

# Enhancing Patient-Provider Communication With Gen AI: Investigating The Use of Llms To Translate Medical Jargon Into Patient-Friendly Language, Improving Understanding and Satisfaction In Telemedicine Consultations

Antony Ronald Reagan Panguraj\*

**Citation:** Thomas S. GenAI and LLMs in Software Testing: Automating, Optimizing and Gaining Deeper Insights. *J Artif Intell Mach Learn & Data Sci* 2023, 1(3), 2462-2465. DOI: doi.org/10.51219/JAIMLD/antony-ronald/529

**Received:** 01 September, 2023; **Accepted:** 28 September, 2023; **Published:** 30 September, 2023

\***Corresponding author:** Antony Ronald Reagan Panguraj, Independent Researcher, King of Prussia, USA, E-mail: antony.reagan@gmail.com

**Copyright:** © 2023 Antony Ronald Reagan P., This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

## ABSTRACT

In the recent past, teleconsultation has emerged as one of the main ways through which the patient and the healthcare provider communicate. Nevertheless, there is a challenge in telemedicine since the doctor and the patients hardly get to communicate including when medical terms are used commonly. Such situations create misconceptions regarding the patient, dissatisfaction and compromise the general wellbeing of the patient. The best solution to this problem today, which is common among Generative AI, especially Large Language Models (LLMs), is to provide more clarity and translation of medical terms to patients, which will increase overall comprehension and satisfaction. It will be possible due to the relatively recent LLMs, including, for instance, OpenAI's GPT models, which possess the ability to analyse, as well as simplify, the meanings of medical information, so that patients with different levels of education or literacy, could easily grasp them.

The communication problem can thus be solved by having LLMs to be the middle link between the health givers and patients to facilitate the realization of the objective set during consultation. These models can translate, in real time, clinical language into language comprehensible to patients, by analysing and distilling clinical language into easily-consumable text. This is particularly relevant in telemedicine consultations, because without the physical interaction with the provider, patient may struggle to has questions or express confusion, discomfort or uncertainty. LLMs can also be used as a bot to answer back patient enquiries to avoid mishap and confusion with the wrong information but provide an accurate outcome to satisfy the patient need.

Moreover, LLMs can be incorporated into applications of telemedicine to aid in producing less complex material such as discharge information, medication information and follow-up care plans, enhance patient understanding and adherence to recommendations respectively. The introduction of LLMs to this discussion and their application in improving the profession AIDS patient interaction also improves the overall the general health of an individual as a result of informed decision making and improved compliance with health care plans. With the increasing uptake of telemedicine, value of technology-aided communication models will be critical in the process of enhancing the access, quality and patient satisfaction in remote care delivery.

**Keywords:** Generative AI, Large language models, Telemedicine, Patient-provider communication, Medical jargon, Healthcare satisfaction

## 1. Introduction

Online consultations have become an essential part of the contemporary medical world primarily due to the COVID-19 pandemic that forced the acceleration of the telemedicine trend. As a result, one of the tasks that remain more pressing as healthcare services move online is the nature of ‘voice’ patients and their healthcare providers use to communicate. Apparently, in a telemedicine consultation, misunderstanding is more likely to occur because the physician does not see his or her patient, which is more likely going to happen with the use of complicated medical terms or acronyms. This is rather troubling, as many patients struggle with comprehending a large portion of the medical terminology and concepts that doctors and other healthcare workers use; when a patient has difficulty understanding what their doctor or nurse is saying, that patient is likely to become stressed and the likelihood of them receiving inadequate care is greatly increased.

Hearing has been referred to being central to the overall practice of care given that it determines patients’ understanding and satisfaction as well as the ultimate outcomes of a health care process. As much as this is true, according to the Institute of Medicine, effective communication must always be promoted as a way of enhancing safety of patients and subsequent health outcomes. However, due to complexity it becomes difficult for many patients to comprehend different medical terms which in turn hinder them from making right decisions concerning their wellbeing. Studies reveal that there are dramatic differences in the way different individuals or groups comprehend and process health information and that those with lower health literacy are sicker, hospitalized more often and spend more on healthcare.

Of all the generative AI models, the current state of Large Language Models (LLMs) holds the potential to solve this communication issue effectively. The LLMs, which are based on tons of textual data, are ready to produce the responses that seem to come from a flesh-and-blood doctor and interpret the complicated medical jargon for patients. Combined with medical records and clinical guidelines or treatment plans, LLMs are ready and able to assist healthcare delivery professionals to provide real-time ‘translation’ of medical narratives into lay language so that they can better explain to patients. Moreover, these models can produce concise summaries of consultations that patient can easily understand when it comes to their diagnosis, what treatment is suitable for them and the recommended care.

