Practical Affordance: EMR Use Within Outpatient Consulting on Women's Health

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Abstract. We have seen increased adoption of electronic medical records (EMR) to facilitate monitoring and recording about patient trajectories. Information systems and allied discipline researchers have argued that paper persistence post EMR implementation is pervasive because of system design and institutional policies lacking understanding of clinical workflow. I question this doctor focused understanding of medical record keeping focusing on clinical workflow and, ideas about the EMR that limits its role within the hospital boundaries. By providing empirical data from two settings, one rural secondary care hospital and other metropolitan multinational hospital, I show that ensuring healthcare needs of patients are met was central to doctor's work instead of using information technologies i.e. EMR. The projection of EMRs as artefact limited to hospital setting and only for clinical purposes, discounting role of patients' life worlds in clinical interactions and managing their health runs the risk of devaluing the experiential and affective knowledge of both patients and doctors. EMR, I argue, cannot support work by doctors unless patient's role is recognized and EMR is defined as flexible, situated in practical context of patient, rather than administrative and clinical work oriented only.

Keywords: EMR, affordance, Women health, consultation

1 Introduction

"The scan shows Polycystic Ovary, so I advised her lifestyle changes for the weight reduction. I told her that she could do exercise and yoga, she should avoid junk food and drink plenty of liquids. This thing I will write [on print out] and give it to her." - Interview excerpt Dr Savitri (Corporate hospital, Metropolitan City)

"No naturally, this is will not go in the computer, something are kept verbal, most of these things are general instructions. Like, she should not sit down on the ground multiple times, she cannot do much work at home. … If you write these things on the computer what they will understand." -Interview excerpt Dr Rita, (Secondary care hospital, Rural district)

These are excerpts from the interview of two senior doctors specialized in obstetrics and gynecology (OB/GYN), working in two different hospitals. Electronic Medical Record (EMR) system used by Dr Savitri had templates specifically designed for

OB/GYN consultation note taking. In the above excerpt, Dr Savitri describes patient as unmarried with chief complaint being “irregular periods (menstrual cycle)”. The patient was carrying diagnostic reports and it indicated Polycystic Ovary Syndrome[1](PCOS). PCOS diagnosis provides probable explanation of infertility in women. Doctor Savitri was having understanding about stigma associated with PCOS label, especially for unmarried women, so she avoided keeping EMR. She explained patient verbally and noted instructions like “avoid junk food” on the print out of consultation notes. In another excerpt, Dr Rita shares about consultation session of a pregnant woman. The patient was working as informal manual worker (farming) and was not functionally literate. Dr Rita explained her to avoid physical exertion but nothing about this interaction was noted as part of EMR. Likewise, I encountered many instances where doctors embraced alternative ways, often called as “informal means” or “workarounds” instead of using functionalities available via EMR systems. In this article, I investigate similar situations where doctors justified their *differential use of EMR as part of ensuring practicality of interactions for women coming for consultation on sexual and reproductive health*.

Patient record is a collection of clinical information, compiled by physicians, nurses, and other health care professionals as part of the investigation and treatment trajectory of the patient [1]. The electronic versions of patient’s records within an institution are called as EMR. Depending upon the information systems deployed to manage and record patient transactions, EMR may be partially or entirely realized [2]. Hospitals are investing in health information systems with special focus on having EMR systems to improve efficiency and quality of health care. Fundamental understanding of quality healthcare informing EMR design is, “managing patients’ trajectories: doing investigations, monitoring, intervening and re-intervening in order to at least temporarily cure or palliate patients’ problems [3]. The fields are provided in EMR systems to record clinically relevant details of patients’ trajectories in standardized format for use in future. We could see similar approach towards role of medical records in providing quality care for women leading to suggestions on EMR functionality for obstetrics and gynecology consultation [4]. On the other hand, studies show that “paper persistence” post EMR implementation is pervasive in hospitals. To address this, suggestions are made to upgrade EMR features allowing for hybrid systems: digital and paper-based medical records, integrating dictations tools or appointing support staff [5, 6], or separately documenting information related to patients for which definitive pieces of evidences are not possible [7–9]. The underlying approach towards EMR in these studies is limiting as it considers EMR as document relevant only for coordinating and communication between doctors (or healthcare workers) or within clinical interactions with same doctor (follow-up visits).

