our society, if there is any resulting dehumanization it will occur because we allow it to happen, not because there is something inherently dehumanizing in the technology itself." (Shortlife, 1994)

EFFECT OF TECHNOLOGY

During the primary research in Vancouver, a doctor pointed out that patients complain of doctors looking into the screens and not at them directly. This similar problem was found in secondary studies as well. "We found that patients worldwide express one major concern about computers in the office- the fixation of the physician's eyes on the computer screen." (Duke, Frankel & Reis, 2013) The eye contact between a patient and the doctor speaks to the relational equation between them. It is a form of human connection, among others, which results in the feeling of comfort, anxiety reduction and open conversation between the doctors and the patient. "In talking with the patient, the doctor must not only appear to be, but must be, really interested in what the patient says." (Henderson, 1935) It is this human connection that is decreasing even further with the intrusion of technology into the clinics. "With the computer present, the first minute of the consultation is often taken up with the physician interaction with the computer rather than interacting with the patient or discussing the patient's agenda". (Duke, Frankel & Reis, 2013) For a smooth blend of technology into the doctor-patient relationship, the foundational interaction of the doctor and the patient's needs to be strong. "Doctors must accept responsibility for both a technical expert and a supportive interpersonal role." (Kaba & Sooriakumaran, 2007)

"It is helpful to arrange the room so as to allow both the patient and the provider to see the screen. This format demystifies the computer and encourages patient participation by allowing the patient to join in or initiate discussion while looking at, pointing at, or highlighting items on the computer screen". (Duke, Frankel & Reis, 2013)

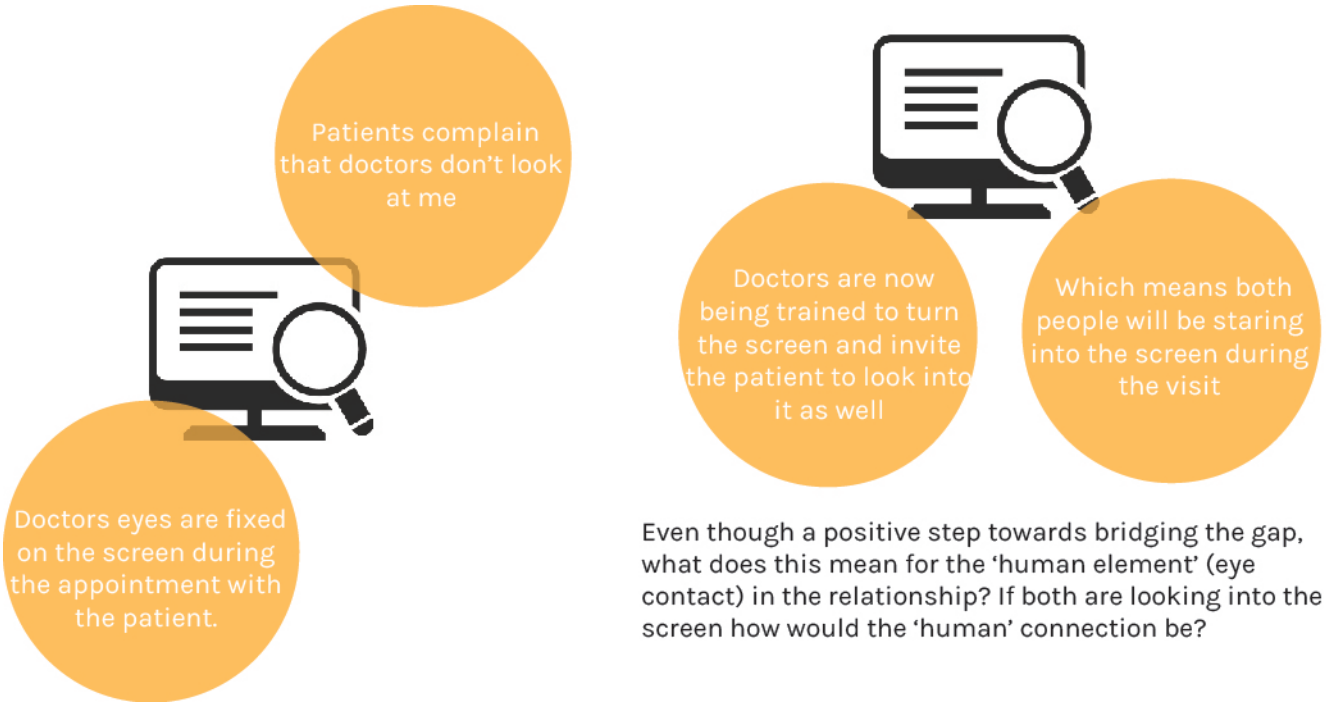


Fig 14: Kanak Jaitli, An EMR example, 2018.

TECHNOLOGY & CHANGE IN PATIENT BEHAVIOUR

Readily available information at the click of a button, has seen a change in the patient's behaviour as well, increasing their expectation for health information and health options. 'Google' is often the point of entry into the online web search. "Approximately 8 out of 10 American adults report searching for medical information on the internet." (Fergus, 2013) Online searches often show all permutations and combinations of a certain medical condition. Patients cannot sort or navigate this information the way a doctor can, and this often results in anxiety or fear in patients for a diagnosis they 'think they might have'. "While better patient education has obvious advantages for the doctor-patient relationship, there are concerns that information on the internet might not always be accurate and responsible". (Kaba & Sooriakumaran, 2007) Thus, a patient oftentimes goes to a doctor with their 'possible diagnosis' which they come across through their online searchers. The doctor then has to sift through the patient's diagnosis to understand the core symptom a patient is experiencing. This was evidenced in the primary research and is described in detail in the primary research section.

SYNTHESIS: INCREASING THE HUMAN CONNECTION IN THE DOCTOR-PATIENT RELATIONSHIP

Analysis of the early years of the doctor-patient relationship points towards a gradual loss of human connection. This will be even more evident with a growing focus on optimisation of healthcare services and seeing more patients in less time. "The digitization process is well underway in many healthcare systems." (Weiner, 2012) This relationship between seeing more patients within less time can be achieved with the help of precise and accurate technology. "Almost all patient-provider interactions will be mediated by the electronic HIT work-flow, before, during and after any clinician/ patient contact. This will apply to physician/ patient interaction that will be face-to-face as well as those that are synchronous." (weiner, 2012) On the other hand, increasing access of information by patients, will lead to physicians and clinicians being called onto to serve as navigators and councilors to their patient who will potentially be faced with massive amounts of new information." (Weiner, 2012)

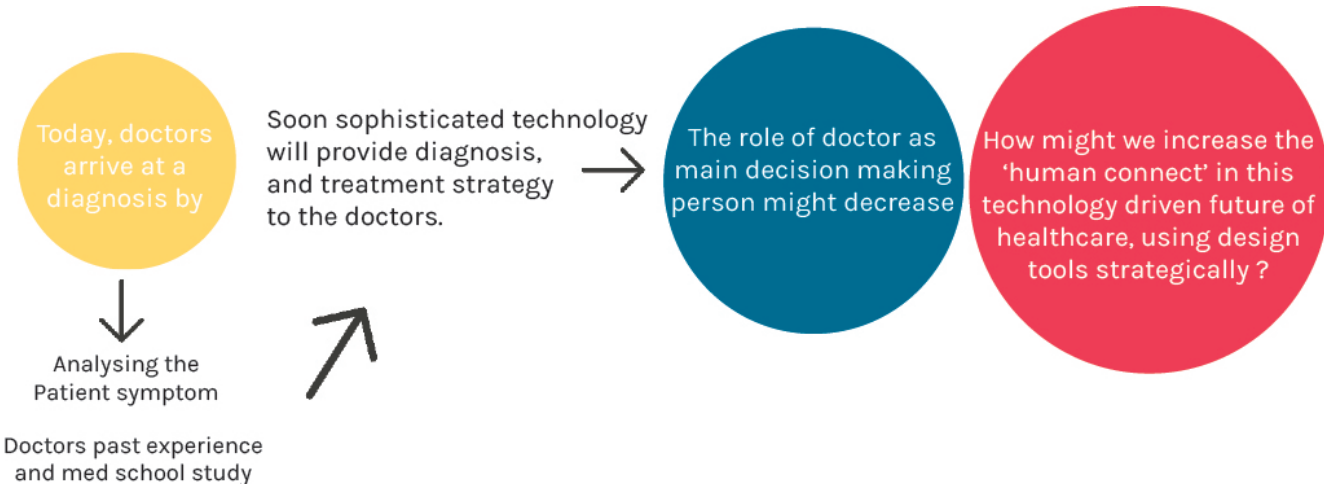


Fig 15: Kanak Jaitli, Synthesis phase 1, 2018.

"Perhaps, ironically, this infusion of technology may make it possible, or even mandatory, that future clinicians focus more on the art of care given that the technical side of medicine will increasingly be handled by the IT box." (Weiner, 2012) As evidenced from looking at the larger picture through the decades, the relational curve between doctors and patients has been on a constant decline. Hypothetically, based on the direction we are headed, we do not want to live in a future where patients come to know they have a deadly disease through a screen. Thus, in this technology driven future of healthcare, it is important that we do not lose the 'human connection' between the doctors and the patients. "The art and science of care surrounding the traditional face-to-face patient-doctor interaction will be forever changed as all aspects of communication, interaction and information flow will become mediated (and monitored) by electronic tools." (Weiner, 2012)

(Speculative futuristic scenarios refer to appendix A03 Futuristic scenarios)

PHASE 2: PRIMARY RESEARCH

UNDERSTANDING CARE & COMFORT IN THE CLINICS TODAY

The primary research phase is centered around understanding this ‘human connection’ or ‘care and comfort’ and the different ways in which it manifests itself in the clinics today. The main aim of the primary study was to identify and ask participants about their positive experiences- their happy moments, dreams, expectations, as well as some challenges they face in their interactions. The information gathered gave an insight into the mental frames and shifts of doctor-patients within a specific 10min timeframe. It opened the areas of patient anxiety and communication within the 10mins for further exploration. The analysis resulted in a set of design opportunities, which are elaborated in the next phase.

DESIGN METHODS

Participatory design methods (Sanders & Stappers, 2012), are used within a human centered design approach for the primary research phase. The design approach is situated within the grounded theory framework (Collins, 2012), where new questions are generated with each evaluation of the previous questions. The main research methods used are interviews with doctors and cultural probes (Gaver, Dunne, & Pacenti, 1999) with the patients. The design methods are chosen to best reflect the ‘do, say, make’ approach of Sanders & Stappers, 2012. This approach looks at understanding the people from all angles: what they say, do and wish for. This approach gets to the latent and tacit knowledge which is usually not visible through just interviews. It forms the backbone of the research activities. The planning, execution and the interview questions and probe activities are listed in detail in the appendix section (C01-05). The following sections show the synthesis or ‘what I have discovered’ through analysing, sorting and navigating through the information gathered from the interviews and probes.

DATA ANALYSIS

Affinity diagrams and mental models are used to analyse the information obtained from the interviews and cultural probes. The information was laid out and grouped under clusters which formed similar patterns. There was a special focus on identifying ‘tasks’. "I use ‘tasks’ to mean actions, thoughts, feelings, philosophies and motivations- everything that comes up when a person accomplishes something, sets something in motion, or achieves a certain state." (Young, 2008) Data analysis resulted in generating insights and eventually a set of opportunities. (for detailed data analysation steps please see the appendix ‘D01-02’)

ETHICAL CONSIDERATIONS

The research study has approved ethics clearance from the Emily Carr University ethics board. For details ethical consideration, please refer to the appendix ‘B01- 05’.

PRIMARY RESEARCH (1): MAIN FINDINGS, SYNTHESIS, OUTCOMES AND DISCUSSION:

INTERVIEW WITH DOCTORS

Expert Interviews conducted with eleven Doctors practicing in the urban setting and seeing approximately 50-60 patients a day:

Some common points that were raised were:

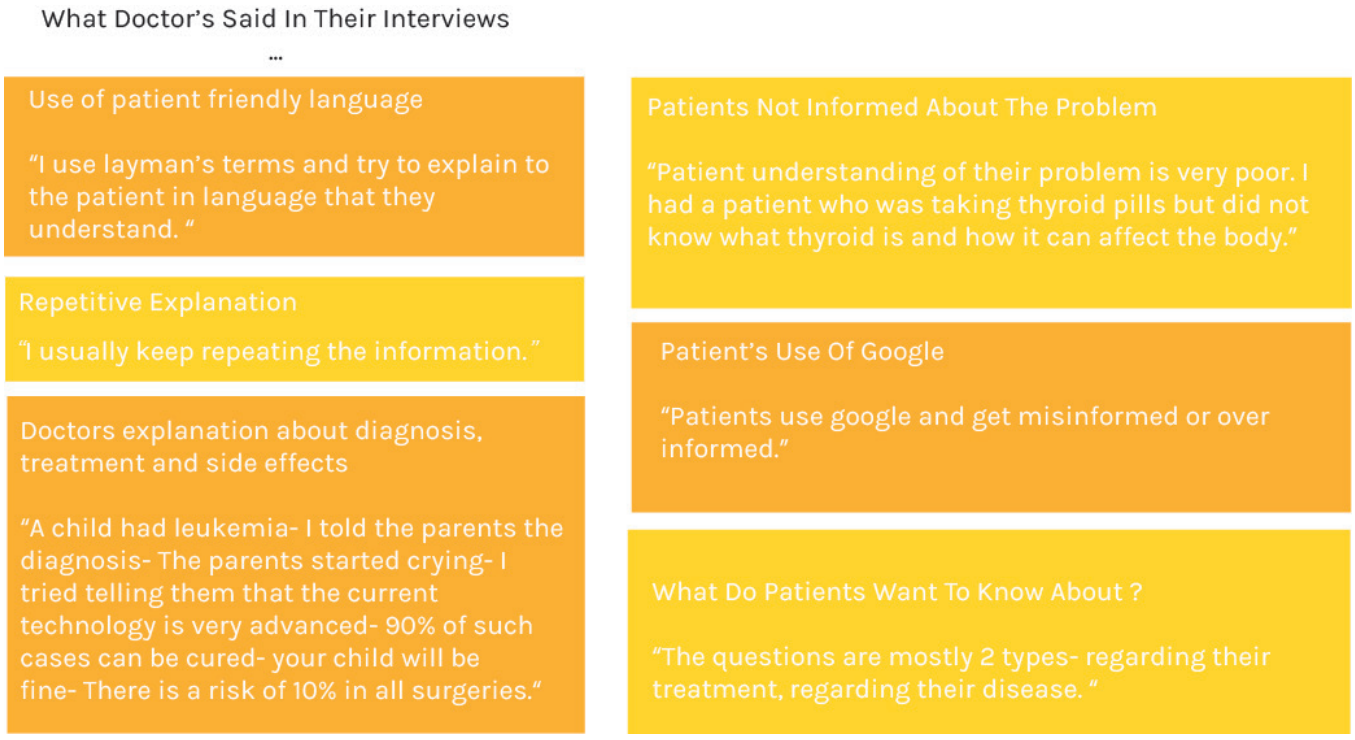


Fig 16: Kanak Jaitli, What doctor's say, 2018.

COMMUNICATION MEDIUM BETWEEN DOCTORS & PATIENTS

Verbal communication is the preferred method in the clinics.
“Routine checkup of a patient- they come for chest infection checkup- I have a discussion with them about it and tell them about the side effects."

In most cases, the prescription is the only physical written object between the doctor and the patient.
“Conversations are mostly oral, and occasionally written/ charts.”"

In some cases, doctors do use alternate methods (as shown in the fig below).
But these are rare and most of the conversations are just words and strictly verbal.

Fig 17: Kanak Jaitli, Communication methods used in clinics, 2018.

TECHNOLOGY USED BY DOCTORS

The EMR software is used by nearly all the doctors. Doctors in Vancouver usually use Uptodate and Buzztodrugs to look up drugs recommendation or what certain symptoms mean. "If I see a symptom and I don't remember it clearly or had studied it in med school, I look it up in these apps. Gives me the information about what I need to know." These apps or software's shoot out recommendations and/ or information for the doctor, which makes their job much easier. "Apps give top 3 recommendations to choose from." Currently, the doctors are the final decision making authority regarding the data conveyed in the apps. The doctor decides if they want to adhere to the data being provided by the chosen software. Doctors often cross check the information with the pharmacies or in local websites, which are UpToDate, BuzzToDrugs or websites provided by the provincial government. Doctors are adopting technology to assist them with diagnosis and recommendation in their clinics. Though the adoption of technology by doctors in the clinics is still in its infancy, it is soon becoming an important part and will play a more dominant role in the near future.

PATIENT COUNSELLING

Most doctors say that it is not uncommon to find emotional patients in their everyday practice. Yet doctors indulge only in limited counselling, if any. Doctors tend to approach counselling from a physician's lens. If a patient is upset or having an emotional moment, the doctors will talk about the benefits of the treatment, address patient worries from a medical standpoint and often shift their medical agenda to when the patient is ready to accept the treatment. There is often a lack of empathy and catering for the non-medical worries of the patient.

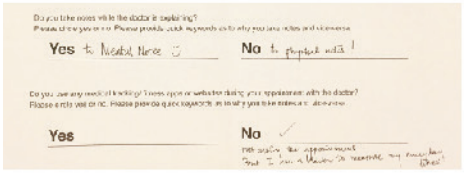
When looked at objectively, it is not a doctor's job to provide emotional support or 'care & comfort' to the patient. The doctor-patient interaction is time sensitive and the 10min duration often does not leave enough scope for the doctor to cater to the emotional mindset of the patient. Doctors see about 50-60 patients in a day and it is very difficult to provide emotional support for each and every patient. Doctors pointed out that when an advocate accompanies the patient, it results in a lower level of anxiety. But not all patients come with advocates or family members. Thus, there is a need from the doctor's perspective to better understand the emotional context of the patient.

"It has been shown that important and highly relevant information concerning patient fears and expectations is readily obtainable with the simplest interview questions which could easily be incorporated into regular medical visits. It has also been demonstrated that currently these concerns are given insufficient attention during the doctor-patient consultation. Some of the recorded patients visit suggest that, rather than adding to the physician's burden, attention and recognition given to these topics makes for shorter patient visits." (Korsch, Gozzi & Francis, 1968)

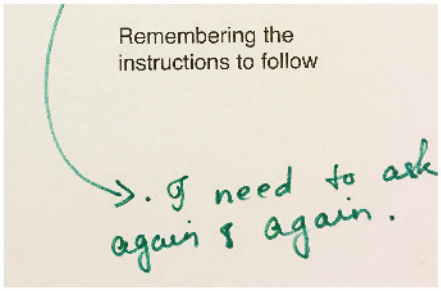
CULTURAL PROBES WITH PATIENTS

Cultural probes were conducted with twenty participants, having had a past experience of going to the doctor. Below are some important points which help bring the patient's perspective into focus:

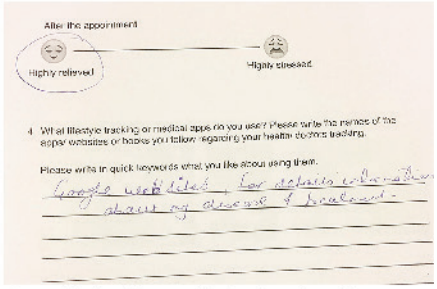
WHAT PATIENTS SAID IN THEIR PROBES



None of the patients use physical methods to note information down. Its all verbal conversation with keeping information in the mind.



