

Suffering-based Medicine in the Age of Artificial Intelligence

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Braz J Oncol 2025;21:s00451809360.

Abstract

Keywords

- ▶ physician-patient relations
- ▶ artificial intelligence
- ▶ deep learning
- ▶ neoplasms/psychology
- ▶ medicine
- ▶ narrative

The present paper delves into suffering-based medicine (SBM) and its potential use with artificial intelligence (AI). Suffering-based medicine provides a hermeneutical approach to patient care, allowing a deeper understanding of the subjective experiences and meaning behind a patient's suffering. With the rise of large language models (LLMs) based on deep learning, the integration of AI in the medical field has become increasingly frequent. The current study explores two cases of physicians diagnosed with cancer, utilizing SBM and an LLM, to analyze their narratives and provide a hermeneutical understanding of their suffering. Through this integration, AI can offer valuable insights into the multidimensional nature of suffering and enhance the patient-physician relationship. Further research is needed to assess the practical application and impact of this integration on patient outcomes.

Introduction

Suffering-based medicine (SBM)¹ provides a comprehensive framework for understanding the multidimensional nature of the suffering of patients. This framework emphasizes the importance of a hermeneutical approach to patient care, in which the subjective experiences of the suffering of patients affected by a disease are explored and interpreted. Suffering-based medicine uses knowledge of several humanistic disciplines, such as sociology, anthropology, psychology, literature, history, theology, etc. This comprehensive hermeneutical effort enables the physician and patient to create a multidimensional construct that represents the patient's suffering. Searching for a meaning for this construct can be therapeutic as can other strategies to mitigate this suffering, such as counseling and bibliotherapy. All these therapies depend on a more profound understanding of the suffering experience afforded by SBM. Suffering-based medicine does not conflict with scientific evidence-based medicine but rather complements its practice through its broader humanistic scope of understanding human suffering.¹

In recent years, large language models (LLMs) have become widely available.² These models are based on deep learning and trained on large text data corpora. They can generate human-like text and can be used for many tasks, such as translation, summarization, and question-answering.^{2,3} Its potential applications in the medical field are vast, including clinical decision support, clinical note writing, patient reports generation, filling insurance forms, and patient education.³ Some of these applications are promising in saving valuable time for clinicians that could be redirected to patient care, thus improving patient's and doctor's satisfaction. Interestingly, LLMs can also analyze patients' narratives and provide insights into their subjective experiences.⁴ In fact, researchers are already exploring how artificial intelligence (AI) can be used in the practice of psychiatry and psychotherapy.^{5,6}

We wanted to explore in this paper whether LLMs could also help in the hermeneutical effort to understand patients' suffering in the context of SBM through two cases of physicians diagnosed with cancer.

received
February 20, 2025
accepted
March 15, 2025

DOI <https://doi.org/10.1055/s-0045-1809360>.
ISSN 2526-8732.

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Materials and Methods

Theoretical Framework

The present study uses the SBM framework, which focuses on understanding and addressing the multifaceted aspects of suffering, including the physical, psychological, and existential dimensions.¹ The hermeneutical approach, central to SBM, involves interpreting the patient's narrative to uncover deeper meanings and implications of their suffering as described previously.¹

Case Selection

I selected two clinical cases of physicians diagnosed with cancer from a book chapter I wrote initially in Portuguese for a book on humanism and medicine.⁷

We used the two clinical cases through narrative accounts from the above-mentioned book chapter. The first case involves a doctor diagnosed with prostate cancer, while the second case concerns a urologist who kept his prostate cancer diagnosis a secret for seven years. These narratives included detailed descriptions of the physicians' experiences, emotions, and interactions with colleagues and family members.

Hermeneutical Analysis by ChatGPT4 (LLM)

We uploaded the book chapter containing these 2 cases⁷ (→ **Appendix 1**) and the seminal article describing SBM¹ into ChatGPT4 (OpenAI). We used the following prompt:

“Based on the SBM text file, please give me a hermeneutical understanding of the two cases described in the Chapter 6 file with a way of signifying the suffering of both patients and two suggestions of philosophical texts for their bibliotherapy”.

The narratives were analyzed by ChatGPT4 to understand the subjective experiences of the physicians.