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[1] Polycystic ovary syndrome (PCOS) affects 5–20% of women of reproductive age worldwide. This is stigmatized condition in India and two readings helpful in understanding its meaning in Indian context are https://feminisminindia.com/2019/06/12/pcos-women-health/ and https://www.epw.in/engage/article/how-flawed-understanding-pcos-robs-women-their

Patients play critical role in coordinating and communication actions, and EMRs are also made available to patients either as physical copy (copied, print out) or digital copy (email, mobile application). EMR systems are not designed with the understanding of experiences of patients, thus excluding clinical and non-clinical complexities part of patient's life [10]. In this study, I show the implication of this exclusion on use of EMR systems by doctors within consultations. The empirical data used in this paper is part of longer project. The project involved data collection of eight doctors (and their teams) working in four diverse settings. Each setting had (some form of) electronic medical record keeping of OB/GYN outpatient consultation. Details of project are available in already published peer reviewed study [11]. In this paper, I introduce the concept of "practical affordances" by empirically engaging with affordances for whom and where not only what is affordance [12, 13].

2 Related Work

In the last two decades, EMR has emerged as a potent subject of research across information systems and allied disciplines like human computer interaction (HCI) and computer supported cooperative work (CSCW). Work practice related studies have shown that EMR systems are not standalone technologies and paper, whiteboard, post-it notes, "shadow charts" and "parallel charts" [14] are used by health care providers in place or along with EMR system functionalities. Extant literature in Information Systems area largely has 'technology deterministic' approach; researchers hold a static view of contextual realities in investigating features of EMR like problem list, clinical notes, referral notes, diagnostic order, etc. as standalone components used for coordinating and communicating clinical interventions required [15], [5]. Taking functional approach towards EMR studies shows that patient's care does not align with action (im)possibilities because of EMR design [16]. These studies limit the scope and action possibilities by healthcare providers (doctors) within the boundaries of professional work (workflow of consultation as linear) and recommend additional features that incorporate affordances of paper-based records like viewing, reviewing, annotating and amending data [17]. Research shows that health records (EMR) act as a boundary object between doctor and patient, use pattern of doctor have implications for the patient and vice versa [18]. Use of EMR benefit patients by enabling access to quality healthcare [19] and improved self-care by providing them access their medical records. Defining the scope and purpose of EMR as coordination among doctors only is limiting.

In majority of research studying EMR boils down to examining actions available to a healthcare provider (doctor), who is executing a healthcare routine. Scholars have often turned to the concept of affordances as a theoretical lens of choice [20, 21]. The concept of affordance first emerged within ecological psychology as Gibson suggested that objects have inherent capabilities because of fundamental properties determining

how object can be used or interacted with. Norman extended the understanding of affordances by focusing on 'functional' or dispositional nature of affordance, as intended by designers and embedded in the objects. Markus and Silver (2008) defined affordance as "...the possibilities for goal-oriented action afforded to specified user groups by technical objects" [22]. Affordance is an interdisciplinary construct and there are many debates within the affordance literature on its definition, usage and conceptualization [23]. Kaptelinin and Nardi [24] suggest to include social and cultural aspects of human interactions by considering local/situated activities mediated by cultural tools, like technology. Prior most research on EMR has focused on affordance as "emerging" and "actualizing", broadly referring to the affordance as range of functions and constraints that EMR system provides for i.e. designed and potential affordance [25]. The critique by Davis and Chouinard [13] of these conceptualizations as "failure to account for diverse subjects and circumstances" resonated with themes I used to describe my findings.

3 Method and Sites Description

I collected data around multiple cases of EMR use within OB/GYN outpatient consultation. These cases (doctors) are located at various sites and are part of larger project. Details of project are available in already published peer reviewed study [11]. The study design was approved by institution's ethical review board and each participant (pseudonyms used) was briefed about the purpose of study before they signed the consent form. In case of functionally illiterate participants, mostly at Hospital_R, audio consent was recorded after briefing purpose of study. In some situations doctors also stepped in and took permission for me, allowing me to sit thorough the consultation sessions from patients and people accompanying them. Before starting the field work, I attended educational seminars related to medical technologies used by gynecologists and obstetricians (OB/GYN). This was used for developing an understanding of medical terminologies, and preparing initial interview protocols for doctor and patient. This paper includes data from field work done at two hospitals: One is large corporate hospitals (Hospital_U, where Dr Savitri was practicing), and another is secondary hospital in the rural part of India (Hospital_R where Dr Rita was practising). Both doctors had (some form of) electronic medical record keeping of gynecology/obstetric outpatient consultation.