Repetitive questioning due to lack of understanding. This compliments what doctors brought up- that they need to explain again and again to the patient.



Google is the point of entry for the online self diagnosis websites, and iPhone steps counter are the most commonly used apps. This again compliments doctors point of patients getting over/ mis informed with online searching.

Fig 18: Kanak Jaitli, What patient's say, 2018.

WHAT DOES CARE & COMFORT MEAN FOR PATIENTS ?

Fig 19: Care & comfort for patient's, 2018.

The definition of care and comfort is not the traditional hand holding and assurance anymore. It clearly manifests itself in a variety of different forms in the clinic.

HIERARCHY OF ATTRIBUTES

The probe asked participants to rank certain attributes in order of preference, which they felt were necessary, in order to have a successful interaction with their doctor. Almost all participants said trust, transparency and clear communication are the most important. But these are also the most compromised in the relationship today. As (Chanmaya, Vargo, 1979) say, "The greater the mutual openness in a relationship, the greater the trust."

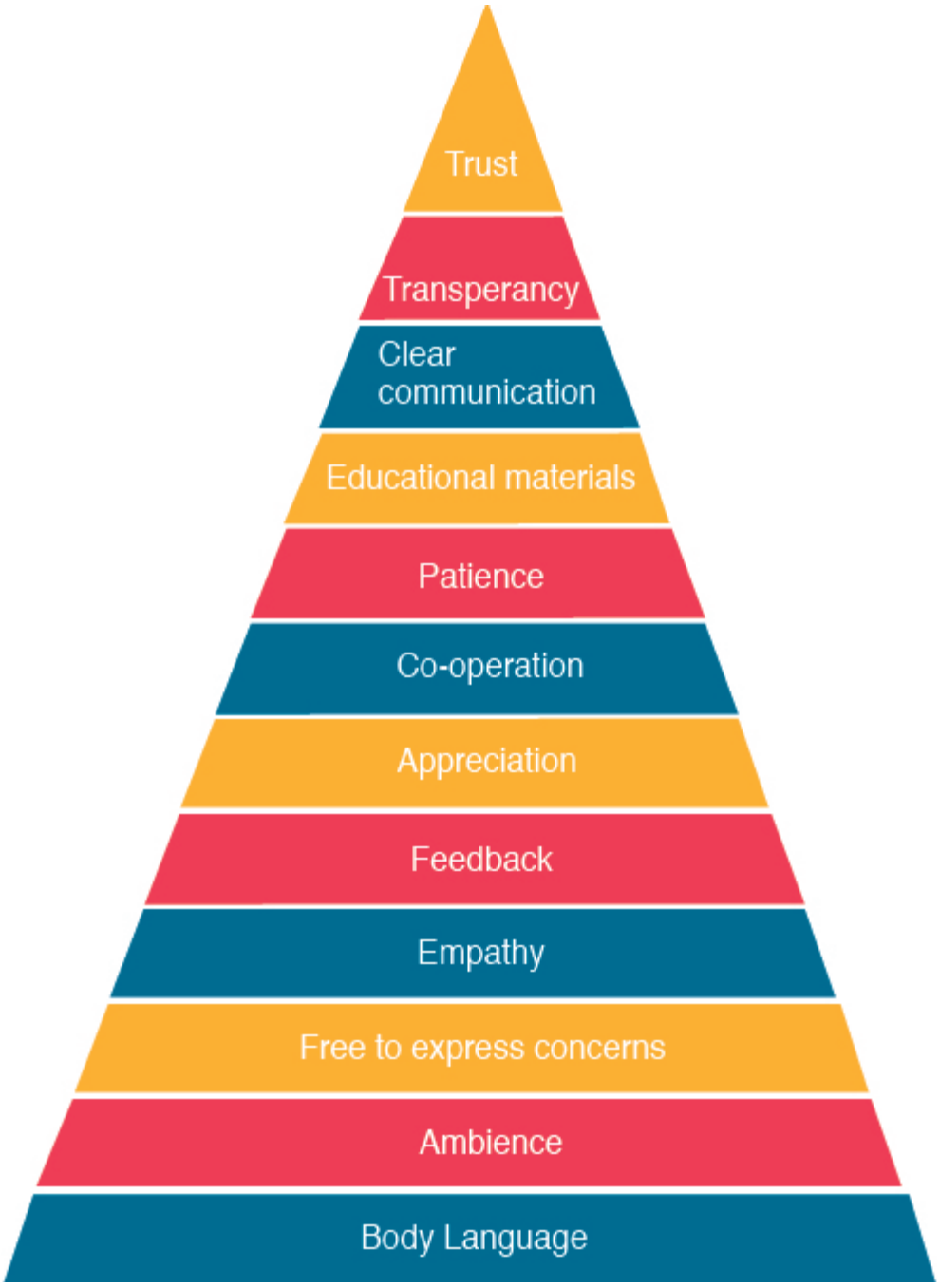


Fig 20: Kanak Jaitli, Heirarchy of Attributes, 2018.

REMEMBERING INFORMATION

An element of the probe asked participants how they usually remember large and complex information outside of a doctor's clinic. Participants said they better remember something if its quoted with examples or somehow links to a real life scenario. People take notes either on their phones or with paper-pencil, set reminders and make lists. One of the participants said that they tend to remember everything in their minds and sometimes they forget but that can't really be helped. It is interesting that people use these methods to capture and remember information, but in a doctor's clinic there is a cycle of constant explanation and questioning again and again. Somehow this behaviour of people does not manifest in the doctor's clinic.

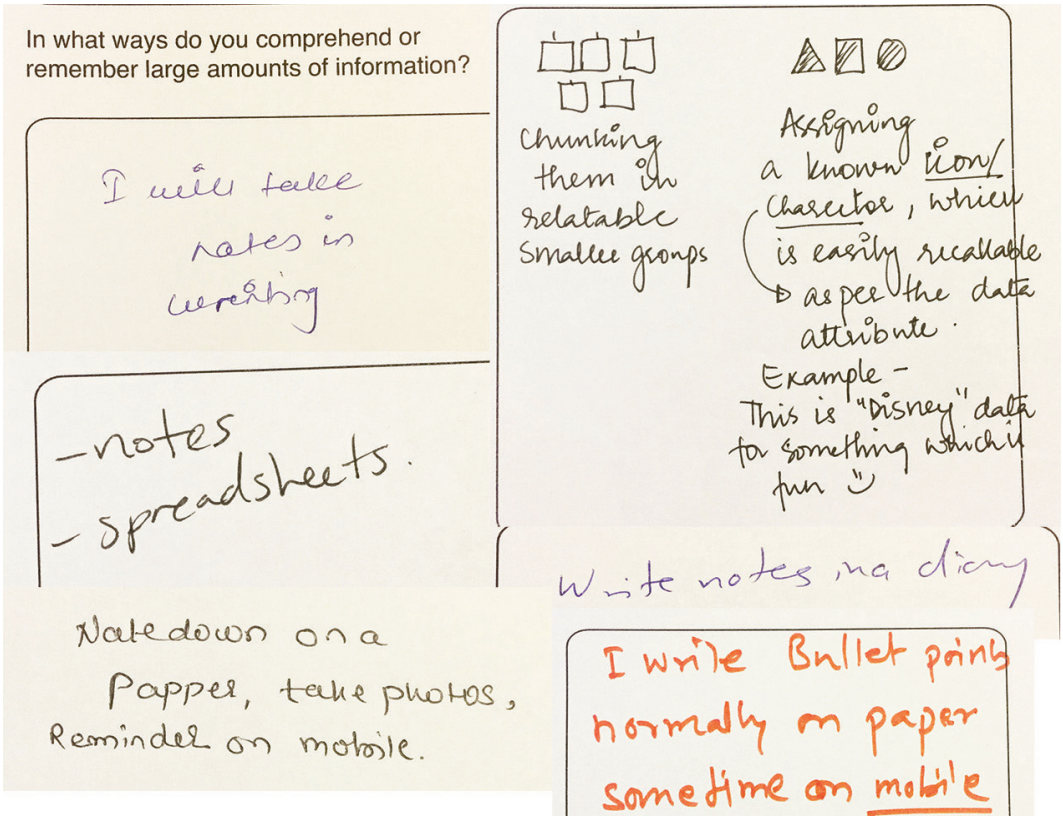
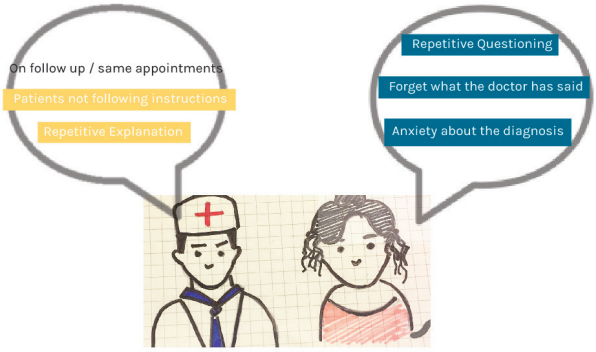


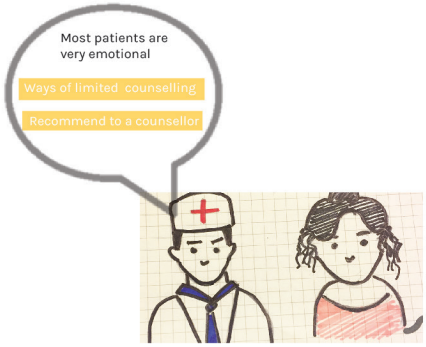
Fig 21: Kanak Jaitli, Remembering information, 2018

SYNTHESIS: MENTAL SHIFTS IN THE MINDS OF DOCTORS & PATIENTS

Patients and doctors, in their probes and interviews often mentioned the timeframe of the appointment to be very tight and short. The standard duration of a typical doctor's visit is limited to 10-15mins, especially with walk-in clinics and/or specialist's appointments. Taking from the mental model approach (Young, 2008), below is an analysis I conducted to understand this mental shift in the minds of the doctors and the patients which results in a shift in their behavior. "Mental models give you a deep understanding of people's motivations and thought processes, along with the emotional and philosophical landscape in which they are operating." (Young, 2008)

Fig 22- 25: Kanak Jaitli, Mind shifts of doctors and patients in 10mins, 2018.





A lot of things happen in the 10 mins, and the mind of the doctor is moving from probing the patients to understanding their cultural background to counselling them while the minds of the patients have anxiety/ worry in them as a constant, which often clouds their other cognitive thinking capabilities. "It is often stated by pediatricians that ‘if only there were enough time’ patient care would automatically be better and doctor-patient communication would become more effective." (Korsch, Gozzi & Francis, 1968)

The 10min timestamp for the appointment visit is one of the main reasons for a broken relationship between the doctor and the patient. "42% of primary care physicians report not having adequate time to spend with their patients." (Bodenheimer, Liang 2007) A patient often has to meet a new doctor in every visit and has to recount his medical history repetitively. There is thus, a difficulty in developing a relationship between doctors and patients in walk-in clinics. Interviews and probes showed that a patient often has a number of concerns and questions which are dragged across multiple doctor visits. Most of the time, patients do not voice their concerns due to the preoccupied/ dismissive behaviour of the doctor, they simply forget, have trouble explaining their symptoms or remembering the doctor’s instructions. This results in repetitive questioning from the part of the patient, which leads to repetitive explanation on the part of the doctor, both of which create a blip in a smooth doctor patient interaction.

CONNECTIONS + EXPLORATIONS: WHAT I MAKE OF IT

Based on the analysis of the information from the probes and transcripts, most of it can be classified into 3 categories.

Fig 26: Kanak Jaitli, Three categories- Synthesis, 2018.

The process of affinity mapping and creating mental models led to identifying gaps and opportunities for further exploration.

Doctors were asked about what an ideal patient should be like? Usually, one party (patient) in the relationship is in a state of anxiety or fear whereas the other party (doctor) is in a state of calmness. Thus, the doctor-patient relationship is where deep and complex emotions are involved which are either communicated or suppressed in a short period of time. With such complex emotions, there can hardly be an ideal patient. Even though this question is a difficult one, given the nature of the relationship between doctors and patients, it gave some insights into what doctors hope patients would better understand.

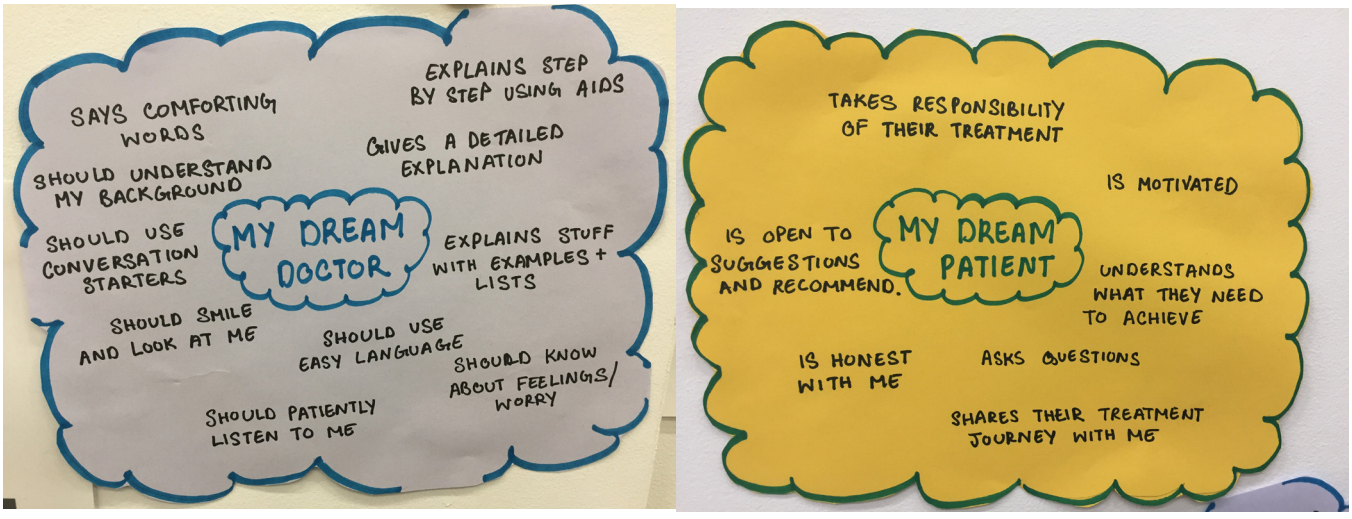


Fig 27- 28: Kanak Jaitli, Desires of doctors and patients, 2018.

Synthesis:
This was a breakthrough moment in the research. There is clear discrepancy between what patients expect from the relationship as opposed to the doctors. Patients have an emotional expectation from their doctor. They want their doctor to be patient and listen to them, traits which express a better interpersonal connection. Doctors on the hand expressed they want an information based relationship with their patients. They want patients to be open to suggestions and share their treatment journey with them as opposed to the patients who want doctors to use conversation starters and understand their feelings and/or worries. This insight from the primary research study is supported in the literature review. "A key factor for the patients seems to be the human relationship with the doctor, while for the doctor a key factor seems to be the difficulty in understanding the patient and obtaining relevant information." (Arborelius & Timpka, 2009)

During the primary research interviews conducted in Vancouver, nearly all the doctors pointed out that their patients use online searches to pre-diagnose themselves. Patient probes also highlighted the use of online sources to get quick information about the disease or treatment. This process of extensive online searching and the conversations around it can lead to an anxious experience for the patient and a frustrated experience for the doctor. "An individual who searches for medical information on the internet will likely be presented with multiple explanations for symptoms, some of which might be catastrophic explanations." (Fergus, 2013)

Synthesis:
Patient's often arrive at a set of probable diagnosis, which they have gotten through the use of these online sources. When they sit in front of the doctor, they often tell the doctor about the 'probable diagnosis they might have' and not the symptoms or the problem. A doctor recalled a conversation with a patient where the patient was so worried that her arm pain was a symptom of cancer. The entire 10 min were spent in the doctor explaining to the patient that google has not seen you and it does not know that you have muscle pain + thyroid problems + weak muscular structure. So most often, the agenda of the doctor and that of the patient don't align. Doctors have to probe the patients around to understand their symptoms. This probing often takes up the entire duration of the appointment.

OPPORTUNITIES IDENTIFIED

These gaps when looked at from a macro perspective all sit within the emotion-communication realm. These gaps open up several design opportunities.

OPPORTUNITY 1:

Why don't patients note things down?

In the probes, participants expressed that they usually tend to remember large amounts of information by noting it down on their phones or on paper. They also expressed that they carry phones and diaries to the clinic.

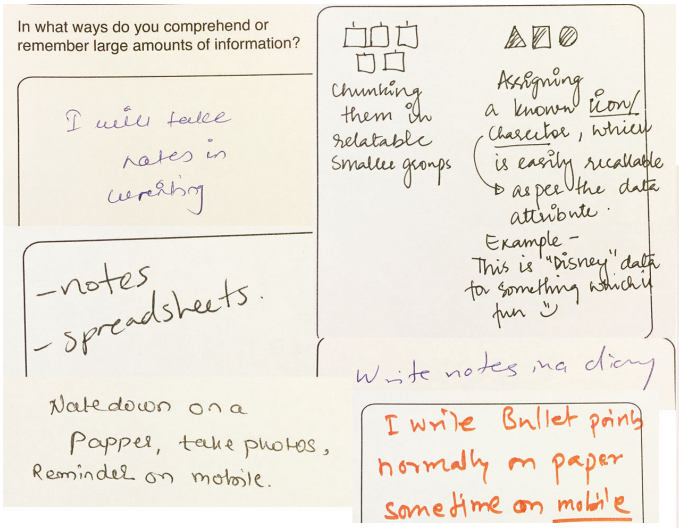


Fig 29: Kanak Jaitli, Remembering information, 2018.

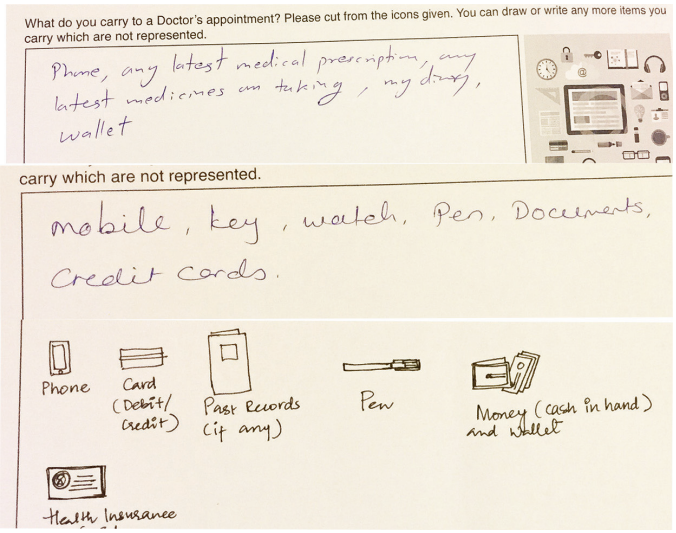


Fig 30: Kanak Jaitli, What patients take to the clinic, 2018.

