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What leads to effective online physician-patient communication? The power of convergence

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1. INTRODUCTION AND RESEARCH QUESTIONS

Online health communities (OHCs) have developed in recent years, with more and more patients with chronic diseases using them to communicate with their physicians. Existing studies have examined the impact of online physician-patient communication on patient outcomes from numerous perspectives, however, relatively few studies have focused on the effect of physician-patient communication at the textual level, more specifically, the linguistic features of physicians and patients. In the case of online communication, the facial expressions and movements of both parties cannot be observed, therefore, the linguistic features of both physicians and patients is believed to have an impact on each other^[1]. Therefore, to address the aforementioned research gap, the first research question of our study is: **RQ1:** How do linguistic features embedded in physician-patient communication influence patient satisfaction, in turn impacting the compliance of patients with chronic diseases?

The heterogeneity of physicians may affect their communication style, which is manifested in different writing styles in online communication. The title of a physician is an objective reflection of ability among physicians, where a higher title often indicates a higher level of medical competence^[2], which is likely to extend to the professionals' communication skills. However, few studies have sought to evaluate the potential differences in language style among physicians with different professional titles or whether such differences might affect levels of patient satisfaction and compliance. Therefore, our second research question is: **RQ2:** Are the effects of convergent semantic and stylistic features in online physician-patient communication on patient satisfaction contingent on the physician's title?

The effect of satisfaction on compliance in previous studies has not always been significant^[3]. Such inconsistency suggests that there may be some previously unidentified factors at play. Since compliance is a manifestation of patient self-management behavior, patient-level characteristics may be the main actors. Hence, we introduced complications, a characteristic of patients with chronic diseases, to moderate the relationship between satisfaction and compliance in order to explain the inconsistent findings in previous studies and provide a factor to consider for future work. Accordingly, our third research question is: **RQ3:** Is the effect of patient satisfaction on patient compliance contingent on complications?

2. THEORETICAL FOUNDATION

Communication accommodation theory (CAT) is a comprehensive conceptual framework that describes the ways in which people adjust their communication behaviors during social interactions, their motivations for doing so, and the social consequences^[4]. CAT puts forward three main behavioral strategies in a variety of situations: convergence, divergence and maintenance. Convergence is the adjustment of an individual's communication behavior to be more similar to the interlocutor, in contrast, divergence refers to individuals adapting their communication behaviors to appear more dissimilar. In addition, interlocutors may engage in maintenance, which is sustaining one's "default" way of communicating without adjusting for others^[4]. Convergence can be seen as a signal of harmony that helps individuals perceive each other's emotional state in communication, thus facilitating more fluid communication and understanding^[5]. Therefore, convergence behavioral strategies are often used when people are looking for the satisfaction and understanding of their interlocutors^[6]. Thus, we sought to determine if the convergence of different linguistic features between physicians and patients could represent effective physician-patient communication with an emphasis on promoting patient satisfaction and compliance.

3. RESEARCH METHODOLOGY AND RESULTS

Patients with diabetes are selected as samples since diabetes is a common chronic disease. We collected the historical consultation data of a well-known online health platform in China. Ultimately, our dataset includes 15488 consultation records of 281 physicians, the time range is from 2016 to 2021. Logistic regression was used to test our hypotheses. The physician-patient concreteness convergence ($p<0.01$) and the physician-patient emotional convergence ($p<0.01$) positively influenced satisfaction; physician-patient language style matching ($p<0.01$) positively influenced patient satisfaction. Professional title negatively moderated the relationship between physician-patient concreteness convergence and patient satisfaction ($p<0.01$) but positively moderated the relationship between physician-patient emotional convergence and patient satisfaction ($p<0.01$). The coefficient of Title* LSM was not significant ($p>0.1$). Meanwhile, the results indicate that patient satisfaction had a positive impact on patient compliance ($p<0.01$), the moderating effects of complications on the relationship between satisfaction and compliance were negative ($p<0.01$).

4. CONCLUSION

Online consultations allow patients with chronic diseases convenient access to their physicians, which is extremely helpful for their self-management and health conditions. However, little research has focused on the influence of linguistic features in online physician-patient communication. Therefore, by drawing on the CAT, we proved that the convergence of semantic features (language concreteness and emotional intensity) and stylistic features (LSM) in online physician-patient communication positively affects patient satisfaction and in turn positively affects patient compliance. Physician title moderates the relationship between the convergence of semantic features and satisfaction but has no significant effect on the relationship between the convergence of stylistic features and satisfaction. Complications in patients with chronic diseases negatively influence the relationship between satisfaction and compliance. In closing, our findings contribute to the study of CAT, compliance and online health care, and our work also provides practical implications for physicians and the managers of online health platforms.

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