Results

Case Analysis and Hermeneutical Understanding

ChatGPT4 provided the following output:

“Case 1: The Doctor Diagnosed with Prostate Cancer

In this case, the doctor experiences significant emotional turmoil upon receiving a diagnosis of prostate cancer. His initial reaction includes shock, fear, and anxiety, exacerbated by his medical knowledge, which both informs and misguides him. The suffering he endures is multifaceted, encompassing physical pain, psychological distress, and existential fear.

Hermeneutical Understanding

1. **Subjective experience:** The doctor's suffering is deeply personal, influenced by his medical background and the sudden role reversal from caregiver to patient. This shift challenges his identity and evokes a profound sense of vulnerability.

2. **Interpretation of suffering:** His suffering can be seen as a crisis of meaning, according to which his previously stable life narrative is disrupted. His distress is not only about the physical implications of cancer but also about the uncertainty of his future and the impact on his professional identity.

Case 2: The Urologist with Prostate Cancer

The second case involves a urologist who keeps his cancer diagnosis a secret for seven years. His suffering includes not only the physical and psychological burdens of his illness but also the weight of secrecy and the isolation it brings.

Hermeneutical Understanding

1. **Subjective experience:** This urologist's suffering is compounded by the internal conflict of maintaining a professional facade while privately grappling with a serious illness. His decision to keep his diagnosis secret is driven by a desire to protect his family and maintain his professional standing.

2. **Interpretation of suffering:** His suffering reflects a sacrifice and a form of altruism, in which his professional duty and personal identity are deeply intertwined. The secrecy adds a layer of isolation and emotional strain, highlighting the complex interplay between his personal and professional lives.”

Search for Meaning of the Suffering Experience

ChatGPT4 provided the following output:

“To signify the suffering of both patients, we can use the following approaches:

1. **Narrative expression:** Allowing the patients to share their stories in their own words can help articulate their suffering. This process can reveal the multifaceted nature of their distress and provide a therapeutic outlet for their emotions.

2. **Symbolic interpretation:** Using metaphors and symbols can help convey the depth of their suffering. For instance, the doctor's cancer can be seen as a “shadow” over his once bright professional life, while the urologist's secret can be represented as a “cloak” that hides his true state.

Bibliotherapy Suggestions

1. **Man's Search for Meaning, by Viktor Frankl:** This book offers insights into finding meaning in suffering, which can help both patients reconceptualize their experiences and find purpose amidst their challenges.

2. **The Wounded Healer, by Henri Nouwen:** This text explores the concept of healing through understanding and sharing in the suffering of others, which can resonate with both patients as they navigate their illnesses and their roles as medical professionals.

By engaging with these philosophical texts, the patients can find solace and new perspectives on their suffering, aiding their emotional and psychological healing.”

Discussion

We showed that applying SBM hermeneutical framework to two clinical cases with the aid of ChatGPT4 provided a deeper understanding of the suffering experience of both patients. In fact, by employing the SBM-suggested approach, an LLM could uncover the complex and subjective nature of both patient's suffering experiences. Furthermore, the LLM was able to show that the two physicians' suffering experiences here reported were not solely due to the physical aspects of their illness but also to the psychological and existential challenges they faced. As suffering is conveyed through language, it is conceivable that future improvements in LLMs will translate into more precise hermeneutical interpretations of this human experience.

The hermeneutical interpretation provided by ChatGPT4 coincides with that of the author as case 1 reflects the author's own experience with prostate cancer and case 2 represents a patient and friend of the author.

As this is a non-prospective study, we did not employ the hermeneutical understanding of the patients' suffering experiences and the reading suggestions proposed by ChatGPT4 to any patients to test their usefulness and efficacy in mitigating their suffering. This study may serve only as proof of concept that an LLM can help in the hermeneutical effort to understand patients' suffering in the context of SBM. Therefore, future studies are needed to investigate the practical application of LLMs in the clinical setting and to assess their impact on patient outcomes.

Artificial intelligence technologies have the potential to streamline many of the repetitive and time-consuming tasks physicians face daily.³ However, the time-saving capacity afforded by AI in health care can only be wisely used if it is redirected to patient care.⁸ The temptation of monetizing the increased productivity afforded by AI should not stimulate the increase of patients seen per doctor, as this perversion of understanding would only jeopardize patient satisfaction and outcomes. Likewise, the hermeneutical understanding of the patient suffering experience afforded by AI should only serve as a tool for a compassionate physician to understand better and mitigate the patient's suffering.