But 'something' happens and they don't end up taking notes in their usual way. Why? The insight which points to this is that during the appointment moment, their minds are filled with anxiety that takes over all other cognitive thinking abilities.

Thus, 'How might we facilitate better ways of capturing spoken information in a clinic'.

OPPORTUNITY 2:

Another element was patients and the use of google.

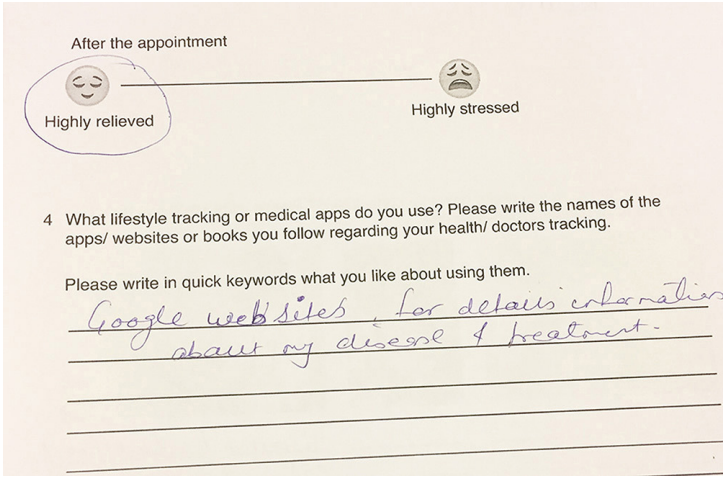


Fig 31: Kanak Jaitli, Google use by patients, 2018.

A doctor spends a lot of time putting google articles into context. The entire 10min timeframe is sometimes spent in addressing patient concerns over online sources. This often results in a misalignment of the patients and the doctor's agenda. (refer above)
'How might we find ways where we can better address the google concerns or possibly use google in more constructive ways in the clinic?'.

OPPORTUNITY 3:

The crux to having a comforting and healthy relationship with the doctor is the 10 min timestamp on it. This timeframe often results in a broken experience for the patient because multiple concerns means multiple visits.
'How can we look into better utilising and prioritising the 10 min timeframe that doctors and patients have?'

OPPORTUNITY 4:

A very relevant and interesting thing that came out from the probes was patients wanting the doctors to know that they feel anxious, sad, frustrated most times.

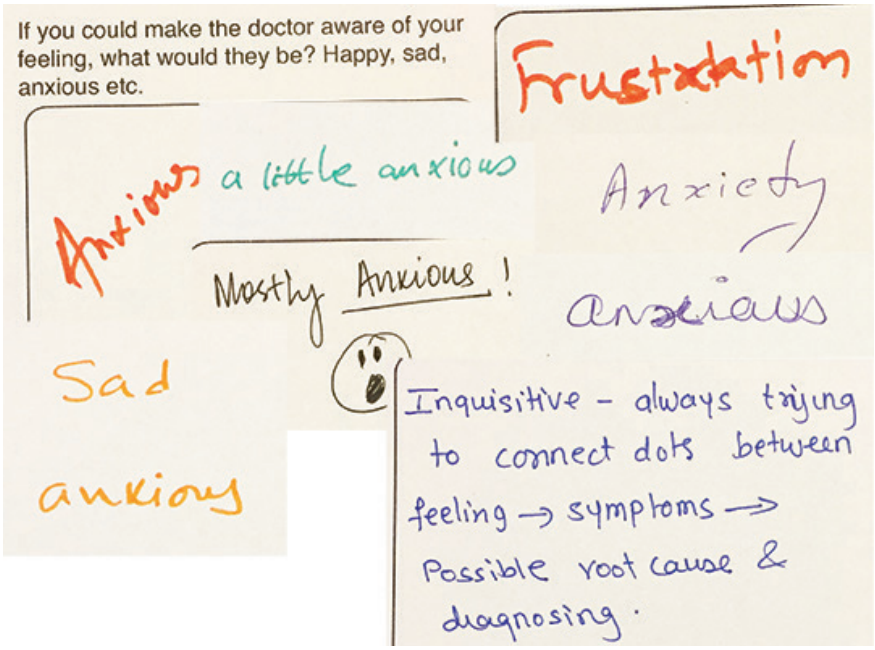


Fig 32: Kanak Jaitli, Patient emotion, 2018.

But doctors rarely ask patients 'how are you feeling?' Or 'let's talk about the feelings you might have with regards to this diagnosis'. The conversation starts mostly with 'What's the problem/ symptoms?'
'Can we communicate this patient emotion to the doctor and use it as an effective 'human connection increasing' tool?

OPPORTUNITY 5:

And lastly, despite the many communication methods used by the doctors, there is still a clear discrepancy between what doctors say vs what patients understand. Half the participants said that they don't understand the doctor's prescription and keep forgetting instructions. This leads to the cycle of repetitive explanation on the part of the doctor and repetitive question on the part of the patient.

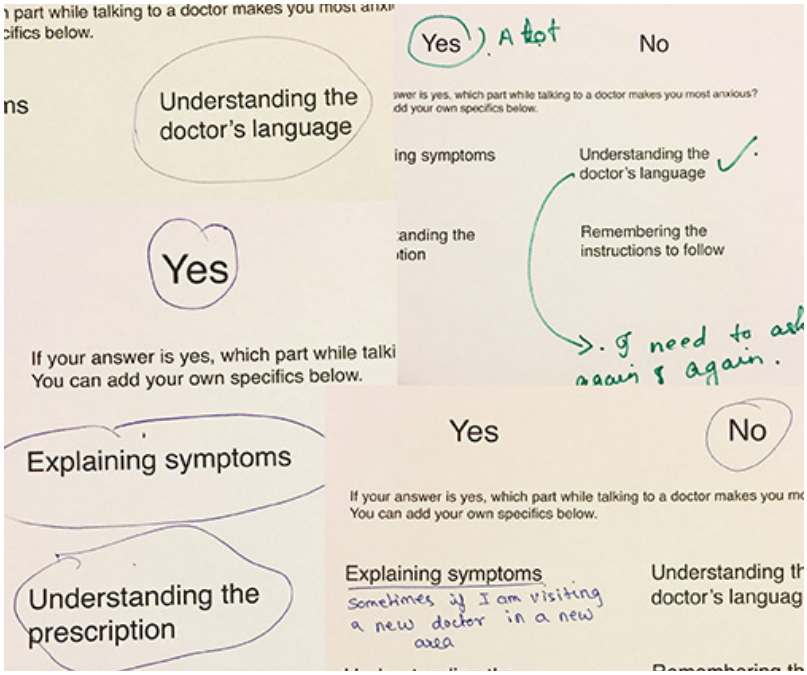


Fig 33: Kanak Jaitli, Challenges faced, 2018.

In this case we need a twofold way of exploration.

'There is a need to control the patient anxiety levels so that patients are more receptive and perceptive at the moment.' And then we 'need to introduce clear communication methods which help the patients in remembering the information.'

The opportunity areas, though listed separately are all interconnected and show themselves in the 10min timeframe.

SYNTHESIS PHASE 2

The analysis and evaluation of the primary research showed that patient's minds are often clouded with anxiety, which makes them less receptive to the doctor's instruction in the moment. This, coupled with the tight timeframe of the visit and reliance on verbal communication, causes loss of information, which in turn causes patient anxiety and doctor frustration. "Studies have shown that a physician often interrupts a patient within the first 18-23 seconds of the encounter." (Duke, Frankel & Reis, 2013) The primary research concludes that a decrease in patient anxiety and introduction of better communication methods in the clinic can lead to an increase in the human element between doctors and patients. This claim has its roots in the cognitive load theory. "Cognitive load theory has built upon this concept, looking specifically at the process of knowledge acquisition and how humans process information. Cognitive load theory describes working memory, which is the short term, limited capacity structure that everyone possesses in order to integrate new information or retrieve stored information for action." (Harry & Sweller, 2016) As evidenced in the primary research findings, doctors and patients are loaded with information during the clinic time. Doctors often see more patients in a limited timeframe, probe patients to understand their problem, go through medical information and make a diagnosis within the short timeframe. "Increased stress can be caused by factors ranging from unintended outcomes to high patient load. This increased stress decreases clinician's attention and working memory resources." (Harry & Sweller, 2016) Patients on the other hand, are already in an emotional state of mind in the clinic. Add to this the information that the doctor is imparting to them. Thus, the working memory of the patient is clouded with emotions that resist the intake of new information, ultimately causing forgetfulness or lack of understanding.

As Harry and Sweller, 2016 write, "this fundamental principle is related to the concept of resource theory and asserts that there is a limited amount of working memory that is available to process novel information." "Intrinsic cognitive overload is determined by the inherent characteristics or the degree of difficulty of the material being processed. Highly complex information that requires multiple elements to be processed simultaneously leads to a high intrinsic cognitive load, imposing a greater stress on the working memory." (Harry & Sweller, 2016). Thus, patients often have trouble answering doctor's specific questions in the moment, because of the 'working memory overload', which leads to them being slow, which in turn can led to doctors getting frustrated that the patient is taking up more time.

Since, technology will take over some portion of a doctor's duty, this provides a favorable ground to introduce the 'human connection' back into the relationship. "As computers recede into the environment, but increasingly help physicians find information quickly and easily, the result may be a release of time that will become available for building precisely the kind of caring relationships that both patients and physicians have always sought." (Shortlife, 1994) This insight led to the development of a narrowed exploration area being, 'How might we use strategic design thinking tools, to utilise and prioritise the appointment 10min timeframe in better ways, as to decrease patient anxiety and introduce better communication methods?'. This was the main question for the phase 3 exploration.

PHASE 3: PRIMARY RESEARCH (2) EXPLORING PATIENT ANXIETY & COMMUNICATION WITHIN 10MINS

This question was navigated in four specific sub areas for the next set of explorations.

MED SCHOOL PEDAGOGY APPROACHES

To understand patient anxiety in the clinic, one approach is to understand how doctors are taught to look at patient behaviour and emotions.

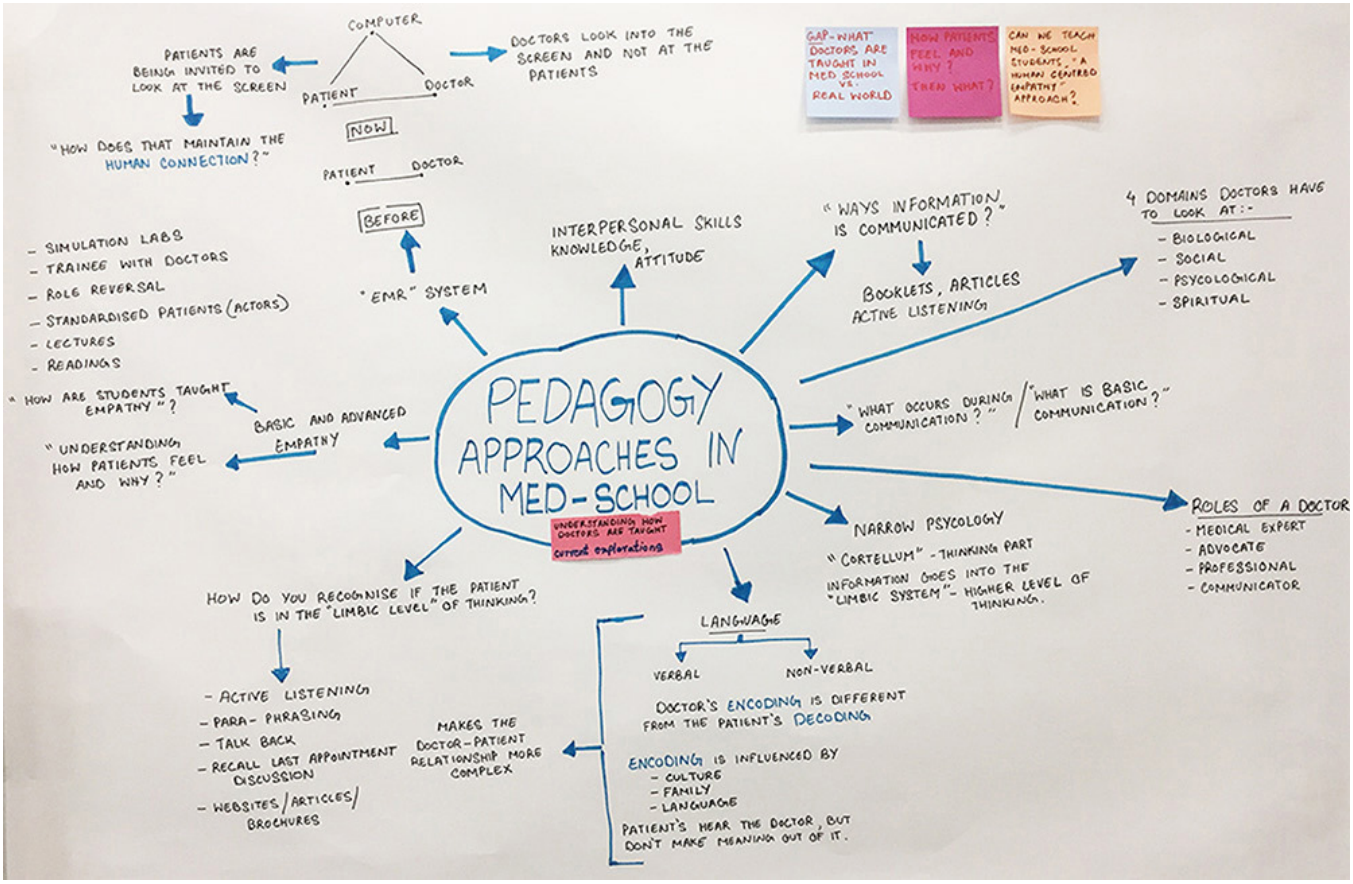


Fig 34: Kanak Jaitli, Pedagogy approaches in med-schools, 2018.

Sources: Med school professor interview
Improving communication, the ideas of John Wallen, 2012
A basic communication skill for improving interpersonal relationships, 1968
How to Integrate the Electronic Health Record and
Patient-Centered Communication Into the Medical Visit: A Skills-Based Approach, 2013
The interpersonal gap,

Interview with a med-school professor and literature review, brought to light four points which contribute to the research area. Doctors are trained in developing their interpersonal skills using certain techniques such as: having trained actors as patients, role reversal, and having simulation labs which evaluate the student's response towards a patient. Doctors are also trained in using certain methods when having a discussion with the patient, like active listening, talk back, para phrasing the main points and asking patients to recall the last discussion points. "The goal is to have the patient teach the physician what was just discussed. This checks the patient's level of understanding. It also acts as a bridge between physician and patient." (The college of family physicians of Canada, 2016) But there is less teaching about bringing the technology into the scenario while caring for the patient. "Integration of the EHR is not formally addressed in medical education, residency, or continuing medical education." (Duke, Frankel & Reis, 2013)

What makes the doctor-patient relationship complex is the use of language and the meaning making behind it. Communication is often verbal and/or non-verbal in nature. The determining factor of successful translation of information between the doctor and the patient comes down to encoding and decoding. In most cases, the doctors encoding (what they want to be understood) is different from the patients decoding process (what they understand) and vice-versa. This is influenced by the cultural references, family background and the use of language of both the doctors and the patients.
(Chinmaya & Vargo, 1979) (Duke, Frankel & Reis, 2013) (Wallen, 1968) (Wallen, 1968)

A valuable insight from the interview was the gap between the lack of transfer of these interpersonal skills into the real world clinics. Some reasons for this can be the debt a doctor has to pay especially in the early years of leaving med-school, doctors are overloaded with paperwork having to fill out both the EMR and paper sheets, doctors are paid by the number of patients they see in one day and the tight time rules make it a more hurried process. Another insight was the way doctors are taught to look at empathy. Empathy is typically understood as 'understanding how patients feel and why?'. Doctors are taught to acknowledge the emotions of the patients and the reasons behind it but the 'what can be done' or the 'acting on those emotions', within a short timeframe is often missing. Thus, there seems to be an almost predicted lack of emotional counselling in the real world clinics.

It's not just the doctors who are responsible for ensuring a better relationship. Patients have a part to play in it too. Patient expectation is a growing problem which has a negative effect on the relationship. Patients cannot take 'no' as an answer from their doctors. Often times, patients do not share their treatment journey with the doctors or are not truthful about their treatment process, which makes a doctor's job of convincing the patient harder than usual. "Many patients do not want to admit they have difficulty reading or understanding information". (The college of family physicians of Canada, 2016) Thus, the relationship needs to be looked at from both the sides. Introducing interventions which target the needs of one and not the other would eventually lead to a breakdown of the relationship further. Thus, the design strategies being developed further on in the thesis, have elements within it which cater to both the doctors and the patients.

COMMUNICATION & EMPATHY

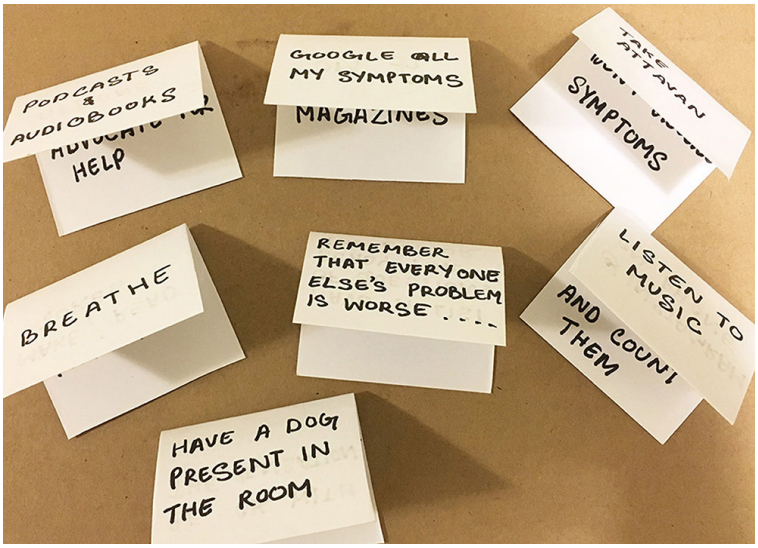
The aim was to understand if participants view empathy and communication separately or something which goes together. Participants were given a set of six different scenarios that take place between a doctor and the patient within a 10 min appointment visit and red and yellow dots. Red showing empathy and yellow showing communication. They had to mark where they saw a lack of empathy or communication. According to the participants all 6 scenarios had communication and empathy problems happening within them, some within the same frame. In doctor-patient relationships, emotions intertwine with the communication aspect. Patients ask for a more emotional relationship and doctors ask for a more informational relationship. Thus, there is communication in the clinics, but the lack of or dwindling empathy is making it move towards a more static exchange of words and information. There is a beginning of lack of 'human connect' in communication. "...Expects physicians to be friendly, concerned and sympathetic and to take time and trouble for questions and explanation." (Korsch, Gozzi & Francis, 1968) This pointed to the direction-clear communication disintegrates without empathy.