The field work involved interviewing doctors in their consultation rooms (or a room chosen by interviewee located in hospital premise) and interview of patients in the hospital premise (like hospital lobby or porch or cafeteria/canteen). I conducted un-structured and conversational interviews [26] spread over duration of access granted at each research site. I also asked scenario based questions from doctors around their earlier consultation sessions, documented in my field notes. With these questions I mostly enquired about the specifics of the sessions and records related to it. Field notes and interviews were used to corroborate one another during the data analysis. All audio recordings were transcribed (including translation of interviews conducted in Hindi at

Hospital_R) and, brief handwritten field notes and details of informal discussions scribbled on diary were digitalized. All the data was imported to Atlast.ti 8.0 software which was used for data management and doing structured memo writing. Principles of grounded approach [27] are applied as tool while analysing data. I have arranged my findings thematically, where "theme captures something important about the data in relation to the research question" [28]. In findings sections, I explicate the themes and show how the diverse situations resulted in differential use of computers by doctors and to maintain EMR of women as patients.

The data used in this paper are from Hospital_U (Dr Savitri) having EMR with detailed module for OB/GYN consultation and, Hospital_R (Dr Rita) EMR having basic module designed for general physician's consultation. In next section I provide brief of both sites, followed by thematically arranged findings [28] . I followed suggestion by Stern and Pyles [29] and tried to use concept of affordance described in previous studies on EMR to tell my story (analysis); But as it did not neatly fit my work, I conceptualized "practical affordance" to describe how functionalities available via EMR systems were put to use by doctors in order to support women patients. I have also included one episodic instance from Hospital_R, reconstructed as vignettes using field notes and interview data in the hope of evoking empathy towards participants of this study [11]. Vignette allows reader to engage with situation arising in the field and supports my argument that we need to take into account practical implications of EMR features (where and when is affordances) for patients.

3.1 Dr Savitri's Context: The Urban Setting

Hospital_U was located in city identified as the' fastest growing tech hub' of India. Hospital was marketed as suitable for working couples (professionals) who were busy with their demanding and stressful careers, often involving long hours of work and travel. Most patients who came for consulting in Hospital_U were either working in multinational companies or government employees, covered under health insurance provided by their employers. Keeping medical records of patient on computer was mandatory and printed consultation notes (on A4 Sheet with hospital name on top and digitized signature of consulting doctor at bottom) were given to patient.

3.2 Dr Rita's Context: The Rural Setting

Hospital_R was located in the rural district of eastern India and patients from many neighbouring gram panchayat areas used to visit this hospital. Patients told during field work that they had to use van, bus, or auto to reach this hospital. Most people visiting Hospital_R for consultation were illiterate, some of them (mostly men) were "tenth (equivalent to high school) appeared but failed." Dr Rita was senior (more than 15 years of experience) OB/GYN consultant, assisted by Junior doctors. Patients were not given any printed consultation notes except a slip of paper (around 5cmX7cm) on which their registration number, blood pressure, weight was noted using pen. Most of the patients were not able to read paper slips or records about them on computer.

4 Findings

4.1 Valuing life world in assessment and in patient's record

Doctors mentioned that they had to listen to women, their experiences and descriptions of illness. Dr Rita mentioned during interview that computers distracted her and interfered with her assessment of patients.

> *"When I see the patient, when we see a patient right from the time the patient walks in my attention goes to the patient to see it how she walks in, my diagnosis begins. When she comes and sits down and when I talk to her and then I understand her and by the time I examine her I take history, I go and examine her, I have some diagnosis in my mind already."* -Dr Rita

Dr Savirti used to take time while interacting with patients and taking down notes on computer, she was able to spend around fifteen minutes with each patient, sometimes listening to patient and confirming previous records, updating or adding details about them on their electronic or physical files.