The hermeneutical insights obtained by AI on the suffering experience of patients should always be checked against the physician's own understanding of each patient context, as LLMs may sometimes produce unreliable information (hallucinations).⁹ Therefore, humanistic knowledge and values are paramount to the beneficial use of AI in the clinical

setting. Otherwise, we may misuse the time saved or the hermeneutical knowledge obtained using LLMs.

In conclusion, the study suggests that integrating SBM and AI can offer valuable insights into the multidimensional nature of patient suffering. Artificial intelligence can help physicians understand the subjective experiences and meaning behind a patient's suffering through the hermeneutical approach, fostering a more comprehensive and humanistic strategy to medical care. However, it is crucial to use AI only as a tool to aid in the understanding of suffering and increasing time with patients instead of solely focusing on cost-efficiency or increasing productivity. Further research is needed to assess the practical application and impact of AI hermeneutical understanding of suffering on patient outcomes. In conclusion, the integration of SBM and AI has the potential to improve patient care and the patient-physician relationship.

Conflict of Interests

The author has no conflict of interests to declare.

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Appendix 1

Chapter 6—A Case for Humanistic Medicine: When the Doctor Himself Falls Ill

“When the doctor himself is wounded, he knows what suffering is. There is no better training than the experience of illness.” (Arthur Kleinman: *The Illness Narratives*)

I believe that one of the most difficult experiences for a doctor is to fall ill and have to delegate their own care to a colleague. During my many years of clinical practice, I have cared for several colleagues and have unfortunately also fallen ill and been attended to by colleagues.

The relationship between colleagues can be very educational and rewarding, yet it is also very delicate. When we fall ill, our reasoning regarding our own illness becomes illogical. There are profound fears and concerns, both familial and professional, that arise with the onset of a disease for a doctor. This emotionally charged context certainly clouds the objectivity of the sick doctor’s reasoning. Questions and attitudes that would be entirely understandable from a layperson must also be accepted when coming from a sick doctor. This doctor, like any patient, loses objectivity when it comes to their own illness. We need to understand this if we want to take good care of this colleague-patient. We should never assume that our colleague will know what to do in a given situation. We need to explain everything to them as we would to a layperson, perhaps using slightly more technical language out of respect for their knowledge. On the other hand, due to our colleagues’ past experience, there will be preconceived notions that we rarely encounter with lay patients. The layperson’s ignorance is sometimes a true blessing, as the stages of the disease can unfold without premature fears interfering or even leading to reckless despair. There have even been cases in which colleagues inadvertently committed suicide upon learning of a diagnosis of serious diseases such as cancer or AIDS, often because they were unaware of the available treatment options due to relying on their outdated views of diseases from other specialties than their own.

The best thing is to never fall ill. However, if this almost inevitable experience in all our lives afflicts us at a stage at which we can still learn and transfer this knowledge to our daily practice, the lemon can turn into lemonade. The learning from illness for the doctor is very broad. It ranges from how the colleague’s secretary should receive us to how the colleague should examine us and explain what treatment we should receive. We also learn how our colleague attends to us outside of usual hours when we have doubts or complications. This is a great source of learning to nurture our arsenal of knowledge on how we will, from our own illness, improve the care of our own patients.

I think that for those who have never gone through this painful experience of being ill or for those who have already gone through it, the real question would be: when we fall ill,

what kind of colleague would we like to take care of us? What attributes should this colleague have?

I will share with you, dear reader, some of my experiences as a doctor who fell ill and also cared for several other colleagues to try to answer these two questions and extrapolate this knowledge to non-medical patients as well.

About five years ago, while writing a paper on the use of prostate-specific antigen (PSA) and other prostate cancer markers, I received the result of my own PSA, which, although low, had shown a slight increase compared to the previous one. I was immediately concerned because, based on my own studies, this small change seemed significant to me.

I sought out a colleague of mine who, besides being a urologist, was also a personal friend. He quickly saw me and reassured me, explaining that this PSA level was very low and that I probably did not have cancer. I waited a few weeks according to his guidance and repeated the test. The PSA had increased slightly. My friend then ordered a biopsy, which I promptly underwent.

I remember that when I was subjected to the biopsy, as soon as I was given the fragments on a Friday morning, I took them to another friend of mine, a pathologist, who, seeing my distress, volunteered to study the material that very day and call me with the result. I went to a house we have near São Paulo while I waited for the dreaded call.