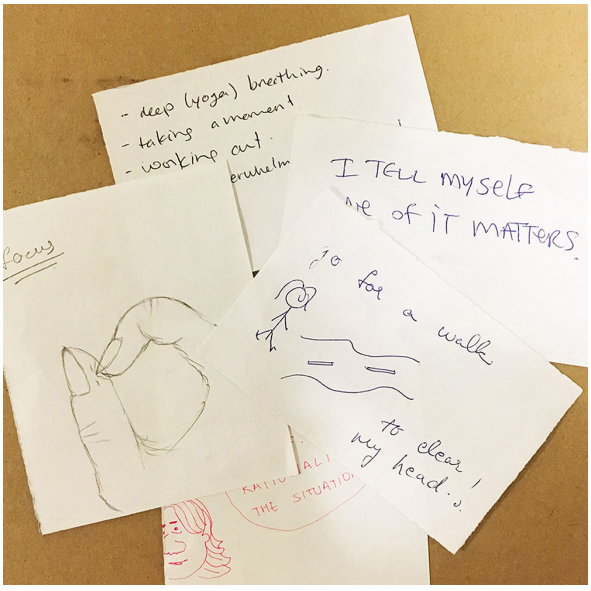
Fig 35: Kanak Jaitli, Communication and empathy probes, 2018.

ANXIETY RELIEF

The third set of exploration was centered on asking participants and the general public how they block out anxiety in a doctor's clinic. The results show that anxiety manifests itself in subtle forms in the clinic.

Participants were asked to contribute some methods they use to shut off anxiety, especially in the doctors clinic





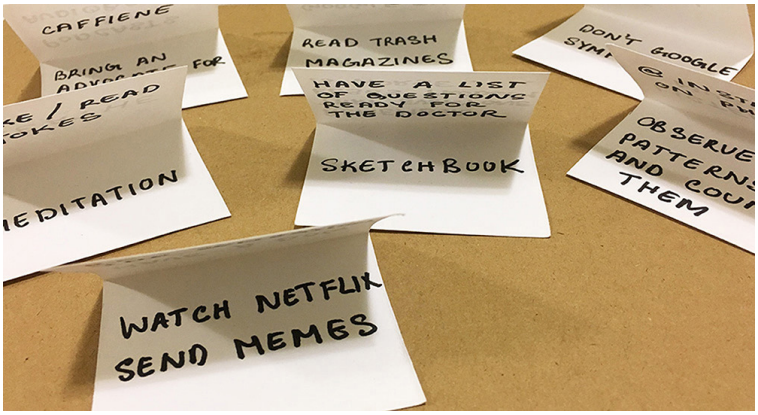


Fig 36: Kanak Jaitli, Anxiety relief methods, 2018.

These are nothing but mind occupying activities. Most people do go through an anxious phase before going into examination room. Can these tips and tricks provided by people themselves be used in a different way when interacting with the doctor?

RE-STRUCTURING 10MINS

The fourth set of exploration was asking participants to reorganise and prioritise their 10mins with the doctor. Doctors and patients need to have enough fluidity to divide the 10min accordingly. "Indicating the time available can help the patient and clinician realize that not all possible issues can be addressed; some may need to be deferred to a later visit." (Duke, Frankel & Reis, 2013) Some participants expressed they would want to spend 4min listening to the treatment and 2min explaining their symptoms. This sits in contrast with what doctors expressed in the interviews- they spend a lot of time probing patients about their symptoms. This shows that patients are not always aware that they are having trouble explaining their symptoms. But most of the participants said they would want to spend more time listening to the doctor's diagnosis and clearing any additional concerns they have. This, links back to the primary research insights of patients having anxiety in their minds which often makes them less receptive to the doctor's instructions. They might think they are listening and retaining everything, but the lack of any physical note taking and relying on verbal communication as the sole method of remembrance, often leads to a loss of important information. There is a clear disconnect in the way people hope to structure their 10mins and what really happens.

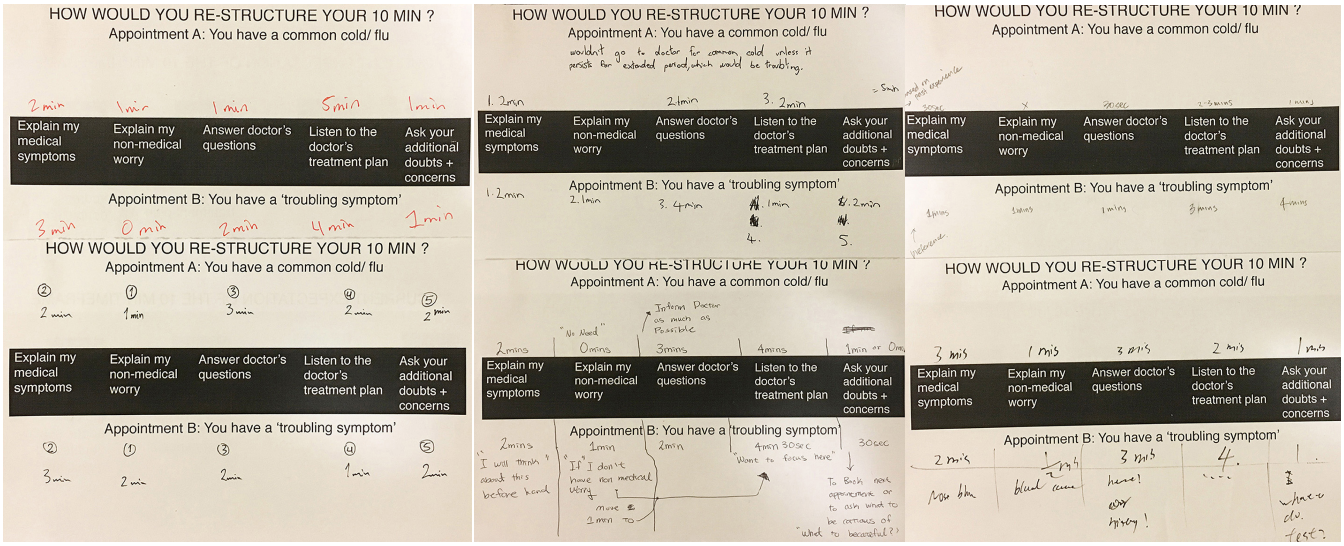


Fig 37: Kanak Jaitli, Re-structuring 10mins probes, 2018.

DESIGN OUTCOMES

The research culminates into two design possibilities which can be taken forward for further exploration. These being a set of design opportunities and design interventions.

DESIGN OPPORTUNITIES

The research into doctor-patient relationships resulted in a set of design opportunities identified and developed through the primary research (refer to the section above). These opportunities all aim at increasing the human connection between doctors and patients. Though they seem different, the opportunities are interlinked to each other. The design interventions described below are a result of carrying forward one of the opportunities and ideating within it. Individual opportunities can be taken ahead as exploration questions for future research stages.

DESIGN INTERVENTIONS

The insights from the primary research led to a small sprint of ideation. These ideas are in an initial stage of exploration and the next phase will be to develop, prototype and test them. These design interventions, in different ways, answer to the main claim of the research- 'decrease in patient anxiety and introduction of better communication methods can lead to an increase in the human connection in the 10min timeframe of a doctor's visit (refer to primary research section for theoretical backup of the claim). In order to better the patient experience, we need to keep in mind the additional 20min-1hr that the patients spend in the waiting room. Thus, one strategy that the thesis is adopting is to look at the entire 1hr 10min as opposed to just the 10min.

Intervention 1: An object that can sense your feelings Approach

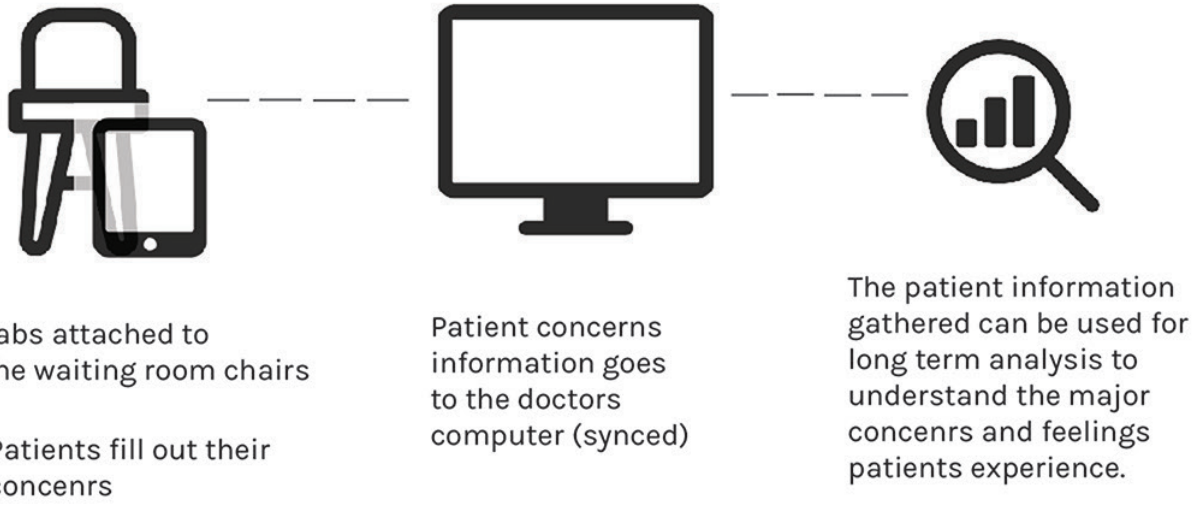


Fig 38: Kanak Jaitli, Intervention1 approach, 2018.

Tool

A tool that asks patients their feelings and worries. Based on the feelings chosen, it asks questions regarding their main worries, medical/ non-medical concerns, questions about their problem. This information can be quickly glanced over by the doctor, during the first few seconds of the appointment. Thus, for example, the doctor can discuss the worries which are causing patients anxiety. This can make the doctor take a step back and acknowledge the patient's emotions. It can also make the patient voice out their feelings and concerns in a quick and crisp manner over a period of time.

Activity

Waiting room chairs have tabs attached to them → Patients pull out the tab → Patients fill out the information on the tab → Patient number and the information shows up on the doctors computer → Doctor discusses patient's feeling and worries

Scenarios

Space

In the Waiting Room

In the Clinic Room

User Benefits

Patients

Utilising the long waiting mins to better articulate feelings and worries.

Saves time as patients don't need to hunt for words to explain

Doctors

Saves time for the doctor as they can have 'discussion points' ready.

Makes the doctors take into consideration the patient emotions at the moment

Time

5-20mins depending on the wait time

Few seconds to glance over

1-2 mins or can flow in the discussion treatment

What it 'feels' like

Patients

Nervousness at bringing feelings to words → Relief + sence of control → Relief at discussing worries

Doctors

Basic idea of what patient feels and thinks without probing → Incorporate patient worries into treatment discussion

Fig 39: Kanak Jaitli, Intervention1 stages, 2018.

Intervention 2: Mini History Lister Approach

Fig 40: Kanak Jaitli, Intervention2 approach, 2018.

Tool

This can be small paper/ digital booklet which asks people their version of what they think has happened to them. It also asks patients their fears, worries, activities for the last couple of days, food eaten and why they think they are facing this problem. The aim is to provide the doctor with medical as well as non-medical history of the patient.

Activity

Forms kept at the reception desk → Patients fill out the form → Information on the form → Doctor and the patient discuss over the form → Patient captures/ catalogues the form

Scenarios

Space

In the Waiting Room

In the Clinic Room

Post Visit (home)

User Benefits

Patients

- Utilising the long waiting mins to better articulate feelings and worries.
- Have a written record of the visit + have doctor points jotted down
- Can take the paper to the family doctor.

Doctors

- Can understand the patient mindset
- Get a basic patient history
- Basic information about the last doctor visit

Time

5-20mins depending on the wait time

5 mins to open. Points can be incorporated during the treatment talk.

What it 'feels' like

Patients

Nervousness at bringing feelings to words → Relief + sence of control → Relief at discussing worries → Notes for future reference

Doctors

Basic idea of what patient feels and thinks without excessive probing → Incorporate patient worries into treatment discussion

Fig 41: Kanak Jaitli, Intervention2 stages, 2018.

Intervention 3: Feeling Indicator Approach

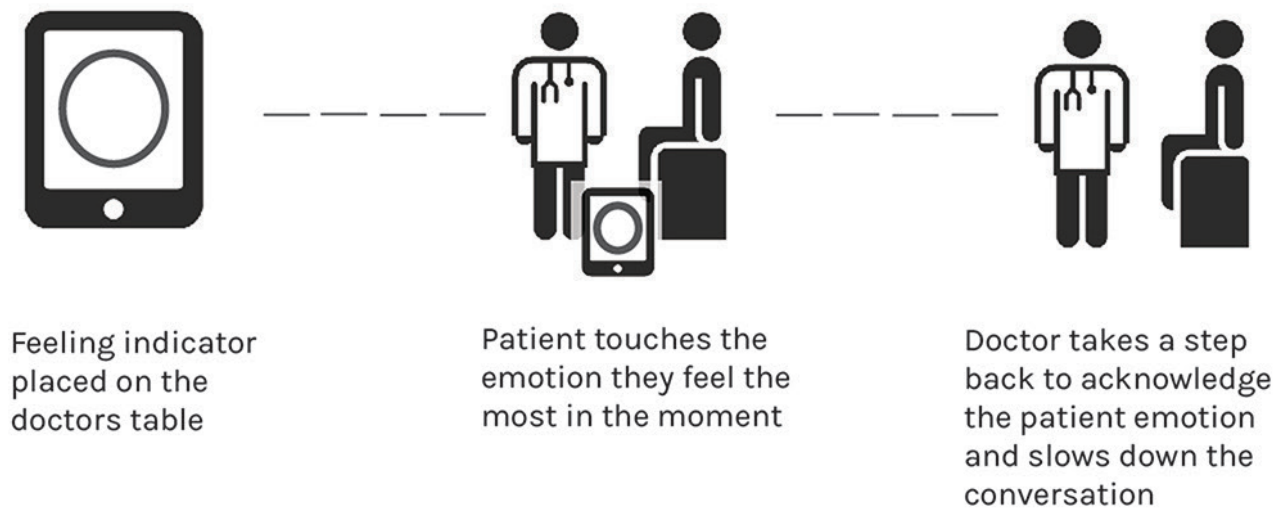


Fig 42: Kanak Jaitli, Intervention3 approach, 2018.

Tool

We need to make the doctors aware of what patients are feeling at the moment. A feeling indicator lets patients voice out their feelings and make the doctor take a step back and address those anxiety or frustration points. This can lead to a change where over a period of time patients can become more open to voicing their emotions and concerns that come with it.

Activity

Symptom Explanation → Treatment explanation by the doctor → Patient indicates anxiety by touching the 'feeling indicator' → Doctor stops, noticing the red light. → Doctor discusses patient concenrs

Scenarios

Space

In the Clinic Room

User Benefits

Patients

- Placing a hand on an emotion can be easier than trying to interrupt the doctor.
- Making the doctor take a step back from the hurried explanation
- Voice out concerns once the doctor notices the anxiety

Doctors

- Better attunement with patients emotions
- Quick feedback on whether patient is understanding the explanation
- Address patients concerns in the moment

Time

10-15 mins appointment time.

What it 'feels' like

Patients

Doctors

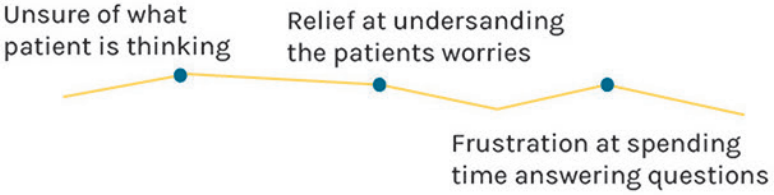


Fig 43: Kanak Jaitli, Intervention3 stages, 2018.

Intervention 4: Life vest Kit Approach

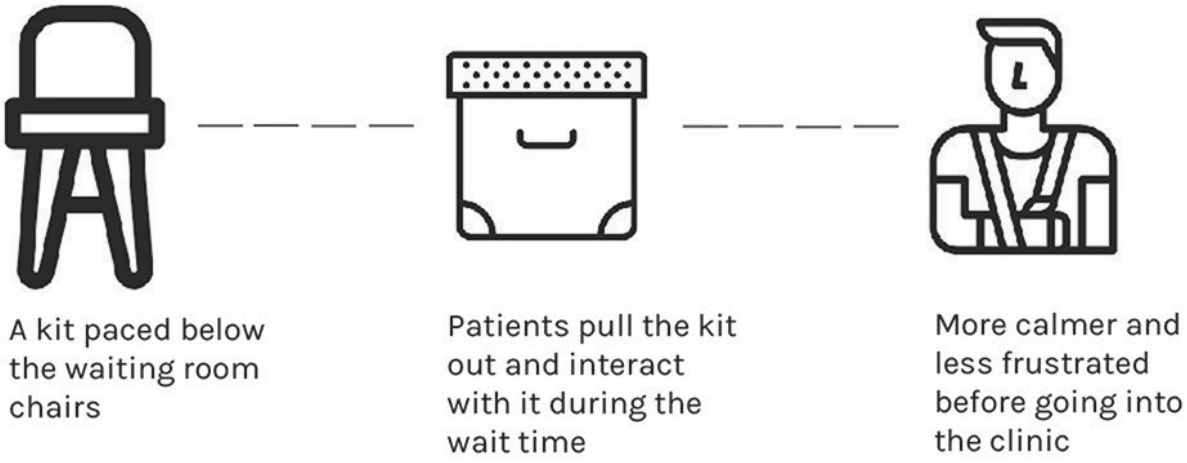


Fig 44: Kanak Jaitli, Intervention4 approach, 2018.

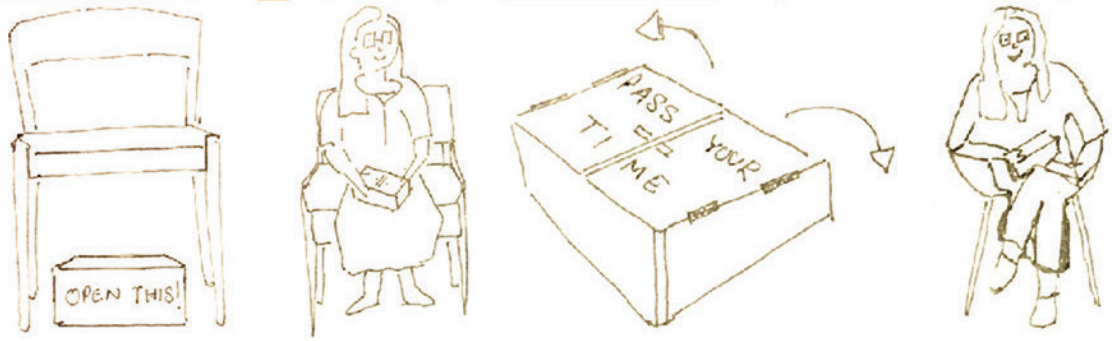
Tool

Pull out your kit from beneath your chair in the waiting room. A small kit which acts as an anxiety reliever where patients can utilize their 1hr waiting time to jot down their thoughts, emotions and concerns. The kit can also have elements in it which keep people occupied.

Activity

Kit beneath the chair in the waiting room → Patient pulls out the kit and opens it → Patients play around with the kit contents → Patients are less frustrated before going into the doctors cabin

Scenarios



Space

In the Waiting Room

User Benefits

Patients

- Keeps patients occupied during long wait times
- Kit can contain contents curated by the local clinic staff- stress balls, pop clips, sleep cap, activities- these can make the patients ocuupied in the moment
- Less frustrated & irritated before going into the cabin
- Be in the moment
- Easy passage of time

Time

Depends on the wait time.