> *"First, I will understand everything, let them talk what they want to talk, let them say, you have to listen, listening, listening is important listening will give them the confidence and ok mam is hearing my problem so they feel so good. I hear so many patients tell .. ….. I thought of telling my personal problem but I couldn't, I was not able to tell her because she was just talking all the medical things and she just sent me off, just like that, I wanted to talk."* – Dr Savitri

Dr Savitri and Dr Rita both sourced information about health of women in dialogue with them and their care givers or person accompanying. Doctors involved people accompanying women in conversations to understand their signs, symptoms and experiences. They also ensured that people accompanying understood clinical care and health related needs of women outside hospital. This was applicable in both the hospital (U and R) however, women coming for consultation with Dr Rita were not able to answer all the questions about family income, daily household chores, convenient time to come for follow up and many other details. They were hesitant in speaking about their husband and in-laws. In all these situations, Dr Rita preferred talking to the person accompanying the women to understand the condition of the family and she used to explain them care required by the patient. Most families in India, young women are supposed to cook for the entire family (comprising of many generations living together in rural areas) besides helping in the fields and taking care of animals. Women consulting with Dr Savitri were mostly working professionals but this does not mean that they were not required to do household chores (some of them mentioned having domestic helpers). While consulting women having weakness and other related symptoms indicating high

physical stress, doctors had to explicitly mention to husbands or parents (in laws) that, they should support and care for women.

The written accounts of interactions with patients and their conditions were focused on clinical narrative of patient's experiences. These records were created to support the monitoring symptoms and response towards treatment. The information was processed and presented in a manner facilitated by the EMR, interactions with and about family (support system) are often obliterated from EMR. This tells that clinical narrative recorded is not the complete picture, as next quotes show that doctors do attend to the experiences of patients, their fears and recognize them as social beings.

*"All this is all small-small things we cannot write, we have to explain it to the patient, if you write these things on the computer what they will understand."*Dr Rita

"So the patient will come and a lady like a mother will come. We understand all these things, our mentality and our sensitivity. So it is for our information, so that some things we cannot write here, we should not write. We should not write something which is very personal the personal thing should be in person." – Dr Savitri

Doctor Savitri summarized about the life worlds of women in records using medical taxonomy, but she also mentioned about being sensitive towards potential harm of having all details in EMR. Dr Savitri mentioned in interview that consultation is not only about writing the clinical treatment, so if she has to write some personal instructions, she preferred writing on print outs and not recording on the computer. During my field work at Hospital_U, I observed that support staff (managing the gynaecology lobby) used to give print outs of consultation records for some patients, in the middle of ongoing consultation with Dr Savitri. In some cases, the treatment also required psychiatric counselling but she either advised patient verbally to go to a counsellor or herself discussed their concerns. However, neither "non-clinical" treatments nor the details on psychiatric counselling required by the patient was recorded in EMR by Dr Savitri.

"It's like giving something a boost mentally we have to give something the counselling should be there, nothing I wrote on the system whatever happened all those things everything is lady relations emotional heart to heart, never on the back of some paper or the system." – Dr Savitri

The excerpt given in the start of paper highlights that Dr Savitri did not document in EMR about patient having PCOS, doctor only mentioned that she had been counselled on "lifestyle modification". Dr Savitri believed that if some information could be documented on computer privately, it would be useful during follow up visits. If patient was counselled about anything during consultation, hardly it was elaborated in the EMR, unless doctors considered it very critical for ongoing care with possibility of

patient visiting multiple hospitals (like infertility treatment, elderly and complicated[2] pregnancy). Sometimes doctors used to write sensitive details on EMR (like in Hospital_R here), especially if they could restrict access to records within hospital and need not give any copy to patients. Dr Rita was mostly dealing with functionally illiterate patients and since records were kept for hospital use only, she summarized about interactions in EMRs after explaining patients along with their care givers verbally.

Dr Rita - Those things also we write, we are not showing them what we are writing so we just write, yes we write that this is a family problem or there is another problem

Dr Rita used EMR fields more flexibly as she made detailed notes about hygiene related conditions causing disease, or even mentioned about patient experiencing domestic violence in records. While the record of consultation (small hand written slip) given to patient hardly mentioned anything except follow up date, vitals and very rarely names of medicine.

4.2 Exceptions in relation to EMR use

Records involved in outside hospital coordination and communication

Sometimes doctors had to augment patients' experiences while taking notes on computer for ensuring that EMRs were usable for them. This was done to support practicality of clinical delivery of care. Dr Savitri believed in explaining treatment, understanding patients' concerns, and responding accordingly before prescribing anything along with alternative treatment possibilities, their pros-cons, etc. For explaining she used paper, computer screen. She preferred using paper for explaining which patients could easily take away with them; keep safely or discard depending upon their situation. The explanation was done to give patient choices, discuss choice with care givers, family members and letting them decide which treatment was best for them and sometimes clarifying the doubts which patient developed after reading online.