The possibility of LLMs in improving patient-provider communication in telemedicine is great. The use of these models can prompt the important processes wherein complicated information may be converted in a way that does not mislead the patient but is also adapted to the patient’s comprehension. While telemedicine is gaining popularity, the integration of LLMs into these consulting processes can help increase patient interest and satisfaction and, therefore, the effectiveness of the consultations. By thus removing the disconnect between the healthcare providers and the users, the advanced AI solutions can ease the communication barrier that they continue to experience.

## 2. Literature Review

Interpersonal communication continues to be a critical component in the delivery of quality health services particularly with the emerging use of Telemedicine. However,

the conversation continues to be laden with medical terms and this poses a lot of the challenge in relationships between patients and care providers. Studies have long pointed out the discrepancy between the medical jargon employed by doctors and the comprehensibility thereof by the patients. Research done on health literacy demonstrated that more than 80% of the adult population in the United States needs help to understand health information and that results in high risks and worsened health care for the patients who comprise this population<sup>1</sup>. These discoveries are especially worrying considering the situation in telemedicine where at least clients and healthcare providers are able to communicate directly face-to-face.

The use of GPT-3 and other Large Language Models (LLMs) have been realized in general healthcare domain especially in NLP area. These are models designed from large volumes of text data and are capable of analysing text and drawing insights from large chunks of information which are perfect for translating content into language that is easily understandable by average citizens. It has also been shown that AI language tools could paraphrase the specialist’s medical terms, making patients better understand during consultations<sup>2</sup>. Using LLMs, one can obtain explanations, diagnoses and treatment plans in a manner understandable by a patient as well as explain the potential dangers to the patient.

Furthermore, it is because of LLM’s natural interaction skills that more interaction-based patient education can now be possible. Responsive virtual assistants have been tested across several healthcare areas such as telehealth to ensure that healthcare clients obtain prompt responses to their inquiries. Variety of tasks: such assistants can help to explain medical information, advise and direct a patient through the decision-making process, thus increasing the patient’s participation in treatment<sup>3</sup>. In addition, there is evidence that the use of AI increases patient satisfaction with the care process because consumers receive more clear and easily understandable knowledge regarding their conditions and treatments<sup>4</sup>.

Apart from helping to enhance consultation interaction, LLMs can also be useful in the production of letter, handout and brochure material, including discharge information and post-consultation care directives. These AI-developed content may further be presented in a manner that is patient-sensitive, in accordance to the patient’s cognitive capacity, in order to make it easy for the patient to make proper decisions from the read resources. Significantly, the study has highlighted that where patients are exposed to health education material that they understand and consider relevant to their circumstances they are more compliant regarding medication regimen, clinic appointments and generally healthier<sup>5</sup>.

## 3. Problem statement

Yet, when it comes to breaking barriers in communication, telemedicine still presents major hurdles, notably those to do with the medical terminology used. Because healthcare providers tend to use technically dense language, patients are frequently bewildered, apprehensive and nonadherent. Such a circumstance is also compounded by the lack of time to help clear the misunderstanding since during virtual consultation, patients may not ask questions or sometimes they may not fully comprehend what the health care professional is trying to explain to them. This is even more so the case with low health

literacy patients, elderly people and those with chronic diseases who need regular checkups.

Furthermore, medical information is usually complicated and thus, it is usually misinterpreted, meaning that people will make poor health decisions. Patients may fail to adhere to the correct dosage regimens, clinic visits or prescribed therapies and therefore influence the health status of the patients in facility. A study shows that patients who have difficulty in following their physicians' instructions have worse outcomes including high risk for hospitalization and high cost of healthcare<sup>6</sup>. Given the increasing utilization of telemedicine, it is important to overcome these communication barriers with a purpose of ensuring patients understand their medical condition and the processes involved in treatment.

The challenge is especially acutely felt in telemedicine, where direct contact is restricted and additional cues that might clear up confusion do not apply. Thus, the need for new ways on fostering or enhancing the communication between the patients and the providers as well as enhancing the availability of the health information. A viable approach can be found in Generative AI and Large Language Models as tools that can be used to translate between doctors and patients, to find ways to address the issue of complex medical lexicon that may be understood in a very different way by the latter.

