Examining Patients' and Family Doctors' Secure Computer-Mediated Communication through a Discourse-Analytic Lens: A Case Study

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Abstract

Purpose: In this mixed-methods case study, we explore the characteristics of Secure Computer-Mediated Communication (SCMC) from the perspectives of its users-doctors and patients.

Methods: This case study explores SCMC in an urban family practice clinic in Tel Aviv, Israel. In the qualitative stage, we conducted content and conversation analyses respectively in order to analyze 90 patients and family doctors' meaningful stories and 340 interactive messages from a patient portal. In the quantitative stage, we administered a questionnaire based on the qualitative stage to 500 patients. To enhance trustworthiness, we employed researchers', data and method triangulation.

Results: Content analysis of the patients and doctors stories revealed that they emphasized the advantages of SCMC. Doctors also stressed the irreplaceability face-to-face encounters in urgent, complex cases. The interactive data analysis showed which discursive actions were performed by patients and how the doctor managed to overcome the word limit and relate to the patients' requests, constantly displaying empathy and understanding of the latter's emotions and constructing relevant medical information. Finally, the quantitative analysis revealed patients 'reasons for choosing the service and their satisfaction therewith.

Conclusions: The study shows that although the service is timesaving and efficient, it cannot replace face-to-face medical communication. In addition, discourse-analytic methodology enhanced the analysis of patients and doctors' points of view on the advantages and limitations of SCMC.

Keywords: Discourse Analysis; Patients' and Doctors' Perspectives; Secure Computer Mediated Communication

Introduction

The introduction of information and communication technologies into medicine has effected changes in the traditional asymmetrical doctor-patient face-to-face encounter. In consequence, patients utilizing diverse medical internet resources [1] have become more involved in the encounter [2] and in the decision-taking process [3].

Research focusing on family medicine has further fore grounded some of the advantages and limitations of SCMC, showing that it can help patients update their medication list [4]. conduct secure email communication with their doctors via online portals [5]and enhance communication between specialists and primary care clinicians [6]. Other studies emphasize the need to further explore the feasibility of computer-mediated medical services from medical, organizational, economic, and ethical points of view [7-9].

Qualitative health research often explores health and illness in order to understand the meaning patients and doctors attribute to their experience [10]. Institutional discourse analysis [11] is a research domain comprising theory- and data-oriented approaches [12] which provide theoretical and methodological frameworks that may enhance the study of the discursive actions [13] performed inductor-patient encounters. Inspired by discourse analy-

sis, [12-14,17] we assume that people frequently verbalize their meaningful experience in both 'Small' past tense stories [14-16]. (See Appendix 1) and generic stories-a skeletal narrative genre [17] derived from specific stories by a process of abstrac¬tion [18] (Appendix 2) We also assume that naturally-occurring [19] and interactive SCMC will enable us to explore the discursive actions [13]. Performed by the participants in the current study, we explore the characteristics of SCMC from the participants' perspectives (i.e. patients and family doctors) [9,20]. This data-oriented study [12] is guided by the following research

Questions:(1) How do family doctors and patients construct the meaning of medical SCMC in meaningful stories that they narrate? (2) What are the characteristics of computer-mediated family doctor-patient encounters?

Methods

Participants and Setting

In this case study [21,22]. We explore an urban family practice clinician Tel Aviv with 5,000 patients managed for the past 22 years by the first author, a specialist clinician in family medicine. The clinic is affiliated with a medical school in one of the leading universities in Israel and with one of the Israeli HMOs (Health Maintenance Organizations). Every three months, approximately 2,200 patients seek medical assistance or consultation in the clinic. The first author employs a patient portal-a secure online website that allows patients to view their lab results, exchange secure e-mail with their family doctor, request prescription refills, and make doctor's appointments. This service allows patients and doctors to exchange limited messages (maximum 500 characters) on non-urgent topics.

Research Design and Data Collection

In the qualitative stage of this mixed-methods [23] case study, the first author-mailed patients and family doctors affili-ated with the same HMO, requesting that they narrate meaningful SCMC-related experiences (Appendices 1-2). The data comprise 47 patients' and 43 family doctors' stories and 340 interactive messages from the patient portal written by patients and the first author in March and April 2014 (Appendix 3). During the subse-quent quantitative stage, a questionnaire based on the findings of the qualitative stage was administered to 500 patients, asking them (1) to provide details, on a 5-point scale, regarding gender, age, and satisfaction with SCMC, and (2) to list the reasons for using this service.

Methods of Analysis

To analyze what was on the doctors' and patients' minds when they narrated meaningful experiences, we employed con-ventional content analysis [24]. To analyze how the family doc-tor and her patients performed diverse discursive actions interac-

tively in the SCMC, we used institutional conversation analysis, which has been influential in medicine and psychology [11,25]. To enhance trustworthiness [26], we employed researchers 'Data and method triangulation'. The first and third procedures enabled us (a family doctor running the clinic, a discourse analyst, and a psychologist) to discuss the findings and their interpretations and reach agreement [12]. The second procedure provided us with two data sources related to the aim of the study. In addition, frequen-cies were computed for the patients' satisfaction with SCMC, and for their reasons for using this service.