"I will listen and then I will explain everything because now not only in the system I will explain them on the papers, everywhere." – Dr Savitri

Dr Savitri narrated during interview situations where compliance in treatment was necessary, i.e., patients were expected to take medicine daily and introduce changes in their routines, explanations were required for not only patient but also to people living with her or because of relationship with patients living with her. She also believed that if she could make patients understand their clinical conditions, they were more careful in adhering to treatment and took better care of their bodies. Sometimes she used to

[2] Doctors I had interacted with, labelled pregnant women having age more than 30 years as elderly pregnancy and women with comorbidities like diabetes, thyroid and/or blood pressure were labelled as having complicated pregnancy.

write about food and additional diet related changes or instructions for people with whom woman was living or care givers at home. Dr Savitri was consulting in hospital in metropolitan city, and patients coming for consultation were mostly educated, and comfortable with the English language. Despite their education background, Dr Savitri pointed out that she had to explain the functioning of the female reproductive system as they lacked understanding about the female sexual and reproductive organs. She used to draw on paper or show images and videos on computer screen before prescribing treatment or advising additional care like diet, exercise.

> *"This is what and you know once you tell this to patient you explain with the diagrams with the photos the patient will understand much and they will be comfortable."- Dr Savitri*

Fields in EMR or paper (print outs) were used flexibly to support women and also ensuring that it remained relevant in future consultation with doctors. This was slightly different for patient coming from the rural area and consulting Dr Rita, as they were not asking explanations from her about treatment and their condition. They were more concerned about avoiding repeat visits to the hospital. One patient whose consultation session I observed had C-section few weeks before. She was visiting for follow up. She asked the doctor about post-surgery hygiene and when she could take a bath. Dr Rita after consultation was over shared that she had experience of dealing with patients who wanted the doctor to intervene and explain their family against some customs like not cleaning body after surgery, eating fatty food and ghee during pregnancy. These patient sometimes belonged to the community where such customs were followed. The local culture and customs were imposed upon the patients to follow, so patients shared their concerns with doctors. Depending upon the time and situation doctor either counselled the caregivers or advised patients to avoid some customs and household chores which could impact their health and wellbeing. Sometimes she explained husband, like in this consultation session that I observed. Dr Rita used to call mother in law or any other person accompanying the patient inside her consultation room and explain the care required by the patient. She often noted on the computer one-line summary about this interaction, presumably to serve as a reminder for follow-up sessions. In situations where, patients were visiting the hospital with husband (but living in joint family), Dr Rita shared with me that counselling husband was of no use. Customs were mandated by elders in the family, whom doctors had no way of reaching and counselling. Giving printed records or writing instructions for the caregivers of the patient in English was also not useful for her patients as most of them were not able to read English. Dr Rita used to sometimes write in Hindi on small sheet of paper given to patient, or ask them to come with their mother in laws for follow up visit.

Within hospital coordination and communication using EMR

Vignette: Making Exceptions or to Design Considering Exceptions.

It was post lunch time and I was sitting in outpatient consultation room with Dr Suresh (Hospital_R). He was consulting OB/GYN patients that day, as Dr Rita was busy in surgery. Dr Suresh was sitting and working on computer. He was typing something and looking at the papers fixed on the examination board. The papers were pink, yellow and white in colour. One woman entered consultation room and she was wearing bright purple saree, having beaded embroidery and silver colour border. I requested both of them permission to sit through consultation and they both nodded their head giving permission, but along with it they gave me a confused look. Dr Suresh looked at me and said, "*This patient is registered in the name of the Dr Rita, but she is not here right now. So we have this privilege with this software here, that anyone can see the patient who is assigned to any (other) doctor and anyone can handle the patient. This privilege was not there previously in the software but this was added specifically for us (Hospital_R). Because here everyone is able to consult all types the patient and we all care for patient, care for each other, and the senior doctors are surgeon so they do surgery also. So if they (senior doctors) are busy in some surgery in the operation theatre and some patient is waiting in the OPD, so initially we were not able to open and consult the patient and then they have to wait for 2 to 3 hours, now that is not the case. Since most of the patient are coming from low socioeconomic background this (waiting) was not good.*"

Dr Suresh turned towards the woman and asked her some questions. He typed something on computer and then told them room numbers they were supposed to go to make payment for diagnosis and medicine ordered using EMR. The woman and her husband came back with staff nurse after 5 minutes and nurse told doctor that they were having 1000 rupees only and all investigation were costing around 1600 rupees. Only doctors were having permission to edit order placed using EMR. Doctor edited few investigations and then confirmed, if they had enough money for commute and for meals during the day. The total of investigation, after editing was coming to be 1010 INR, which bothered husband, since he calculated that he would be left with exact amount left required by them to return back after paying 1000 INR and paying 10 rupees (INR) extra would make things difficult for them. Dr Suresh told him not to worry and go and make the payment of 1000 INR only. As I was sitting inside the room, I saw that Dr Suresh called payment counter and requested them to make an exception of 10 rupees (INR), which he added could be adjusted later from his account.