After a few hours, the phone rang, and I sensed in my friend’s voice the sadness of giving me an unwanted result. In his sadness, I immediately felt the empathy and compassion for my suffering. I called my urologist colleague right away and gave him the result. He did not believe it. First, because I think he did not actually believe I had cancer. Second, he was surprised by the speed of the diagnosis. I scheduled my surgery over the phone.

Thus began the most difficult task of informing my closest relatives, the suggestions for second opinions, and all the advice that my patients surely also receive from their friends and relatives when their diagnosis is revealed to them. I paid no attention to any of this advice. It was clear. I had cancer and wanted to be cured. With still young children and a very supportive wife in everything I had experienced up to that point and also in this difficult stage, I plunged into despair for a few days. Would I be cured? Would the tests I was going to undergo before the surgery reveal something that would seal my fate? Would I be able to work? How would my life be with my wife? Should I tell my patients? Would they continue to trust me as someone with cancer? What would the next years be like? Could I make plans?

Thanks to my religious upbringing, I turned to the Psalms of David, specifically to the one that says, “Even though I walk through the valley of the shadow of death, I will fear no evil, for You are with me.” I repeated this phrase countless times, which became a true mantra for me. I was not alone...

I returned to my urologist colleague with my wife, and he analyzed all my exams very carefully and kindly answered all my questions, which were very few compared to my wife’s. A man so busy was giving me his precious time to ease my anguish and, at the same time, calm my wife.

The day of the surgery arrived. I spent the previous weekend in the same house where I received the diagnosis, saying goodbye, so to speak, for at least some time, to the self I knew.

I remember returning from the operating room and the days of weakness and pain that followed the surgery. My colleague would come to visit or at least call me daily. I was a person, someone he liked; I was not just a removed prostate. We talked a lot, sometimes for hours.

The years passed. At first, every time I had a PSA test, I would get anxious about the result. Gradually, I got used to the possibility that perhaps, thanks to the Almighty, I might be free from this problem.

I told several patients whenever asked; I never lied. I think that sharing my illness with them, who suffer in front of me, brings us closer together in a shared hard experience, which is the questioning of our innate sense of immortality.

Some years later, I was diagnosed with thyroid cancer. I was also operated on and subsequently received radioactive iodine. I was less worried this time but a little more sensitive. I felt that I had to change something. I had to find an antidote to so many problems. I bought a piano and started playing classical piano again.

About a year after my thyroid surgery, I suddenly received a request from my urologist colleague to evaluate him. I did not understand why, as I had already called him that day to discuss a case we had in common, and he seemed fine on the phone. I asked him again if it was an evaluation for him or if it was for another patient of his.

My dear colleague explained to me over the phone that he had had prostate cancer for about seven years and had kept it completely secret until that day because his blood tests were very altered, and now he needed my help. I was honored that he had chosen me to be his doctor.

I admitted him immediately, and we began to take care of him intensively for several months, during which I

learned much more from him than I could have imagined. Our friendship deepened, and his immense wisdom of life and medicine, which had already become legendary among his peers, began to radiate from his hospital bed, where all his friends made a point of visiting him to talk. I met several doctors who came from far away to visit him, college colleagues, eminent urologists from various states of Brazil and abroad, who came to discuss with him everything from associative decisions to more complicated cases. His enormous willpower made him do hydrotherapy between chemotherapy sessions to try to walk, even with help.

His body, weakened by the disease that had progressed so much in secret, did not shake his vitality and sense of humor. There were many days of conversations, jokes, and exchanges of views that, often, lasted hours.

After some time, I understood why he kept it a secret. He wanted to protect his family by working compulsively for as many years as he could. It was a noble ideal. Medicine, a jealous lover of all of us, came before his own life. Even though the peculiarities of his case would probably have made no difference in his outcome, this was certainly an unusual attitude. By understanding his life story, a new dimension of the suffering being opened up to me, his capacity for altruism and selflessness. The being who falls ill can still teach much to those who are open to learning from him. From his choices, I learned to see the man behind the disease.

Returning to the question: who, then, is the doctor we want to take care of us if we fall ill? We want a compassionate, humanistic doctor who, competent in the science of medicine, treats and understands our needs and the implications that the disease has generated in our lives; advises us and comforts us in the context of his relationship with us, and, above all, enjoys taking care of us.