What it 'feels' like

Patients

Fig 45: Kanak Jaitli, Intervention4 stages, 2018.

Intervention 5: Fluffy Patient Advocate Approach

Fig 46: Kanak Jaitli, Intervention5 approach, 2018.

Tool

A object that goes with people into the clinics, notes information down for them and conveys to the doctor what the patient is thinking. Thus, the patient can have catalogue of the main points discussed with the doctor, if at all they need to reference it in the future.

Activity

Patient has a fluffy advocate to the clinic

Patient can note down their concerns

The advocate assits patients in the cabin

Use the catalogied information for further reference/ visits.

Scenarios

Space

In the Waiting Room

In the doctors cabin

Post visit

User Benefits

Patients

Fluffy body acts as a comforter during wait times

The advocate takes over the note taking/ reminding roles which makes patients more relaxed in the moment

The catalogied information can be used for further reference/ future doctor visits

Time

10-15mins visit time

What it 'feels' like

Patients

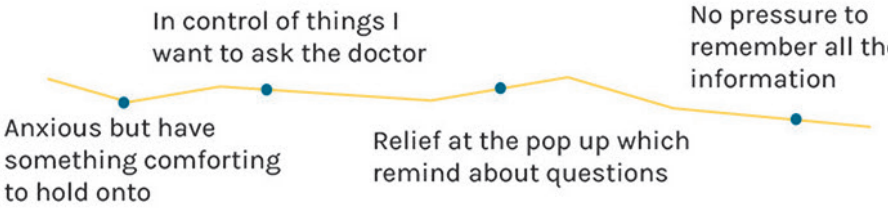


Fig 47: Kanak Jaitli, Intervention5 stages, 2018.

Intervention 6: Interactive Prescription Approach

Patient uses a note taker during the visit time.

The doctor notes down the patient treatment plan in the EMR

Patient can log into the EMR and view + flag concenrs/ discussion points

Fig 48: Kanak Jaitli, Intervention6 approach, 2018.

Tool

An interactive prescription, which is a shapeshifter. It acts as a to-doist which notes down the patient concerns or what they would like to talk to the doctor about. It can flag concerns and question while the patient and the doctor are interacting in the clinic. It can be a shared prescription between the doctor and the patient.

Activity

Patient notes things down on the tool.

Doctor makes changes in the EMR and sends an invite to the patient

Patient can log in and review the doctors notes

Scenarios

Space

In the doctors cabin

Post visit

User Benefits

Patients

Patient can take notes as the doctor speaks

Patient can see the doctors comments in their own comfort zones

Patients can flag points which they want to discuss in the next appointment

Set reminders so that their flagged concerns show up during/ before the visit time

Doctors

Share their treatment details with the patient. Patient can take their time in understanding the information.

Patient comes in with crispt and prepared questions, saving time

The information can be easily transfered between family doctor and walk in doctor.

Time

10-15 mins appointment time.

What it 'feels' like

Patients

Noting information can be stressful while talking to the doctor

Peace of mind at knowing the doctor will share the treatment plan

Read and understand the plan peacefully

No need to remember points to discuss in my mind

Doctors

Glad that the patient will take their time and read the treatment plan

Fig 49: Kanak Jaitli, Intervention6 stages, 2018.

CONCLUSION

This thesis focuses on exploring and analysing the front end or the problem area of the doctor-patient relationship. This research sits within the 'grounded theory framework', where exploration of existing questions leads to new areas to be explored. The research question evolved from 'how might we increase the human connection between doctors and patients, in a technology driven future of healthcare' to a more precise one being- 'How might we use strategic design thinking tools, to better utilize and prioritize the 10min timeframe of a doctor's visit to decrease patient anxiety and introduce better communication methods?'.
The project follows a service design approach and uses the mental model method (Young, 2008) as the main method for generating insights. Apart from this, interviews, cultural probes, affinity maps, journey and stakeholder maps are used along the design research process.

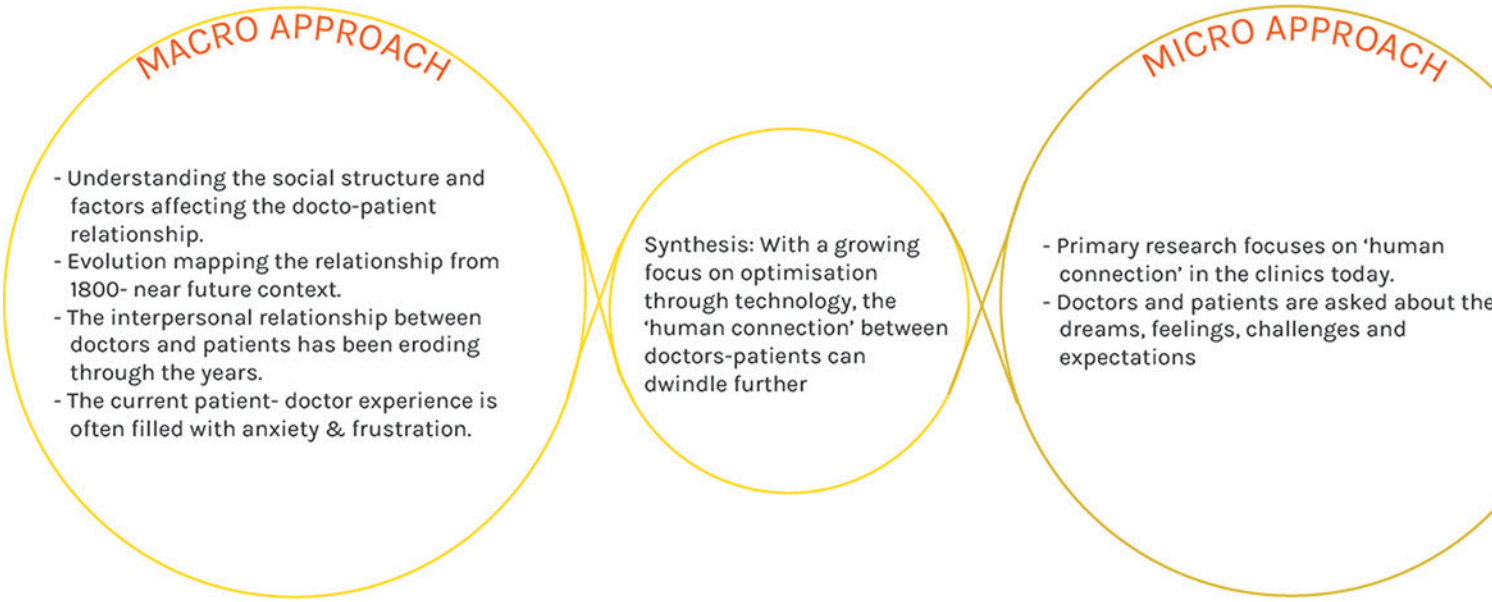
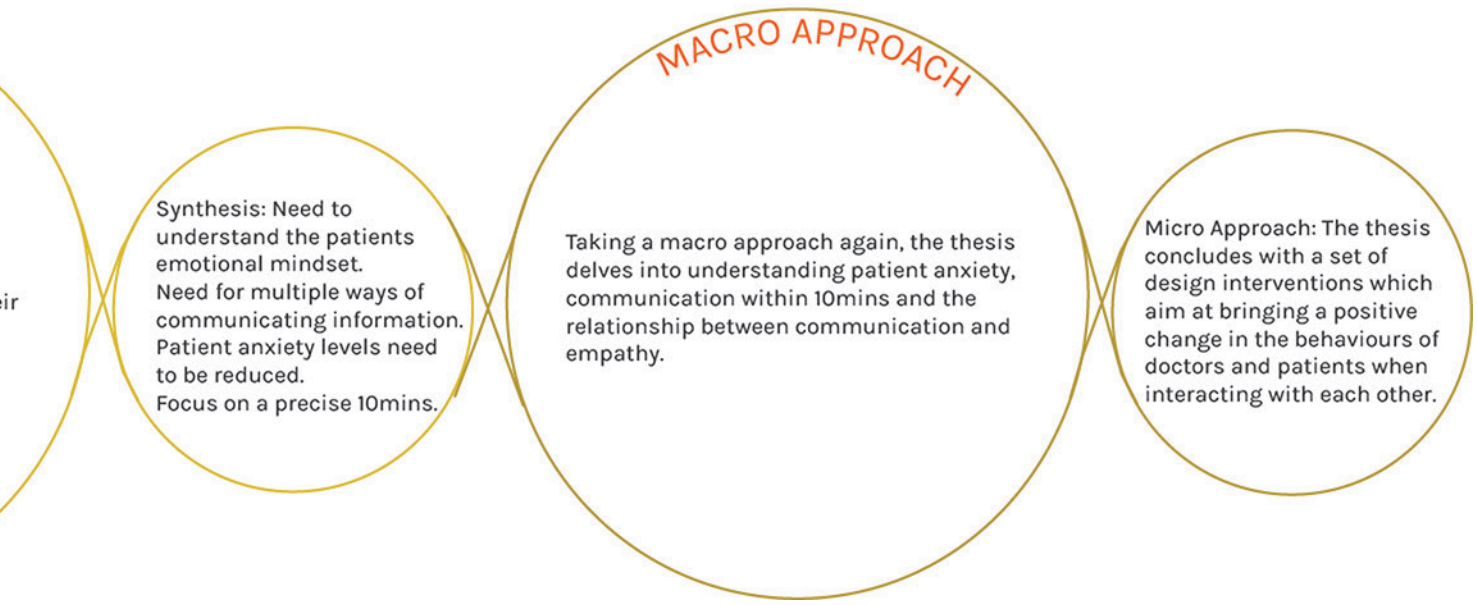


Fig 50: Kanak Jaitli, Conclusion, 2018.



The doctor-patient relationship has been explored from different angles and the project sits within the interdisciplinary realm. The different perspectives which shape the thesis are: Doctors and patients perspectives, Med school professors and the design researcher's perspectives.

CONTRIBUTION TO DESIGN

The thesis, in a preliminary level, contributes to the vast field of design research. It acts as an example, among many others, of the 'research through design' process. The thesis shows the analytical and creative blend that form the core in navigating the complex issue of doctor-patient relationship. A set of design opportunities, laid out through the research, can be used as topics of future research. The design interventions are intentionally left ambiguous so as to inform other disciplines. An interaction designer can develop the interventions by making apps, websites or online systems. A communication designer can can develop the interventions by creating change campaigns. An industrial designer can develop the interventions by creating products and services. Thus, the thesis can be carried forward both in research and design development directions. The research also contributes to the growing culture of using probes in the design process. The action framework adopted uses generative design methods to arrive at new insights. And lastly, it forms a part of relational design as the core focus is on understanding people who communicate in stressful, emotion driven situations.

REFLECTION & CRITICAL ANALYSIS

This two-year journey has made me realise that as a designer, I enjoy design research in the 'fuzzy front end' of finding the right opportunity space for design interventions. It has sparked my interest in the strategic and service design research realm and given me a starting point for further work within this design field.

The most interesting aspect throughout the project was the evolution mapping of the doctor-patient relationship through the ages and the prediction into the recent future. This generative design method set the stage for the research inquiry and the further growth of the project. The evolution mapping focused on the social structure of the society and more on the interpersonal relationships between doctors and patients, leaving the political aspect out of it. Including the political aspect into the evolution stages would have given the research question a denser backing than it already has.

The other important learning for me was from the cultural probes. It was my first time, as a designer, to design a set of probes to be handed out to people. Some questions focused more on the elements and desires of how people visualise or hope to visualise their doctors. A lot of information analysed from the probes pointed towards a loss of the human element as described in the primary research section. The probes lacked questions which captured the details of what really happened in these clinics. An example is patients pointing out in their probes that they find it hard to understand the doctor's language. This was not delved into deeper because of the ethical limitations to the study. But despite these limitations, the information gathered from the probes reflected a strong emotional opinion of the participants.

Another important insight for me personally as a designer was my comfort with mapping information. Mapping was the main method throughout the phases of the project. The explorations of various sub elements within the doctor-patient relationships, all yielded many different tangents. An example being, research into med school pedagogies pointed out the opportunity of 'including human centered design for med school students'. These are just initial exploration points and need to be further researched to be proven effective or vice-versa. And lastly, some of the design interventions generated have a digital element in them. The solutions need further development and user testing which forms the next stage. This two-year journey was a personal experience of understanding where my strengths lie in the design field and also understanding new areas of service and strategic design.

FUTURE DIRECTIONS

Working within the broader problem area, leaves ample scope for the project to move into different directions. The outcomes within this thesis lay out two distinct approaches for future work. The design opportunities presented are all open ended exploration questions which can be taken forward for further research. The design interventions, on the other hand, are in the initial ideation stage and can be carried forward for further ideation, exploration, prototyping and user testing.

The thesis lays down the key stakeholders and the interactions between them and how this affects the current doctor-patient relationship. Another future possibility will be to map out how the design interventions are affecting the stakeholders at large. What are the gain points for the stakeholders which will lead to easy adoption of the designed interventions? Including nurses into the research scope and mapping out how they make their mark in the relationship is also another future direction. Since the core focus is on understanding how doctors and patients interact in stressful situations, the design process and strategies used to explore and analyze the relationship can be taken to other fields where people communicate within similar situations.

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APPENDICIES

A

B

C

D

A 01 Detailed Journey Map

The journey map was an ongoing activity through one month and was populated with observations through literature reviews and participant feedback. The map was divided into what a patient- does, says, thinks and feels during the journey in the clinic. Subsequent analysis of this information resulted in the below shown, concise patient journey. Some notes taken in the map were: doctor sits across the table and says 'OK' a lot, patients often ask the receptionist 'how much more wait time? And the mind of the patient has many questions that need explanation. The insights from the journey map lead to many observations an gaps which were not directly related to the thesis inquiry, but are important to be mentioned to understand the system within which the doctor-patient relationship exists. These gaps identified are: not all patients are asked medical history and background in a walk-in clinic appointment. This can be due to the strict timeframes and causes an overall hurried experience for the patient. The overwhelming and confusing visit to the doctor can in turn affect how the patient manages their own illness. Having incomplete and unclear information can result in multiple doctor visits which cause more anxiety to the patient.

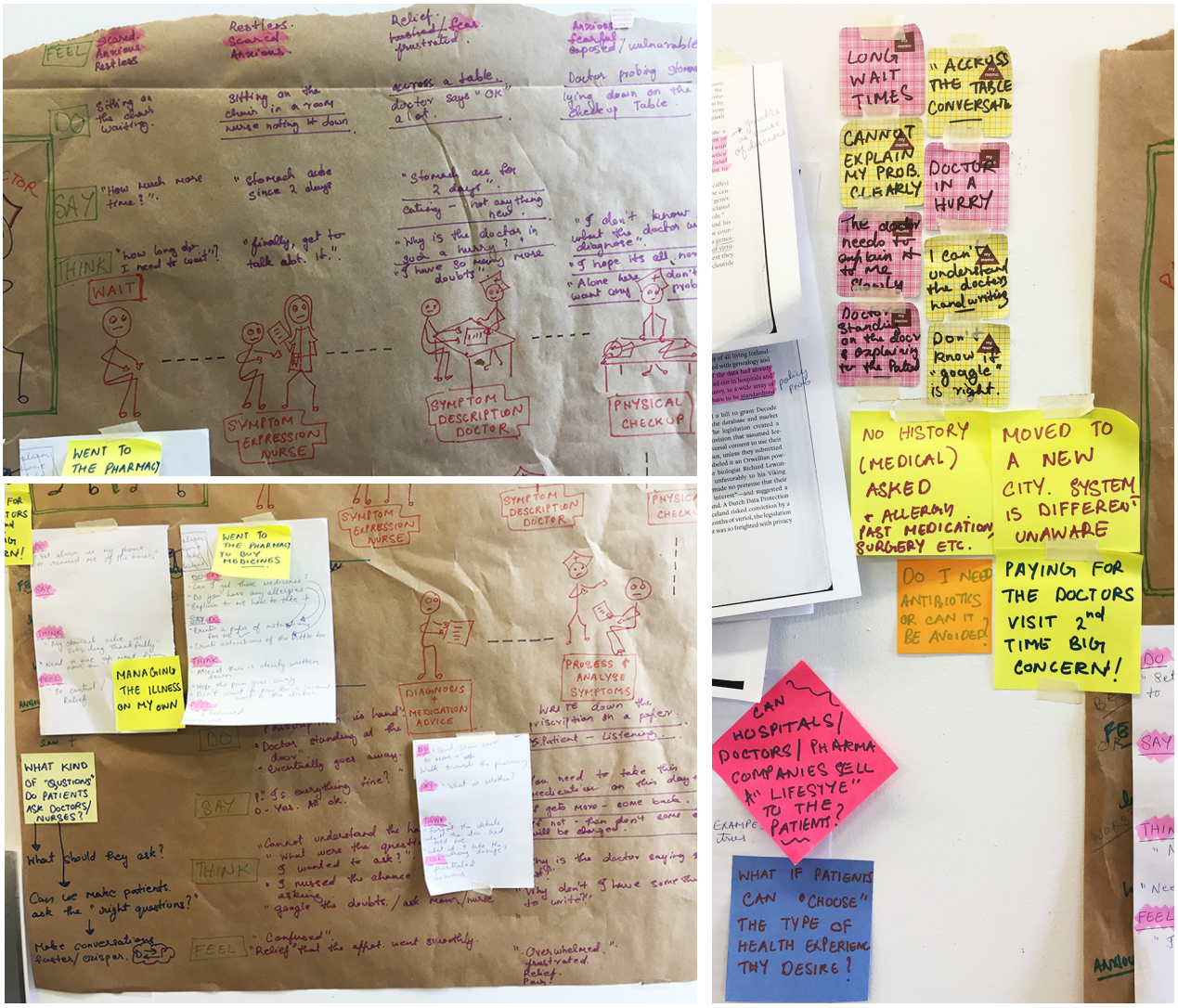


Fig 51- 53: Kanak Jaitli, Detailed journey map, 2018.

02 Understanding Faces Of Anxiety

Post the emotion graph activity, which showed that anxiety is experienced by most of the participants during an appointment with the doctor, this insight was taken further by mapping the many faces and thoughts of anxiety. This was an action aimed at understanding the thoughts, emotions and changes people go through when anxious especially in a medical situation.

Fig 54: Kanak Jaitli, Anxiety faces, 2018.

Each card shows the problems people face. Some can get intimidated with the medical information presented online, some experience extreme overthinking and fear about recurring symptoms, for some the next appointment date is a sign of nervousness and some people just cannot put their concerns into words. These are not participant information but derived from the case studies and personal experience of the researcher.

03 Futuristic Scenarios

During the evolution mapping process, one of the actions for the near future section of the map was imagining how the recent future of doctor-patient interaction might look like. This took the shape of a set of futuristic scenarios shown below.