5 Limitations

I acknowledge that I do not know native language of Dr Savitri and my dialect of Hindi differs from the dialect of junior doctors working in Hospital_R. Second, I had not talked about caste and religion informing interactions and experiences and it would be wrong for me to say that it did not operate. Rather I believe that I did not see some

social categories that are discriminating (particularly caste and religion) and inform experiences of people, this only means that I am privileged enough to not see it. This limits my interpretations and analysis.

6 Discussion

Majority of research (as summarized in related work section) on practice around EMR use boils down to examining actions available to a healthcare provider (doctor), who is executing a healthcare routine [30]. Activities considered as part of healthcare routine are rooted in individual and disembodied notion of patient. This understanding has been challenged by my findings. First, I discuss what mechanism operate in relation to doctor as subject. Next, I discuss that variations in affordance is related to conditions: and it is pertinent that we consider situation while describing what, when and where of the affordance; elaborated as practical affordance. I present my findings with the help of Davis and Chouinard's [13] conceptualization of affordance as, taking it as starting point.

6.1 Functional Affordance for Doctors

Work done by doctor from clinical perspective is supported (mediated) by functionalities in EMR. Functional affordance emerge in relation to doctor's mandate of keeping medical record, i.e. EMR mechanisms demanding set of actions and refusing certain actions. This is related to functionalities and features available in EMR that are identified as set of affordances in previous studies. Doctors share the understanding of these functionalities from their professional training of record keeping and when realized in action it constituted visible affordances [25]. These affordances operate through gradations and are non-uniform [31]. Thus functionality in the EMR like fields to enter data, order diagnostics and write prescription etc. values clinical expert perspective i.e. of doctor [22], thus requesting and encouraging certain actions, but not requiring it i.e. allowing variations.

These mechanism are designed by focusing on 'functional' or dispositional nature of affordance, which builds on assumption that doctors take note of clinical diagnosis of patient's, in order to make it accessible for clinical usage by medical professional (within organization) in future. Faraj and Azad [32] criticized the feature centric approach towards information systems since it leaves little possibility for questioning taken-for granted features. They stressed on looking at both functional affordance in the sense of enabling and constraining action of the technology, and relational affordance that varies with the changing meanings in the context of use. Findings of this study show that depending upon the situation doctors documented and engaged with EMR differently; like writing on printed notes or verbally explaining. Within consultation doctors leveraged artifacts available like paper, computer, online content and explained patients considering them as layperson, translating information recorded about them so that they could act on medical advice. There were instances where doctors have

to resort to use of paper or verbal communication with care-givers also while explaining patients, due to lack of language flexibility or modes of communicating information available in EMR. Thus we need to look at the gradation in affordances in relation to situations and actors (human and non-human both) part of it.

6.2 Practical affordance within situations

We have seen that once materialized in action artefacts of medical records (printed or written records) become part of other relations; it is important to note that there is no breaking point, its flux and that is why in relation. With the changing medical or cultural discursive framings i.e. conditions the meanings around these artefacts keep changing as new meanings emerge. For instance, bed rest advice written in records of pregnant women enabled them to get support and care at home. This also communicated other doctors that patient had difficult pregnancy. In Hospital_R EMR if had details about patient's life world, it helped doctor in explaining patient better, but details on EMR or on printed notes in English were of no direct relevance for patient. These affordances are results of creative co-construction within interactions among actors (human and non-human both), giving rise to meanings in relation to materialities [33]. By seeing affordances as emerging in specific situations we could foreground the practical experiences and emotions of stakeholders.

Women's health and their life worlds are intertwined not only with the disease but also with values and interests coming from society, family they live with, their life partners. Doctors besides having knowledge about their medical field applied cultural understanding about patient while using EMR or interacting with them within consultation. Doctors while treating women considered them as a person and, not mere symptoms or numbers in the records. They were using computer system and EMR for ensuring care, creating records of patient according to their life worlds (like relationship with and support from paternal family, partner, husband, mother in law and socio economic background). My findings make visible the additional work that doctors have to do in these interactions around medical records that are part of consulting process. EMR because of rigid mechanisms lack support for such interactions, making practical affordance limited to certain situations and adding more responsibilities to doctors or patients (including care givers).