Results

Analysis of the stories showed that the patients unfolded personal stories (Appendix 1)

- While I was on a trip to South America, I needed help for a medical problem I had.

- I used the internet to communicate with my family doctor and she helped me solve the problem.

- Thanks to her, I could continue the trip.

- I think that using the internet for communication is very use-ful.

- And it eliminates the need to visit the doctor in an emergency or wait a long time for an Appointment.

- I use the internet services a lot to communicate with my fam-ily doctor and I'm very pleased that such a possibility exists.

Appendix 1: Patient's story (female, age 31).

Whereas the doctors used generic stories to conceptualize their experience-based practical knowledge (Appendix 2)

- Although I don't have a specific case, the service is very help-ful.

- Students who spend a few days each week in another region turn to me for

- Prescriptions, medical tests, and consultations.

- It enables them to receive ongoing medical service from the same family doctor

- The conversation is documented, and in cases where I refuse to give a prescription and require a blood test or a blood pres-sure measurement, it is all documented.

Appendix 2: Family's generic stories (Male, age 45; 14 years of experience).

Content analysis of the patients' stories for grounded the following themes: SCMC is more efficient, saves time, simplifies procedures, and overcomes geographical distances. Patients are satisfied with the immediacy of the doctors 'responses and expla-nations of medical tests as well as with referral to other doctors-particularly in emergency situations.

The doctors stressed that the service is efficient, convenient, and time-saving, thereby enabling them to allocate time resources to other urgent cases. It also permits detailed documentation. In urgent, complex cases, however, face-to-face encounters are irreplaceable. Analysis of the interactive data shows that most computer-mediated encounters were dyadic, request–response exchanges. Turn-by-turn analysis yielded the interactive dimensions of this SCMC. The discursive actions performed by patients comprised requests (i.e., assistance in emergency situations, prescriptions for oneself or a relative, doctor's certificates, explanations of and additional information about a certain topic, referrals to other doctors) and expressions of gratitude and emotions. There were also requests for assistance in emergency situations.

The doctor's interactive responses demonstrate that she managed to overcome the word limit and relate to the patients' requests, constantly display empathy and understanding of their emotions, and construct relevant elements of medical knowledge (Appendix 3).

The patient:

Hi Dr. B.,

My blood tests are back and I see that my TSH is high. Could you please go over them?

I'd like to get some information about my condition.

Thank you and have a nice day,

S.G.

The doctor:

Your thyroid is abnormal for the first time, so we will repeat the test in a month and decide what to do at that point.

The other tests are normal except for your vitamin D, which is low. You can begin treatment by taking the entire weekly dosage in one go once a week.

After the test in a month's time, please contact me again in the same way.

Have a nice weekend. P.B.

Appendix 3: The dyadic exchange.

Analysis of the patient questionnaires reveals the respondents' levels of satisfaction with the service as follows: 82%-high level, 12%-medium level, and a mere 6%-low level. It also shows the reasons for the patients communicating with family doctors digitally (the categories are not mutually exclusive): 81%-additional treatment and medication, 79%-doctor's certificates, 76%-urgent prescriptions, 53%-explanations of medical tests, 48%-a reassuring message from the doctor, and 15%-crisis resolution.

Discussion

The findings provide answers to our research questions. In their stories, the doctors and patients emphasized that SCMC is efficient and time-saving. Specifically, the patients underscored the importance of the family doctor's explanation of medical test results whereas the doctors stressed that in urgent, complex cases, face-to-face encounters are irreplaceable. Analysis of the doctor-patient SCMC highlighted the discursive actions performed. Of particular interest were the findings showing that the doctor was able to overcome the word limit and relate to the patients' cognitive and emotional needs. This discursive action was often constructed via relevant medical information that could alleviate unnecessary stress. The quantitative phase further emphasized the respondents' satisfaction by highlighting the qualitative findings quantitatively and foregrounding the importance of the doctor's sensitivity vis-à-vis the patients' emotions in times of stress.

The study stresses the contribution of discourse analysis in the investigation of patients 'and doctors' perspective son SCMC. These participants of the digital encounter emphasized the advantages and limitations of SCMC and stressed the need 9 the service. It is important to note that the doctors acknowledged that the service is time-saving and efficient, but emphasized that it cannot replace face-to-face communication when the case is complex and calls for physical examination.

In order to apply the findings of the study to other branches of medicine (e.g. pediatrics, and ophthalmology) future research should expand the data collection qualitatively and quantitatively. In the qualitative stage, diverse doctor-patient CM communication in other branches of medicine should be explored. In the quantitative stage, questionnaires should be sent to patients as well as doctors and policy makers.

The practical implications of the study regarding its application in other branches of medicine and in public health in general should be listed in the end. When CM communication is applied, it is advisable to base it upon the characteristics of patients' and doctors' demands and needs. Risk assessment and prevention should accompany the process and ethical issues should be addressed.

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