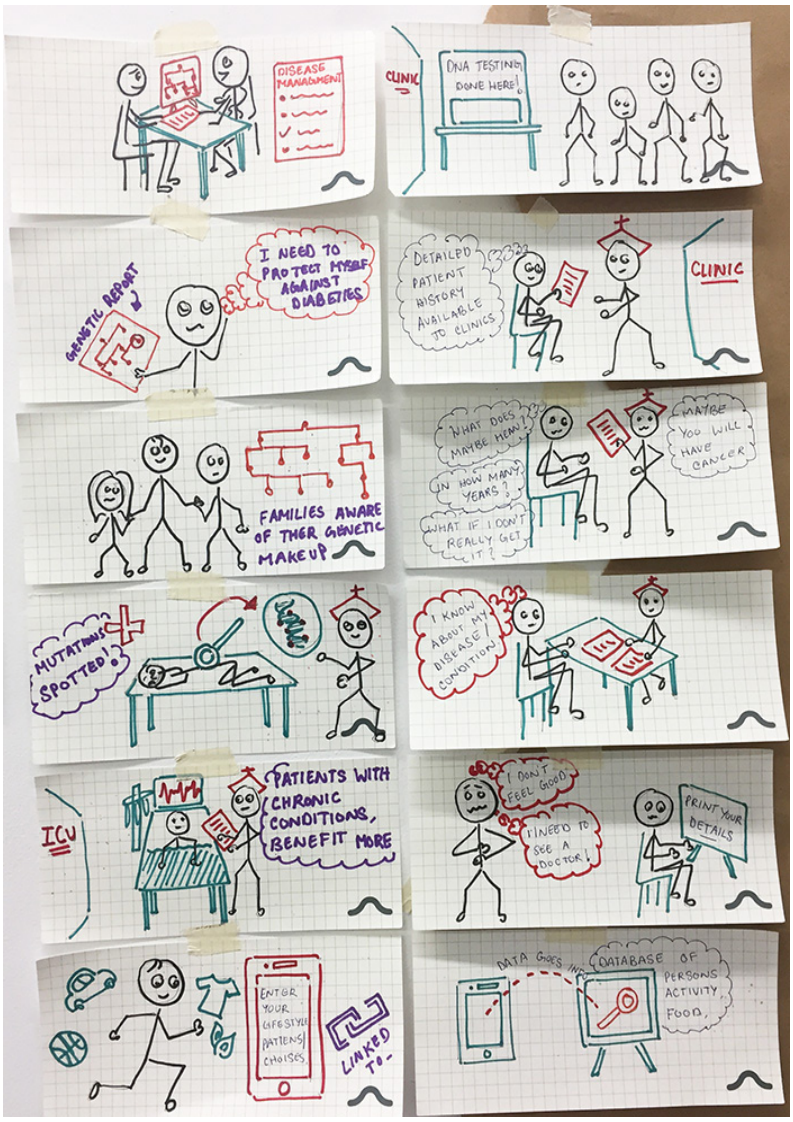


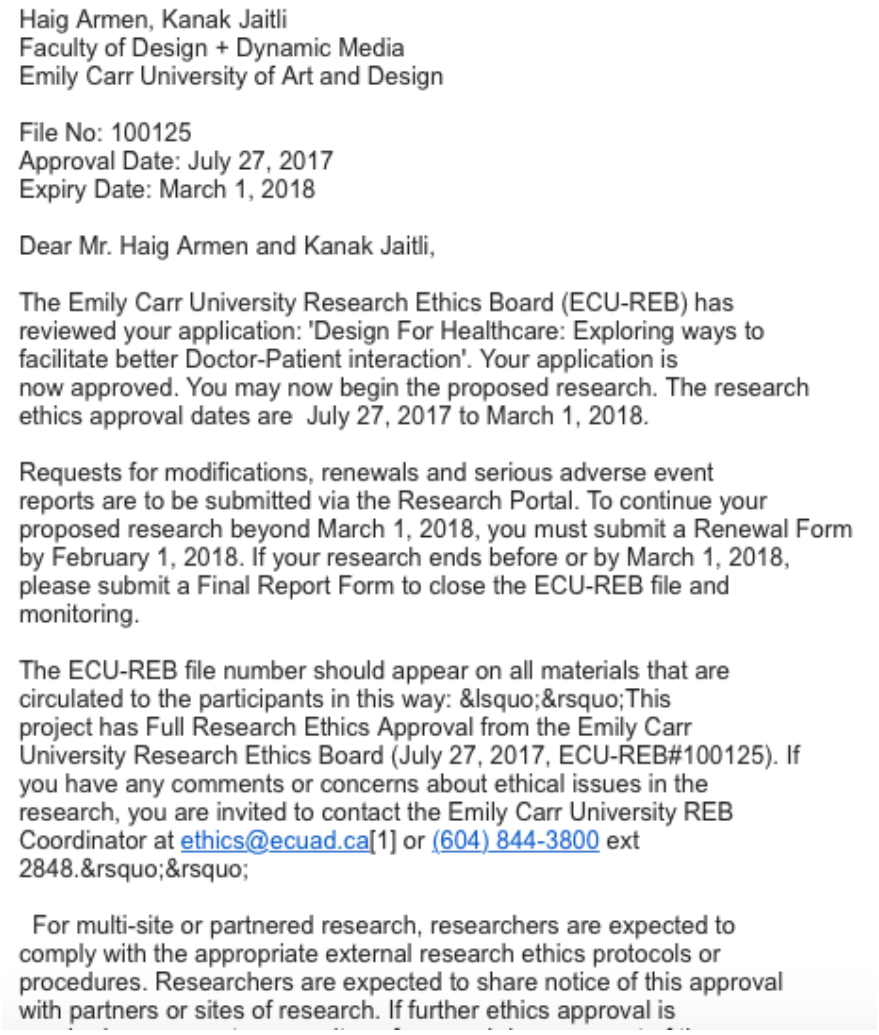
Fig 55: Kanak Jaitli, Futuristic scenarios, 2018.

With the increasing use and development of sophisticated technology, a patient will have myriad of choices to support them in their decision. So will some part of the doctor's work be taken over by technology.
Scenarios depicted above are: DNA testing machines in grocery stores for patients to be aware of their medical history. Technology to go with this, can keep patients formed of every tick and change in their body. E-appointments with the doctor as substitute to visits. Patients don't need to interact with their doctors much as diagnosis and treatment can be explained and guided over through the use of sophisticated technology. These scenarios opened the areas of how effective would this sophisticated technology based interaction be?

B01 Ethical Considerations

Ethics regulations as stated by the TCPS 2: Ethical Conduct for Research Involving Humans (Government of Canada, 2010), are followed for the research study. The activities are within the minimal risk parameters (attached risk and review results). Participants ages 25+ can be a part of this study and can withdraw any moment she/ he wants to. The doctors will be interviewed as experts of their fields. No personal medical questions/ diagnosis of any kind will be asked of from the doctors as well as the people. Consent and media release forms are signed both from the doctors and the patients before beginning the interview or the cultural probe process. The reasons for the research and the background of the researcher is told to the participants and explained in the consent forms. All the information gathered has been anonymized and not identified by the name of any participant in the body of the thesis.

02 REB Approval email



Haig Armen, Kanak Jaitli
Faculty of Design + Dynamic Media
Emily Carr University of Art and Design

File No: 100125
Approval Date: July 27, 2017
Expiry Date: March 1, 2018

Dear Mr. Haig Armen and Kanak Jaitli,

The Emily Carr University Research Ethics Board (ECU-REB) has reviewed your application: 'Design For Healthcare: Exploring ways to facilitate better Doctor-Patient interaction'. Your application is now approved. You may now begin the proposed research. The research ethics approval dates are July 27, 2017 to March 1, 2018.

Requests for modifications, renewals and serious adverse event reports are to be submitted via the Research Portal. To continue your proposed research beyond March 1, 2018, you must submit a Renewal Form by February 1, 2018. If your research ends before or by March 1, 2018, please submit a Final Report Form to close the ECU-REB file and monitoring.

The ECU-REB file number should appear on all materials that are circulated to the participants in this way: ‘’This project has Full Research Ethics Approval from the Emily Carr University Research Ethics Board (July 27, 2017, ECU-REB#100125). If you have any comments or concerns about ethical issues in the research, you are invited to contact the Emily Carr University REB Coordinator at ethics@ecuad.ca[1] or (604) 844-3800 ext 2848.’’

For multi-site or partnered research, researchers are expected to comply with the appropriate external research ethics protocols or procedures. Researchers are expected to share notice of this approval with partners or sites of research. If further ethics approval is

Fig 56: Kanak Jaitli, Approved REB email, 2018.

03 TCPS2 Certificate

PANEL ON
RESEARCH ETHICS
Navigating the ethics of human research

TCPS 2: CORE

Certificate of Completion

This document certifies that

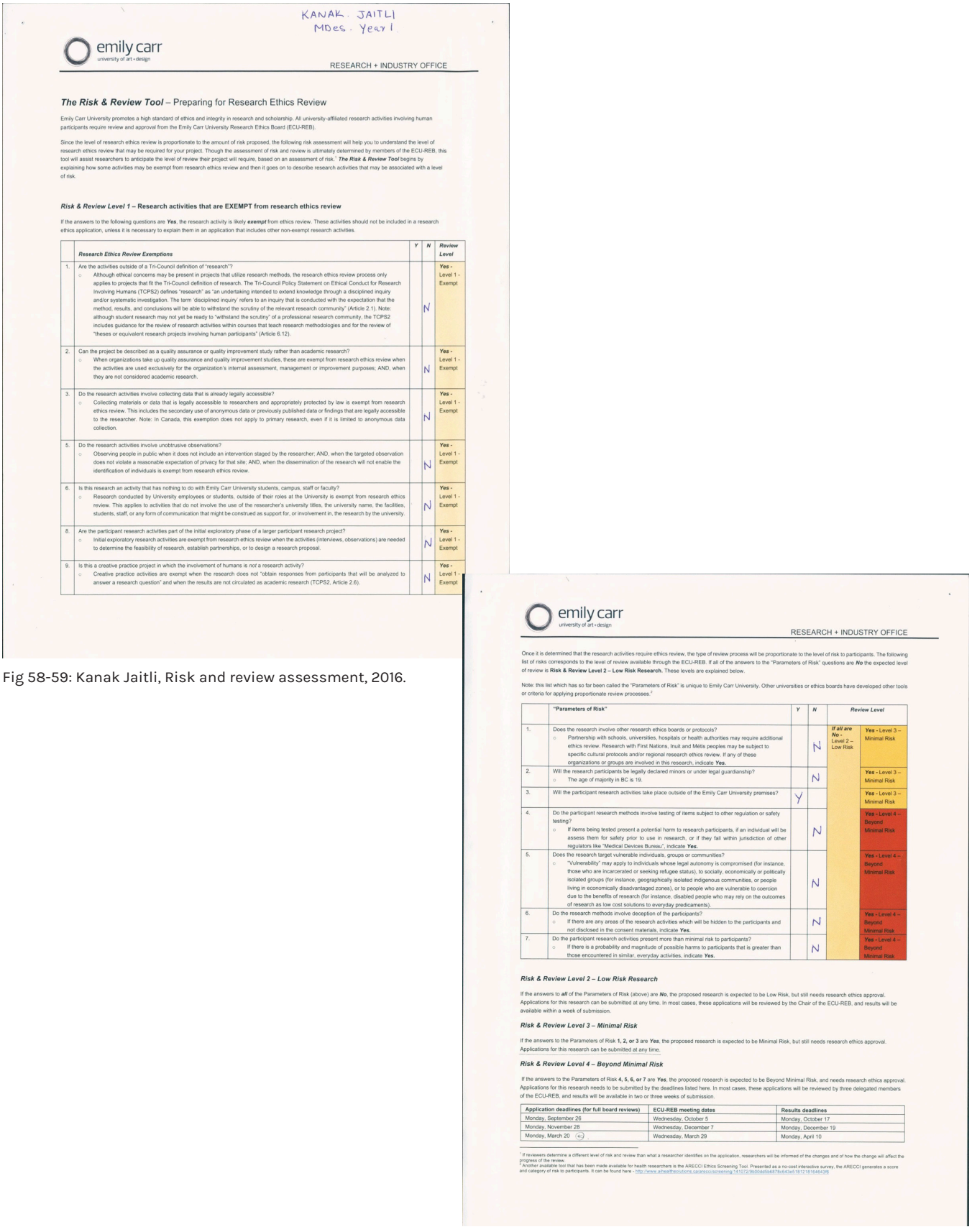
Kanak Jaitli

has completed the Tri-Council Policy Statement:
Ethical Conduct for Research Involving Humans
Course on Research Ethics (TCPS 2: CORE)

Date of Issue: **12 November, 2016**

Fig 57: Kanak Jaitli, TCPS2 certificate, 2016.

04 Risk & Review



KANAK. JAITLI
MDes. Year 1.

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The Risk & Review Tool – Preparing for Research Ethics Review

Emily Carr University promotes a high standard of ethics and integrity in research and scholarship. All university-affiliated research activities involving human participants require review and approval from the Emily Carr University Research Ethics Board (ECU-REB).

Since the level of research ethics review is proportionate to the amount of risk proposed, the following risk assessment will help you to understand the level of research ethics review that may be required for your project. Though the assessment of risk and review is ultimately determined by members of the ECU-REB, this tool will assist researchers to anticipate the level of review their project will require, based on an assessment of risk.[1] ***The Risk & Review Tool*** begins by explaining how some activities may be exempt from research ethics review and then it goes on to describe research activities that may be associated with a level of risk.

Risk & Review Level 1 – **Research activities that are EXEMPT from research ethics review**

If the answers to the following questions are **Yes**, the research activity is likely ***exempt*** from ethics review. These activities should not be included in a research ethics application, unless it is necessary to explain them in an application that includes other non-exempt research activities.

	Research Ethics Review Exemptions	*Y*	*N*	*Review Level*
1.	Are the activities outside of a Tri-Council definition of "research"? ○ Although ethical concerns may be present in projects that utilize research methods, the research ethics review process only applies to projects that fit the Tri-Council definition of research. The Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (TCPS2) defines "research" as "an undertaking intended to extend knowledge through a disciplined inquiry and/or systematic investigation. The term 'disciplined inquiry' refers to an inquiry that is conducted with the expectation that the method, results, and conclusions will be able to withstand the scrutiny of the relevant research community" (Article 2.1). Note: although student research may not yet be ready to "withstand the scrutiny" of a professional research community, the TCPS2 includes guidance for the review of research activities within courses that teach research methodologies and for the review of "theses or equivalent research projects involving human participants" (Article 6.12).		N	**Yes -** Level 1 - Exempt
2.	Can the project be described as a quality assurance or quality improvement study rather than academic research? ○ When organizations take up quality assurance and quality improvement studies, these are exempt from research ethics review when the activities are used exclusively for the organization's internal assessment, management or improvement purposes; AND, when they are not considered academic research.		N	**Yes -** Level 1 - Exempt
3.	Do the research activities involve collecting data that is already legally accessible? ○ Collecting materials or data that is legally accessible to researchers and appropriately protected by law is exempt from research ethics review. This includes the secondary use of anonymous data or previously published data or findings that are legally accessible to the researcher. Note: In Canada, this exemption does not apply to primary research, even if it is limited to anonymous data collection.		N	**Yes -** Level 1 - Exempt
5.	Do the research activities involve unobtrusive observations? ○ Observing people in public when it does not include an intervention staged by the researcher; AND, when the targeted observation does not violate a reasonable expectation of privacy for that site; AND, when the dissemination of the research will not enable the identification of individuals is exempt from research ethics review.		N	**Yes -** Level 1 - Exempt
6.	Is this research an activity that has nothing to do with Emily Carr University students, campus, staff or faculty? ○ Research conducted by University employees or students, outside of their roles at the University is exempt from research ethics review. This applies to activities that do not involve the use of the researcher's university titles, the university name, the facilities, students, staff, or any form of communication that might be construed as support for, or involvement in, the research by the university.		N	**Yes -** Level 1 - Exempt
8.	Are the participant research activities part of the initial exploratory phase of a larger participant research project? ○ Initial exploratory research activities are exempt from research ethics review when the activities (interviews, observations) are needed to determine the feasibility of research, establish partnerships, or to design a research proposal.		N	**Yes -** Level 1 - Exempt
9.	Is this a creative practice project in which the involvement of humans is *not* a research activity? ○ Creative practice activities are exempt when the research does not "obtain responses from participants that will be analyzed to answer a research question" and when the results are not circulated as academic research (TCPS2, Article 2.6).		N	**Yes -** Level 1 - Exempt

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RESEARCH + INDUSTRY OFFICE

Once it is determined that the research activities require ethics review, the type of review process will be proportionate to the level of risk to participants. The following list of risks corresponds to the level of review available through the ECU-REB. If all of the answers to the "Parameters of Risk" questions are ***No*** the expected level of review is **Risk & Review Level 2 – Low Risk Research.** These levels are explained below.

Note: this list which has so far been called the "Parameters of Risk" is unique to Emily Carr University. Other universities or ethics boards have developed other tools or criteria for applying proportionate review processes.[2]

	"Parameters of Risk"	*Y*	*N*	*Review Level*	
1.	Does the research involve other research ethics boards or protocols? ○ Partnership with schools, universities, hospitals or health authorities may require additional ethics review. Research with First Nations, Inuit and Métis peoples may be subject to specific cultural protocols and/or regional research ethics review. If any of these organizations or groups are involved in this research, indicate **Yes.**		N	***If all are No*** - Level 2 – Low Risk	**Yes** - Level 3 – Minimal Risk
2.	Will the research participants be legally declared minors or under legal guardianship? ○ The age of majority in BC is 19.		N		**Yes** - Level 3 – Minimal Risk
3.	Will the participant research activities take place outside of the Emily Carr University premises?	Y			**Yes** - Level 3 – Minimal Risk
4.	Do the participant research methods involve testing of items subject to other regulation or safety testing? ○ If items being tested present a potential harm to research participants, if an individual will be assess them for safety prior to use in research, or if they fall within jurisdiction of other regulators like "Medical Devices Bureau", indicate **Yes.**		N		**Yes** - Level 4 – Beyond Minimal Risk
5.	Does the research target vulnerable individuals, groups or communities? ○ "Vulnerability" may apply to individuals whose legal autonomy is compromised (for instance, those who are incarcerated or seeking refugee status), to socially, economically or politically isolated groups (for instance, geographically isolated indigenous communities, or people living in economically disadvantaged zones), or to people who are vulnerable to coercion due to the benefits of research (for instance, disabled people who may rely on the outcomes of research as low cost solutions to everyday predicaments).		N		**Yes** - Level 4 – Beyond Minimal Risk
6.	Do the research methods involve deception of the participants? ○ If there are any areas of the research activities which will be hidden to the participants and not disclosed in the consent materials, indicate **Yes.**		N		**Yes** - Level 4 – Beyond Minimal Risk
7.	Do the participant research activities present more than minimal risk to participants? ○ If there is a probability and magnitude of possible harms to participants that is greater than those encountered in similar, everyday activities, indicate **Yes.**		N		**Yes** - Level 4 – Beyond Minimal Risk

Risk & Review Level 2 – Low Risk Research

If the answers to ***all*** of the Parameters of Risk (above) are ***No***, the proposed research is expected to be Low Risk, but still needs research ethics approval. Applications for this research can be submitted at any time. In most cases, these applications will be reviewed by the Chair of the ECU-REB, and results will be available within a week of submission.