My theorization of "practical affordances" is drawing on finding and taking Davis and Chouinard's [13] conceptualization. They demarcate the mechanisms of affordance as artefact—request, demand, allow, encourage, discourage, and refuse subject. We have seen similar mechanism in discussion on functional affordance as summarized above. These mechanisms operate in relation to not just doctor but also patient and their care givers. Thus they are part of context and as per Davis and Chouinard [13] contextual variations in affordance is related to conditions: perception, dexterity, and

cultural and institutional legitimacy. Based on my findings, I make some recommendations to the conditions as defined by Davis and Chouinard. Dexterity instead of being limited to physical and cognitive competencies also includes economic aspects; perception is informed by social approval and cultural norms gaining relevance in situation i.e. when we see affordance; cultural and institutional legitimacy is not limited to hospital or medical institutions but social institutions like family (having roles ascribed to women) or society (having norms about women bodies like mothering). These conditions may change with space and time thus there is spatial and temporal aspect to affordance conceptualization, which I am calling as practical affordance.

7 Conclusion

Doctors when see patient as being living and navigating society, they try to make living with disease or condition more liveable and EMR becomes part of the process. Electronic record keeping systems as designed and mandated in use is indicative of cultural values of individualized, disembodied, systemic and decontextualized understanding of patient. My analysis shows that a system introduced to improve medical record keeping and with this notion of patient in clinical care actually marginalizes the experiences and understanding of patients, especially women. In other words, there is an essential 'tension' between the clinical care valuing efficiency and care involving seeing patient as "living being". Thus I argue that richness and nuances of the medical records, requiring the ability to deal with ambiguous and complex experiences part of living as women, can in no way be replaced with 'structured data' without compromising patient care in practical sense.

References

1. Bansler JP, Havn EC, Schmidt K, et al (2016) Cooperative Epistemic Work in Medical Practice: An Analysis of Physicians' Clinical Notes. Comput Support Coop Work CSCW An Int J 25:503–546. https://doi.org/10.1007/s10606-016-9261-x
2. Kohli R, Tan SSL (2016) Electronic health records: How can is researchers contribute to transforming healthcare? MIS Q Manag Inf Syst 40:553–573. https://doi.org/10.25300/MISQ/2016/40.3.02
3. Berg M (1999) Patient care information systems and health care work: A sociotechnical approach. Int J Med Inform 55:87–101. https://doi.org/10.1016/S1386-5056(99)00011-8
4. McCoy MJ, Diamond AM, Strunk AL (2010) Special requirements of electronic medical record systems in obstetrics and gynecology. Obstet Gynecol 116:140–143. https://doi.org/10.1097/AOG.0b013e3181e1328c
5. Mørck P, Langhoff TO, Christophersen M, et al (2018) Variations in Oncology Consultations: How Dictation Allows Variations to be Documented in Standardized Ways. Comput Support Coop Work CSCW An Int J 27:539–568. https://doi.org/10.1007/s10606-018-9332-2