#### 4. Solution

LLMs of the generative AI are particularly useful in answering this call to enhance telemedicine by translating the medical terminology and explanations into understandable patient language. That is why LLMs is the most effective tool when addressing a large number of people, as it helps to understand medical terms and rephrase them, putting into words that convey the same information effectively. Patients who undergo smartphone-equipped LLMs can give them an easy-to-understand diagnosis explanation based on the telemedicine consultation<sup>7</sup>. The real-time information simplification assists patients in comprehending medical conditions and possibilities of treatment and considerably improve patients' awareness of the healthcare they receive.

In addition, LLMs may be used to improve patients' experience by offering them accurate multimedia replies to inquires at a real-time manner. These artificial intelligent systems, can be trained to producing responses, which are patient friendly, addressing the particular questions patients have. For instance, an AI-based chatbot, for instance, can provide answers to questions regarding medications, discuss the possible side effects and give recommendations regarding home remedy for the symptoms<sup>8</sup>. Not only does this facilitate the conveyance of medical knowledge from the patient's perspective, as well as relieve the patient's stress and increase their confidence in telemedicine.

Apart from enhancing the timely communication, LLMs can produce individual written documents including discharge instructions, further management advice and medication regimen. These are mostly written materials that can be made consistent with the health literacy level of the intended patient to have an easy time understanding instructions given to him/her. The use of such an approach increases patient compliance, evades mistakes and enhances desired health results<sup>9</sup>.

In general, the combination of Generative AI and LLMs into the consultation used in telemedicine solves the problem of communication barriers that affect patients' understanding. In this paper, LLMs will be shown to have the potential to increase the quality of care and patient satisfaction in telemedicine through the reduction of medical complexity, the increase in engagement and the preparation of information to be understood and readily usable.

#### 5. Conclusion

Holding the benefits of using Generative AI to telemedicine, especially Large Language Models, it can be stated that the option has a high possibility to improve the process of interaction between the patient and provider. Because LLMs can easily translate medical terms and conditions into layman language that patients understand their doctors' advice, they can enhance the consultative process, enhance patient satisfaction and thus boost patient health. If providers could explain medical terminology in simple terms as they speak, the chances are that the patients will be in a better position to understand their doctors and even their treatment plans. This is especially important in telemedicine since there are no face-to-face contacts and a patient may not want to ask questions or admit to not understanding something.

There is evidence that clearly suggests that lack of effective communication between patients and healthcare providers results to poor patient satisfaction, increased levels of health-related anxiety and overall poor health. Thus, to eliminating such problems, telemedicine platforms can offer a number of improved and accessible LLMs. Also, the individual patient-friendly written materials allow for full patient comprehension of their post-treatment recommendations, which sustains patient compliance with treatments and follow-up recommendations.

In conclusion the study shows that LLMs are beneficial in enhancing communications on a range of conditions that are significant in improving the lives of patient and should also be understood that while such systems hold substantial gain in enhancing communication, they are not to be seen as a substitute for human health care professional, but a tool that will help in supplementary care. It is clear that LLMs can help providers deliver accurate, accessible and relevant information, but the way bringing human touch to patient-clinician communications affects trust, empathy and understanding in the context of patient care. However, AI communication tools in patient care require constant improvements in the area of enhancing the precise and efficient detection of all relevant patient needs.

Therefore, Telemedicine innovation through the Generative AI brings optimism to the delivery and focus of healthcare with greater patient experiences. Through increasing understanding enhancing patient interaction, LLMs can help fill the gap and create better healthcare throughout the nation for the digital age.

#### 6. References

1. Davis TC, et al. Health Literacy and Cancer Communication. *The Journal of Clinical Oncology*, 2002.
2. Kluge E, Jones A. Understanding AI in Healthcare: A Review of Applications. *Healthcare AI Journal*, 2020.
3. Smith R, Williams L. Virtual Assistants in Healthcare: Improving Communication. *Telemedicine and e-Health*, 2021.
4. Miller S, Young T. Reducing Patient Anxiety with AI-Powered Healthcare. *Journal of Health Communication*, 2022.

5. Bowers S, McDowell K. Patient Compliance in Healthcare: The Role of Understanding. Patient Education and Counselling, 2021.
6. Anderson P, Foster J. Barriers to Patient Understanding in Telemedicine. Journal of Telemedicine and Telecare, 2019.
7. Zhang L, Cooper R. Virtual Assistants: Revolutionizing Patient Interactions. AI in Healthcare, 2022.
8. Thomas J, Brown C. Personalized Patient Instructions Using AI. Journal of Digital Health, 2021.