Risk & Review Level 3 – Minimal Risk

If the answers to the Parameters of Risk **1, 2, or 3** are **Yes**, the proposed research is expected to be Minimal Risk, but still needs research ethics approval. Applications for this research can be submitted at any time.

Risk & Review Level 4 – Beyond Minimal Risk

If the answers to the Parameters of Risk **4, 5, 6, or 7** are **Yes**, the proposed research is expected to be Beyond Minimal Risk, and needs research ethics approval. Applications for this research needs to be submitted by the deadlines listed here. In most cases, these applications will be reviewed by three delegated members of the ECU-REB, and results will be available in two or three weeks of submission.

Application deadlines (for full board reviews)	ECU-REB meeting dates	Results deadlines
Monday, September 26	Wednesday, October 5	Monday, October 17
Monday, November 28	Wednesday, December 7	Monday, December 19
Monday, March 20	Wednesday, March 29	Monday, April 10

[1] If reviewers determine a different level of risk and review than what a researcher identifies on the application, researchers will be informed of the changes and of how the change will affect the progress of the review.
[2] Another available tool that has been made available for health researchers is the ARECCI Ethics Screening Tool. Presented as a no-cost interactive survey, the ARECCI generates a score and category of risk to participants. It can be found here - http://www.ahealthsolutions.ca/arecci/screening/1410726/9b00dd5b6878c643e518121818464316

Fig 58-59: Kanak Jaitli, Risk and review assessment, 2016.

05 Consent & Media Release

2015-09-22

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1399 Johnston Street, Vancouver, BC, Canada V6H 3R9

Office of Director of Research
EMILY CARR UNIVERSITY RESEARCH ETHICS BOARD (ECU-REB)

Research Invitation & Consent Agreement

Date: March 12th 2017
Project Title: Design For Healthcare: Exploring ways to facilitate better Doctor-Patient interaction

Principal Investigator:
Haig Armen, Associate Professor
Emily Carr University of Art + Design (ECUAD)
Faculty of Faculty of Design + Dynamic Media

Emily Carr University of Art and Design
harmen@ecuad.ca

Other Researchers:
Kanak Jaitli, MDes candidate,
Faculty of [The Jake Kerr Faculty of Graduate Studies
Emily Carr University of Art + Design (ECUAD)

Emily Carr University of Art and Design
kjaitli@ecuad.ca

INVITATION

You are invited to participate in a research study. This research study is being done by Kanak Jaitli, Mdes candidate at ECUAD who has a background in industrial and design research and is interested in making the doctor patient interaction more positive by using design research tools. You are being invited to participate in this study and share your opinions and experiences during your interaction with patients.

WHAT IS THE STUDY ABOUT?

The purpose of the study, 'Design For Healthcare: Exploring ways to facilitate better Doctor-Patient interaction', is to understand, from the users perspective, features, which make their interaction with the patients a successful and satisfying experience in addition to also understanding the problems faced during the interaction. The interview will be approximately 15-30 min long and will help me understand the doctor-patient interaction process better. No intimate medical questions related to any diagnosis will be asked from you. The questions will be general regarding the aspects of an interaction during the consultation time.

WHAT'S INVOLVED

As an expert, you will be asked questions regarding your conversations with patients. The questions will be centred around the problems doctors face while communicating with their patients, the type of work doctors do within their appointment time and technology used by the doctors if any. The information given by you in the interview will not be published until you give the required consent. No personal information will be linked to you and published without your prior consent. The interview should take approximately 15-30 min.

MEDIA RECORDINGS

This form DOES NOT include the provision for assent of participants who are minors or who are under legal guardianship. A TEMPLATE 201.4 Invitation, Consent & Assent agreement for minors or others under guardianship is available for this purpose from the ECU-REB.

INITIALS _____ Page 1 of 4

2015-09-22

emily carr
university of art + design

1399 Johnston Street, Vancouver, BC, Canada V6H 3R9

Office of Director of Research
EMILY CARR UNIVERSITY RESEARCH ETHICS BOARD (ECU-REB)

Research Invitation & Consent Agreement

Date: March 12th 2017
Project Title: Design For Healthcare: Exploring ways to facilitate better Doctor-Patient interaction

Principal Investigator:
Haig Armen, Associate Professor
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harmen@ecuad.ca

Other Researchers:
Kanak Jaitli, MDes candidate,
Faculty of [The Jake Kerr Faculty of Graduate Studies
Emily Carr University of Art + Design (ECUAD)

Emily Carr University of Art and Design
kjaitli@ecuad.ca

INVITATION

You are invited to participate in a research study. This research is being done by Kanak Jaitli, Mdes candidate at ECUAD who has a background in industrial and design research and is interested in making the doctor patient interaction more positive by using design research tools. You are being invited to participate in this study and share your positive interaction features and what makes you happy. Your contact details were recommended by the personal network of the researcher.

WHAT IS THE STUDY ABOUT?

The purpose of the study, 'Design For Healthcare: Exploring ways to facilitate better Doctor-Patient interaction', is to understand, from the users perspective, positive features, which make their interaction with the doctors a successful and satisfying experience. The questions will be general and will not be solely focused within the doctor-patient domain. No intimate medical questions related to any diagnosis will be asked from you. The activities and questions will be general regarding the aspects of an interaction, which make you feel happy.

WHAT'S INVOLVED

As a participant, you will be asked to fill journal pages regarding what makes your conversations with doctors or friends a positive one. The activities will contain short questions about the feelings and thoughts you had during these positive interactions. You will be required to draw or write. All the questions will be explained clearly in the journal itself. The information given by you in the journal will not be published until you give the required consent. No personal information will be linked to you and published without your prior consent. Filling out the journal will take 20min but you can keep the journal with you for a week.

This form DOES NOT include the provision for assent of participants who are minors or who are under legal guardianship. A TEMPLATE 201.4 Invitation, Consent & Assent agreement for minors or others under guardianship is available for this purpose from the ECU-REB.

INITIALS _____ Page 1 of 4

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1399 Johnston Street, Vancouver, BC, Canada V6H 3R9 ecuad.ca

RESEARCH INDUSTRY OFFICE
Emily Carr University Research Ethics Board (ECU-REB)

Media Release Agreement

Date: 19/03/2017

Project Title: Design For Healthcare: Exploring ways to facilitate better Doctor-Patient interaction

Principal Investigator:
Haig Armen, Associate Professor
Emily Carr University of Art + Design (ECUAD)
Faculty of Faculty of Design + Dynamic Media

Emily Carr University of Art and Design
harmen@ecuad.ca

Other Researchers:
Kanak Jaitli, MDes candidate,
Faculty of [The Jake Kerr Faculty of Graduate Studies
Emily Carr University of Art + Design (ECUAD)

Emily Carr University of Art and Design
kjaitli@ecuad.ca

PROJECT DESCRIPTION

The purpose of the research study, 'Design For Healthcare: Exploring ways to facilitate better Doctor-Patient interaction' is to understand, from the users perspective, positive features, which make their interaction with the doctors a successful and satisfying experience. The questions will be general and will not be solely focused within the doctor-patient domain. In the process of this study, identifiable material will be collected by way of photographs of you as the participant and the information you have shared in the journals, activities and interviews. The purposes of collecting this material are to aid the researcher in designing better solutions, which will be developed by the information obtained from you, as a participant. Your positive information obtained, will be used to generate new ideas for a smoother interaction process between doctors and patients. The information shared by you, including images of you and your journals/ activities will be published in the thesis report, scholarly journals and presented at Emily Carr University. The information will also be documented on the online portfolio/ website of the researcher. Your name will be identified only with your prior consent.

RELEASE STATEMENT

I agree to allow the following identifiable materials to be used in the publication of the research described above

Check all that apply:

DIRECT QUOTATIONS -

☐ Yes, I consent to being quoted in publications.
☐ No, I do not consent to being quoted in publications.

INDENTIFICATION -

Fig 60: Consent & invitation and media release forms, 2017.

C 01 Design Phases

The design process is grouped in three main phases.

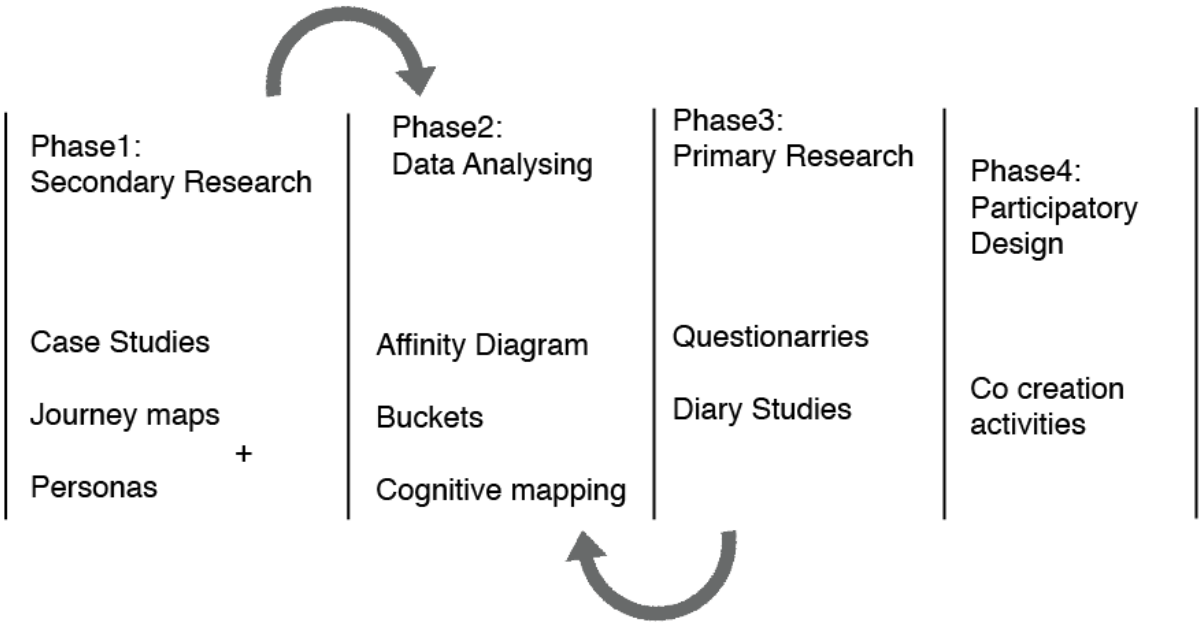


Fig 61: Kanak Jaitli, Design Phases, 2018.

02 Interview & Probe invitation

Hello, I am Kanak, a master of Design student at Emily Carr University of Art + Design. As part of my thesis research project, I am exploring ways of how design might be able to facilitate better doctor-patient interactions. For this, I need to gain a better understanding of how doctors and patients communicate. I am conducting interviews as a part of my thesis research study, and I request you to be a part of it.

About the questions:

- The questions will be centred around the problems doctors face while communicating with their patients.
- The type of work doctors do within their appointment time
- Technology that doctors/ patients use during/ for an appointment.

The Interview:

You are being invited to share your opinion and experiences during your interaction with patients. The interview will be approximately 15-30 min long and will help me understand the doctor- patient interaction process better. The information gathered will help me in designing solutions to make the doctor patient interaction a positive experience for both patients and doctors.

During the interview the researcher will be taking notes to capture your responses. All of your responses will be grouped with other participants in an aggregate data set. All responses captured during the interview will be anonymized and your name will not be used in any publications. The researcher may take photographs during the interview if appropriate. They will request your consent prior to taking a photo.

Interview results will help:

- In understanding the main communication gaps doctors face with their patients.
- How technology is being used in doctor- patient interactions (if any)
- Understanding the depth and scope of a doctors work within an appointment time.
- Understanding how doctors interact with different types of patients.

The insights gathered from the interview will help me take my project forward, towards looking for better solutions to improve the doctor patient interaction process. Please do contact me or reply back if you are interested.

Thank you very much,
Kanak Jaitli
kjaitli@ecuad.ca

Interview Invitation attached to the email sent to Doctors.

Fig 62: Kanak Jaitli, Interview invitation letter, 2018.

Probe invitation printed and attached with the activities.

Fig 63: Kanak Jaitli, Probe invitation letter, 2018.

Participant recruitment letter/ email. A leaflet with similiar content will be provided with the probe kit.

Hello!

I am Kanak, a master's student at Emily Carr University of Art + Design. I am working towards understanding the positive experiences people have in various contexts, one of them being with their doctors.

I request you to please be a part of my research study. The probe kit given with this letter/ email has simple activities, which can be completed within 30 min. You can do the activities whenever you feel free over a period of one week. These activities, which participants fill out, provide me with the relevant data to take my design forward.

The short questions in the kit are based around asking you about the various spaces/ people/ objects, which make you happy and positive. If you have had an amazing experience with a doctor, who left you feeling positive, please do contact me!
No question will be around asking you about any private doctor details or your personal medical conversations.

Your positive experiences will help me take my project forward and be inspired from. Please do contact me/ reply back if you are interested.

Hope you enjoy the experience,
Thank you very much,
Kanak

03 Interview Questions

1. What are the main barriers you face while interacting with the patients?
2. How do you explain to the patient their diagnosis, prescription and recommendation?
3. Do patients ask you a lot of questions?
4. If not, do you prompt them to make sure they understand?
5. How/ in what ways do you make sure that the patient has understood what you are explaining?
6. Has there been any instance where you asked something of the patient and they came back doing something completely different? If so why do you think that happened?
7. Can you tell me about an instance where you had trouble communicating with the patient regarding their symptoms/ prescription or treatment plan?
8. How do you communicate with emotionally upset patients?
9. What makes an appointment with a patient successful/ positive?
10. As a doctor—what is the most a) boring b)crucial and c)positive thing in your day?
11. Which are the most common apps and/ or medical software's that you use as a doctor?
12. Do you use this app/ software data as a reference while talking to your patient?
13. Do you study/ prep with the software / app data before you talk to the patient about it?
14. If no, why not?/ If yes, then which feature within the app/ software are you comfortable using ?
15. Has there ever been an instance where you were unhappy or unsatisfied with the software/ app data?

04 Cultural Probe Activities

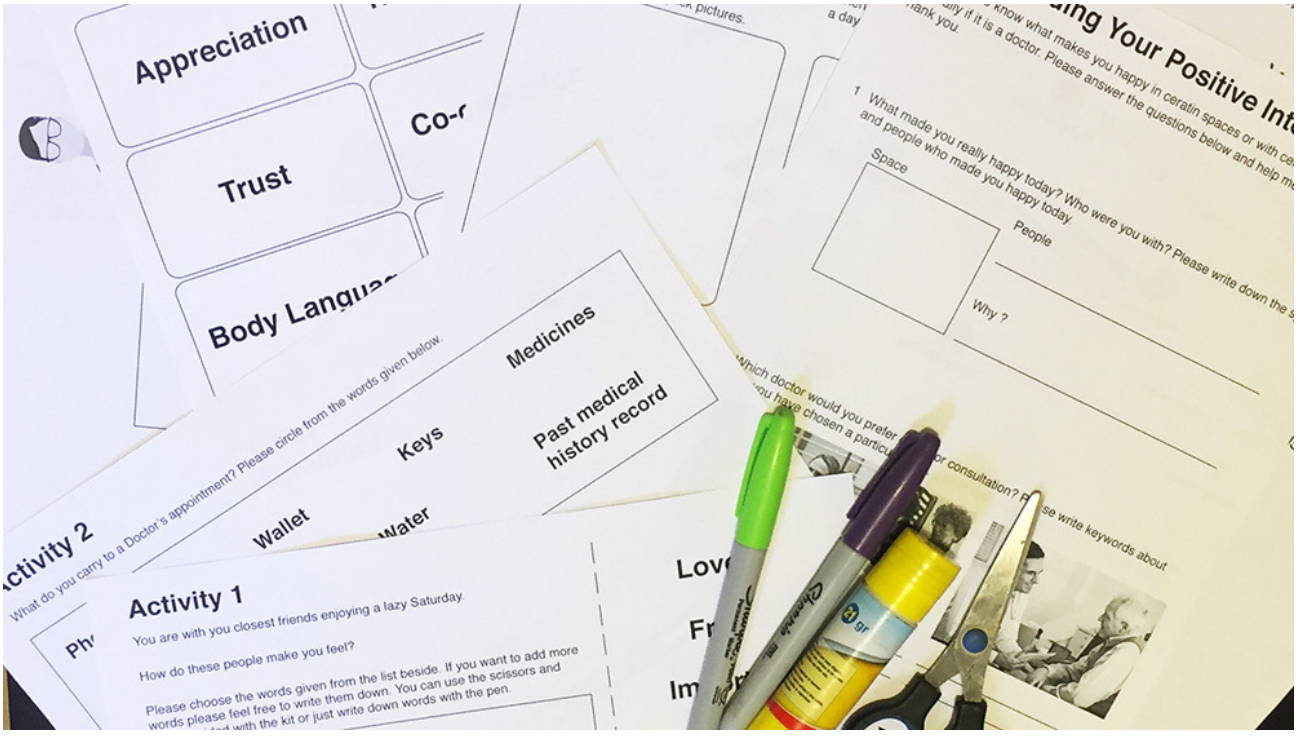


Fig 64: Kanak Jaitli, Cultural Probe, 2018.

Activity 1

You are with you closest friends enjoying a lazy Saturday.

How do these people make you feel?

Please choose the words given from the list beside. If you want to add more words please feel free to write them down. You can use the scissors and glue provided with the kit or just write down words with the pen.

Loved

Free

Important

Cared

Safe

Appreciated

Reassuared

Activity 2

What do you carry to a Doctor's appointment? Please circle from the words given below.

Phone **Wallet** **Keys** **Medicines**

Reports **Water**

Pens **Notebook** **Past medical history record**

Do you take notes while the doctor is explaining?
Please circle yes or no.

Yes **No**

Do you use any medical tracking/ fitness apps or websites during your appointment with the doctor?
Please circle yes or no. Please provide quick keywords as to why you take notes and vice-versa.

Yes **No**

Activity 3

Please write and/ or draw for the questions below.

What are the actions and words that doctors say and do that make you happy or relaxed?
Write keywords/ draw quick pictures.

When do you feel the most relaxed/ joyful in a day?

In what ways do you comprehend or remember large amounts of information?

If you could make the doctor aware of your feeling, what would they be? Happy, sad, anxious etc.

Activity 4

Which of these features are important, in order to have a positive interaction with a doctor? Rank these words in order of importance for you.

Appreciation	**Transparency**	**Ambience**
Trust	**Co-operation**	**Patience**
Body Language	**Feedback**	**Free to express concerns**
Clear communication	**Emapthy**	**Educational material to support your diagnosis**

Activity 5

What qualities would you like your doctor to have? You can write about things/ emotions/ body language ques and much more that you feel a doctor should have when talking to their patients. Please write in the box below.

Understanding Your Positive Interactions

I would like to know what makes you happy in ceratin spaces or with certain people, especially if it is a doctor. Please answer the questions below and help me understand! Thank you.

1 What made you really happy today? Who were you with? Please write down the space and people who made you happy today.

Space

People

Why ?

2 Which doctor would you prefer going for consultation? Please write keywords about why you have chosen a particular one.

3 How do you feel before going to see a doctor? While you are with the doctor... And after you have finished meeting the doctor? Please rate on the scale given below.