6. Bardram JE, Houben S (2018) Collaborative Affordances of Medical Records. Comput Support Coop Work CSCW An Int J 27:1–36. https://doi.org/10.1007/s10606-017-9298-5
7. Chen Y, Tang C, Zhou X, et al (2013) Beyond formality: Informal communication in health practices. Proc ACM Conf Comput Support Coop Work CSCW 307–311. https://doi.org/10.1145/2441955.2442030
8. Zhou X, Ackerman MS, Zheng K (2010) Doctors and psychosocial information: Records and reuse in inpatient care. Conf Hum Factors Comput Syst - Proc 3:1767–1776. https://doi.org/10.1145/1753326.1753592
9. Murphy AR, Reddy MC (2017) Ambiguous accountability: The challenges of identifying and managing patient-related information problems in collaborative patient-care teams. Proc ACM Conf Comput Support Coop Work CSCW 1646–1660. https://doi.org/10.1145/2998181.2998315
10. Pearl RM (2017) What Health Systems, Hospitals, and Physicians Need to Know About Implementing Electronic Health Records. Harv Bus Rev 1–6
11. Tandon A, Kandathil G, Deodhar S, Mathur N (2019) Electronic records of obstetrics and gynecology encounter: Beyond professional logics of health care. In: ACM International Conference Proceeding Series
12. Bloomfield BP, Latham Y, Vurdubakis T (2010) Bodies, technologies and action possibilities: When is an affordance? Sociology 44:415–433. https://doi.org/10.1177/0038038510362469
13. Davis JL, Chouinard JB (2016) Theorizing Affordances: From Request to Refuse. Bull Sci Technol Soc 36:241–248. https://doi.org/10.1177/0270467617714944
14. Flanagan ME, Saleem JJ, Millitello LG, et al (2013) Paper and computer-based workarounds to electronic health record use at three benchmark institutions. J Am Med Informatics Assoc 20:e59–e66
15. Bossen C, Jensen LG, Udsen FW (2014) Boundary-object trimming: On the invisibility of medical secretaries' care of records in healthcare infrastructures. Comput Support Coop Work CSCW An Int J 23:75–110. https://doi.org/10.1007/s10606-013-9195-5
16. Pine K, Mazmanian M (2014) Institutional logics of the EMR and the problem of "perfect" but inaccurate accounts. In: Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW. pp 283–293
17. Bossen C, Jensen LG (2014) How physicians "achieve overview." In: Proceedings of the 17th ACM conference on Computer supported cooperative work & social computing - CSCW '14. ACM Press, New York, New York, USA, pp 257–268
18. George JF, Kohnke E (2018) Personal health record systems as boundary objects. Commun Assoc Inf Syst 42:21–50. https://doi.org/10.17705/1CAIS.04202
19. Hausvik GI, Thapa D (2018) "What You See is Not What You Get" - Challenges in Actualization of EHR Affordances. In: ICIS 2017: Transforming Society with Digital Innovation. pp 0–16
20. Goh JM, Gao G, Agarwal R (2011) Evolving work routines: Adaptive routinization of information technology in healthcare. Inf Syst Res 22:565–585. https://doi.org/10.1287/isre.1110.0365
21. Strong DM, Volkoff O, Johnson SA, et al (2014) A theory of organization-EHR affordance actualization. J Assoc Inf Syst 15:53–85.

https://doi.org/10.17705/1jais.00353
22. Markus ML, Silver M (2008) A Foundation for the Study of IT Effects: A New Look at DeSanctis and Poole's Concepts of Structural Features and Spirit. J Assoc Inf Syst 9:609–632. https://doi.org/10.17705/1jais.00176
23. Klecun E, Hibberd R, Lichtner V (2016) Affordance theory perspectives on IT and healthcare organization. In: 2016 International Conference on Information Systems, ICIS 2016
24. Kaptelinin V, Nardi B (2012) Affordances in HCI: Toward a mediated action perspective. Conf Hum Factors Comput Syst - Proc 967–976. https://doi.org/10.1145/2207676.2208541
25. Lanamäki A, Thapa D, Stendal K (2016) When is an affordance? Outlining four stances. IFIP Adv Inf Commun Technol 489:125–139. https://doi.org/10.1007/978-3-319-49733-4_8
26. Rubin H, Rubin I (2012) Qualitative Interviewing (2nd ed.): The Art of Hearing Data. Qual Interviewing (2nd ed) Art Hear Data 71–92. https://doi.org/10.4135/9781452226651
27. Glaser BG, Strauss AL (2017) Discovery of grounded theory: Strategies for qualitative research. Routledge
28. Braun V, Clarke V (2006) Using thematic analysis in psychology. Qual Res Psychol 3:77–101. https://doi.org/10.1191/1478088706qp063oa
29. Stern PN, Pyles SH (1985) Using grounded theory methodology to study women's culturally based decisions about health. Health Care Women Int 6:1–24
30. Lienhard K, Job O, Bachmann L, et al (2017) A framework to advance electronic health record system use in routine patient care
31. Evans SK, Pearce KE, Vitak J, Treem JW (2017) Explicating Affordances: A Conceptual Framework for Understanding Affordances in Communication Research. J Comput Commun 22:35–52. https://doi.org/10.1111/jcc4.12180
32. Faraj S, Azad B (2012) The Materiality of Technology: An Affordance Perspective. In: Materiality and Organizing. Oxford University Press, pp 237–258
33. Leonardi PM (2011) When flexible routines meet flexible technologies: Affordance, constraint, and the imbrication of human and material agencies. MIS Q Manag Inf Syst 35:147–167. https://doi.org/10.2307/23043493