Before the appointment

Highly relieved — Highly stressed

During the appointment

Highly relieved — Highly stressed

After the appointment

Highly relieved — Highly stressed

4 What lifestyle tracking or medical apps do you use? Please write the names of the apps/ websites or books you follow regarding your health/ doctors tracking.

Please write in quick keywords what you like about using them.

5. Have you ever had trouble understanding your doctor's instructions?

Yes No

If your answer is yes, which part while talking to a doctor makes you most anxious? You can add your own specifics below.

Explaining symptoms

Understanding the doctor's language

Understanding the prescription

Remembering the instructions to follow

Fig 65- 72: Kanak Jaitli, Cultural Probe activities, 2018.

05 The way I carried it out

The Interviews with doctors:
Eleven doctor interviews were conducted as part of the primary research phase. The interviews centered around 3 main areas: problems doctors face while communicating, technology used in clinics and type of work done within the appointment time. The invitation letter was sent via email and participants were recruited through the network of Caylee Raber (HDL) and the personal network of the researcher. Along with the invitation letter, a consent and media release form was also attached (shown in Appendices C). These forms gave clear information to the participants about the nature of the interview, what to expect and the ethics clearance obtained for the study. All the interviews were phone based, ranging from 15-25 mins. At the beginning of the interview, doctors were once again made aware of the nature and reason of the interview.

The Cultural Probes with participants:
The cultural probes were targeting people who 'have had a past experience of going to a doctor'. The participants recruited were all 20+. The probes were physical paper based. This was an important aspect as paper based activities would make people cross things out/ write more freely as compared to digital probes. The activities centred around asking participants their positive experiences with their doctors and also some basic challenges they face. The activities were not region or country specific, rather they strived to understand the macro/ broader level emotional experience of people in happy and safe spaces. Participants were given the probe set for a week, to complete it at their own pace. The consent and media release form was attached with the probe set and participants were explained the nature of the project, questions asked and ethics clearance, when the probes were handed over.

D 01 Data Analysis

The information gathered from the probes and interviews was analysed using the mental model approach of Indi Young. The information from the doctor's interviews and the patient probes was anonymised and gathered into a single file. The first step was to pull out the things/ actions doctors and patients do on an everyday basis from the transcripts. (shown below).

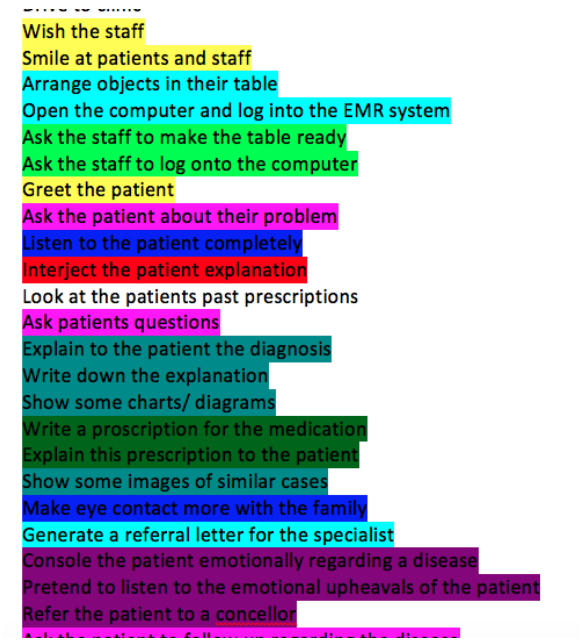
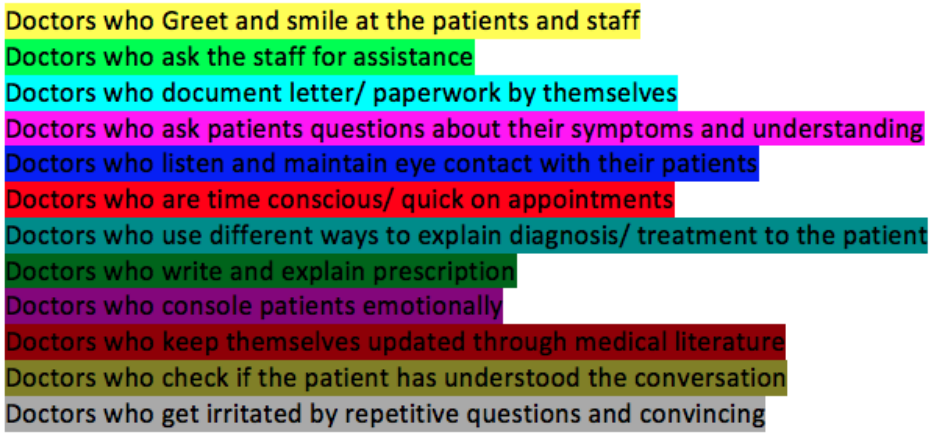
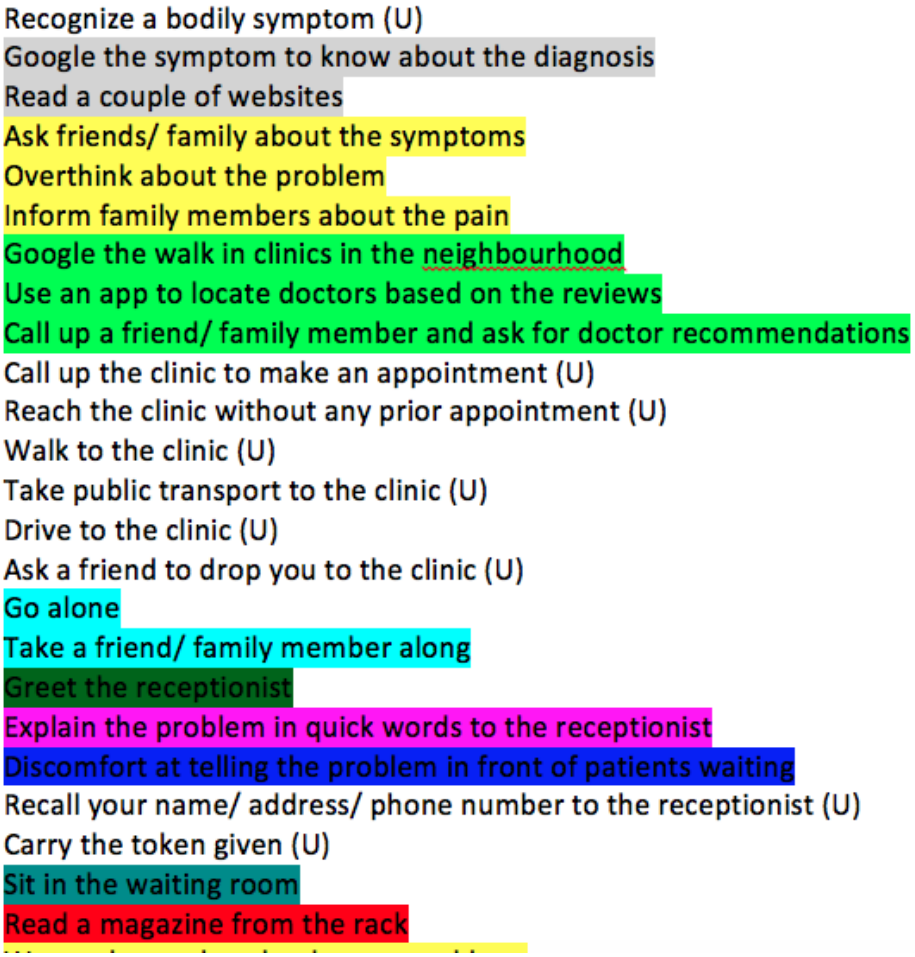


Fig 73- 76: Kanak Jaitli, Types of doctors and patients, 2018.

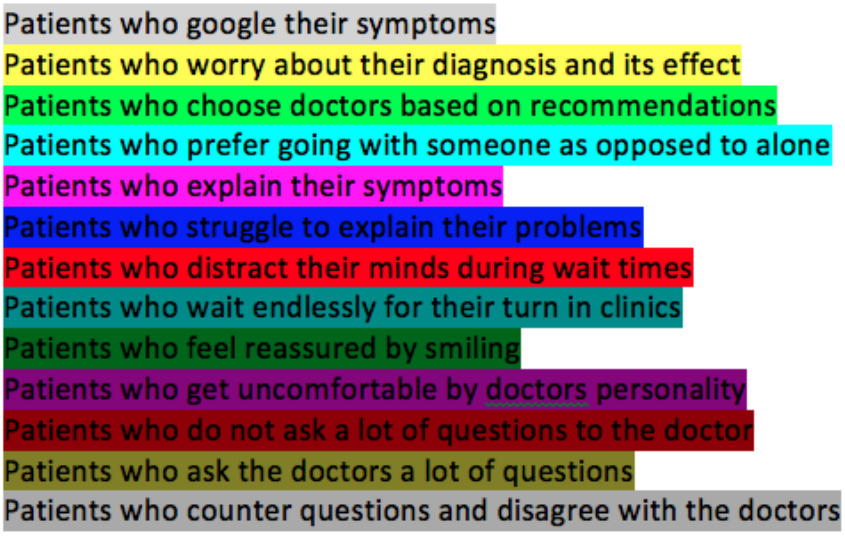
Patterns in the doctor's actions were color coded (above image). Traits and characteristics of doctors were then pulled out based on this sorting exercise. (shown below). There are doctors who write and explain using paper, doctors who ask staff for assistance, doctors who are time conscious and doctors who console patients emotionally.



A similar approach was followed with the patients. Identifying actions within the patient probes. (shown below)



These actions were then grouped into characteristics and traits of patients. (shown below).



Division into Tasks:

Taking from the mental model approach of Indi Young (2008), the next step was to categories the transcripts (doctors) and probes (patients) into tasks.

what is diabeties. (Task)
I ask patients 'what did you understand?' to make sure they have grasped the conversation. (Task)
We have health coaches who help with doctor, patient interaction. (third party task)
A health coach is of a similar background as the patient. They spend 30 min with the patient after the doctor appointment. They explain to the patient medical terminology in laymans language. Doctor makes a health plan and then leaves the room. (Task) The health coach then explains the plan to the patient in detail. Health coach watches vidios with the patients.
Health coaches are based on an Alaskan model and are not common in Canada. Ours is a pilot project.
The hospital gives funding for the health coaches.
When the doctor is frustrated with the conversation the health coach comes in. (Task)
Emotionally upset patients are not uncommon. (Statement of fact)
Example: There was a patient who was getting a panic attach. The health coach did not know how to deal with the patient. He called the doctor. The doctor tried talking to the patient in a calm voice, low tone and slowly and started telling how we can help. Touching patients and offering them water. (Task)
Example: There was an alcohol patient who was depressed. He was not letting the doctor speak. Constantly interrupting and then whinning. The doctor wanted to set up a plan but they were not being co operative.
Doctors give patients a plan on how to proceed. (Task)
Patients are referred to the councellors in some cases. (Statement of fact)
Doctors even ask the patient to direct in some cases, where the patients is stable and understanding. (Task)
Ideal patient: trust on what the doc is saying, honesty on what they are doing, (Desire)

Fig 77- 79: Kanak Jaitli, Mental model approach- Doctors, 2018.

Each sentence by the doctor was categorized into a task, statement of fact, third party task, philosophy or desire (Young, 2008). (shown above)

and side effects of medication. (Task)
If the case is that of an emergency treatment, I, as a doctor give the recommended course of action and ask the patients to take a quick decision. (Task)
If the symptoms are non-threatening, and the patients are not willing to take certain decisions, I ask them why they are hesitant. Is it because of google information, family pressure etc. I try to address the issue. If the patient is still not convinced, I refer them to a specialist for a 2nd opinion. (Task)
Patients do ask a lot of repetitive questions. That just means that I haven't explain them well enough. (Task)
There is no such thing as a silly question. (philosophy)
I try to repeat the main points of the conversation. (Task)
I ask the patients to repeat the main points and important things they have understood from the conversation. (Task)
Give out leaflets, containing information about the disease/ medicine. (Task)
I write down the main points in the priscription as well. (Task)
I use the EMR feature of generating a plan. I have a custom made plan which I have made myself. I use that to hand out information to the patients. (Task)
I ask the patients to look at websites which I feel are very helpful. (Task)
Websites: patient information. Sick kids Canada. Parachute (I really like). (medium)
When a patient has a bad news awaiting, it a unique moment. (philosophy)
Example: A child had leukemia- I told the parents the diagnosis- The parents started crying- I tried telling them that the current technology is very advanced- 90% of such cases can be cured- your child will be fine- There is a risk of 10% in all surgeries.
I try talking to them about the disease. (Task)
Bring out the positives of the treatment. (Task)
Refer them to outside support system (councelling) (Task)

Categorisation of the information for the patient probes, using the mental model approach was posing challenges. The probes gathered information which was different from the doctor's interviews. The interviews asked doctors of the challenges they faced, the type of interactions they had, the actions they did during the appointment and their desires and happy/ positive areas within the appointment time. The patient probe on the other hand asked patients about their positive feelings in certain situations, objects they carry to the clinic, dream doctor characteristics and general problems they face in the clinic. Thus, the information from the probes was more about their latent needs which was difficult to sort using the mental model approach. Thus, the patient probes were sorted using the affinity mapping approach, of grouping the feelings, desires and challenges into themes and patterns. (shown below).

APPS USAGE:

No tech X 8
Google for detailed information about my disease& treatment, side effects x 4,- doctors say patients google and get over informed and counter question
Webmd (app and portal), Dr. Greene, Mayoclinic.com, My fitness pal, P tracker life, what to expect. (They are organized, informational, structured.)
Apple health app for counting steps and distance covered.
Book: don't loose out, work out by rujuta diwekar (easy explanation about how our bodies work)

UNDERSTANDING THE DOCTOR:

Yes x 9 (a lot),
Explaining symptoms x 4, - doctors say they need to probe patients
Understanding prescription x 3 (risks/ benefits) (instructions for taking meds),
understanding the doctors language x 3 (I need to ask again and again), doctors try to explain in their language
remembering the instructions to follow x 3. Doctors say they need to explain same things again and again
No x 10

Grouping of Doctor interviews:

Post identifying the tasks within the doctor interview transcripts, the next step was to cluster the common tasks into themes and patterns. (shown below) Broad themes such as relationship with patients, doctor availability, aggressive patients was identified through the grouping of individual tasks.

NEGATIVE FEELINGS

When the doctor is frustrated with the conversation the health coach comes in. (Task)

As a doctor I get frustrated. I can get frustrated on someone I don't really know. I can be intentional with the frustration. (philosophy)
I get frustrated as a doctor sometimes. (feeling)
I do get frustrated as an expert. I then try to close the conversation by saying we can talk again tomoroow. I wrap up the visit. (Task)

RELATIONSHIP WITH PATIENTS

Crucial: maintaining the relationship with the patient. A healthy relationship with boundries. (implied task)
I have a multi year relationship with my patients. (Statement of fact)

Fig 80: Kanak Jaitli, Mental model approach Doctors, 2018.

About 46 such themes were identified from the interview transcripts. (shown below)

Fig 81: Kanak Jaitli, Identifying themes -Interview transcripts, 2018.

Similarly, additional theme were identified from the patient probes as well. (shown below)

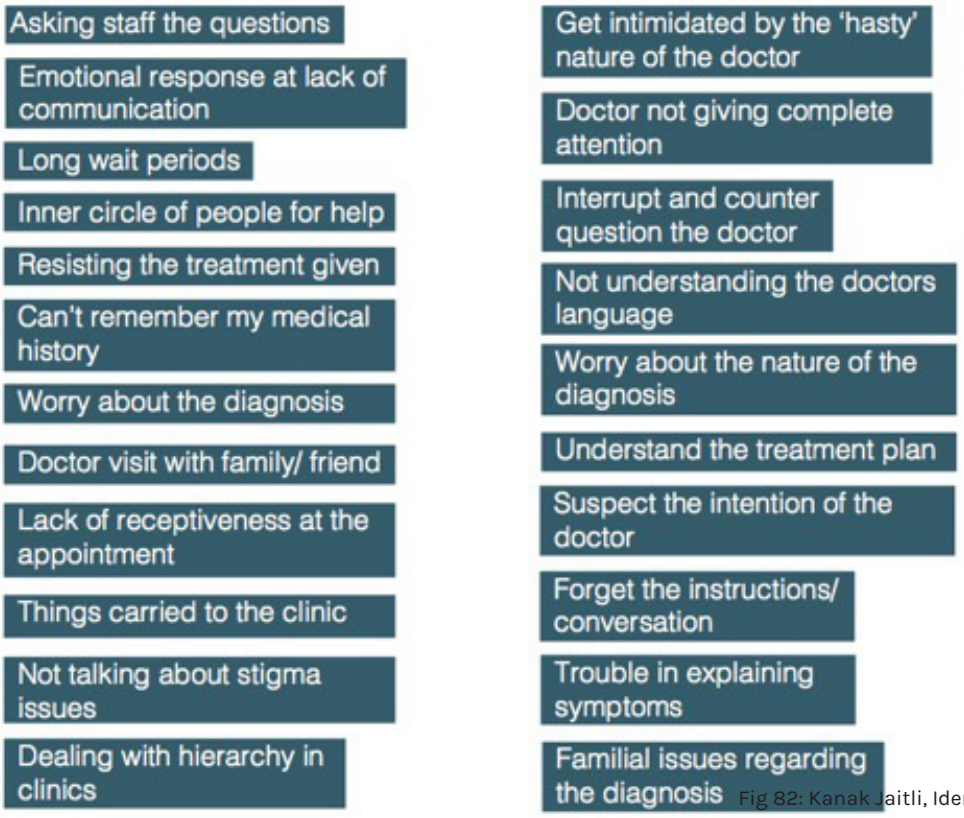


Fig 82: Kanak Jaitli, Identifying themes- patient probes, 2018.

02 Observations

Below are some observations which ultimately shaped into design opportunities (shown in the thesis body).

1. People usually tend to take notes if they need to remember large amounts of information. But they carry their diaries/ phones with them to the appointment rooms, but do not end up taking notes in that scenario. Why?
2. Doctors don't ask people how they feel, just what is wrong with them.
3. Patients google the disease information; doctors agree to that. They need to put the google articles in context.
4. Doctors say they use patient friendly language, but patients still say they cannot understand the doctor's explanation.
5. Patients say they forget instructions. Doctors support this by saying they need to repeat it again and again.
6. Time restriction is a major hindrance. If the doctor can give more time to patients to address their questions.
7. Time breakdown: 15 min of appointment time. First few minutes' patients struggling to explain their problem; doctor probing them. Next few minutes; patients cross questioning the doctor, using google articles; doctors putting the google articles into context. Net few minutes: doctor lays out the treatment and starts to explain it to the patient. The doctor also tries to grasp the cultural b ackground of the patient and explains taking that into consideration.
8. What do people need that resembles care and comfort: Smile, assurance along the way, caring, not rushing, sitting, patience to hear me out, patient friendly language, undivided attention, approachable, understands my background.
9. Half the people don't understand the doctors prescription. They want clear instructions about the disease, treatment, side effects and medication all either written down or verbally communicated.
10. Patients want doctors to explain the diagnosis and treatment clearly using clear words and aids/ images. Doctors say they already use friendly language, leaflets, aids, for explain. Then where is the problem? Do doctors use it on some patients only?