



## The Role of ChatGPT and Artificial Intelligence in Physical Therapy and How It Would Impact Employment in This Field: A Conversation with ChatGPT

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### ABSTRACT

**Introduction:** ChatGPT is a generative language model tool launched by OpenAI on November 30, 2022, enabling the public to converse with a machine on various topics. In January 2023, ChatGPT reached over one hundred million users, making it the fastest-growing consumer application.

**Objective:** This interview with ChatGPT provides an idea of the current capabilities of ChatGPT and AI to play their role in the physical therapy field and how it can impact the employment rate in the physical therapy field. It also hints at current problems and limitations it will face in providing services in physical therapy. In this conversation with ChatGPT, this study will make ideas on how AI can become more helpful for Physical Therapists, how the quality of treatment cannot be compromised even by means of ChatGPT and AI, and how it impacts employment in the field of physical therapy.

**Methods:** OpenAI provided ChatGPT-3.5 was used in the paper to make content about its application in the field of physical therapy and how it would impact employment in this field. This is done through self-centered questions about the current capabilities of ChatGPT and AI to play their role in the physical therapy field.

**Results:** ChatGPT and AI can be supportive tools for physical therapists, but they cannot completely replace physical therapists. Physical therapists are likely to accomplish better treatment outcomes compared to AI.

**Conclusions:** AI offers considerable advantages for physical therapists, improving efficiency and accuracy in documentation writing and other things and it is time saving for them. Currently, as per need physical therapists should integrate training of AI in their education and practice. Ethical considerations like privacy of patient's data, informed consent and liability must remain essential. AI counters human expertise, it should be assessed as a supportive tool rather than a replacement. AI is unlikely to affect employment of physical therapists, as this field requires human empathy, hands on techniques and personalized care that technology cannot replicate.

### Introduction

The 1<sup>st</sup> and 2<sup>nd</sup> Generative Pre-trained Transformer (GPT) built on Natural Language Processing (NLP) technology, involved with the relations between

computers and human language, were presented in 2018 and 2019. However, the paper related to the current Chatbot, the 3<sup>rd</sup> GPT (ChatGPT-3), was published in 2020, followed by its issue on November 30,

2022, by the OpenAI researchers, which is an autoregressive language model that customizes deep learning to create human-like speech and text. The NLP is gradually becoming more important in medicine and healthcare, which assists analyze text and notes in the electronic health records (Iftikhar et al., 2023).

According to a study done in Saudi Arabia in 2023, the findings of the study suggested that ChatGPT could support healthcare teleconsultants in their work by offering informational and decisional support, helping communication, growing work efficiency, and improving patient engagement. By leveraging the chat platforms that use machine learning algorithms and natural language processing, healthcare teleconsultants could offer high-quality care to patients via telemedicine by improving cooperation between healthcare providers. However, due to its new nature, there is a require to explore its effect in different areas of healthcare for well understanding of its effect. Specifically, the ethical challenges concerned relate to liability and accountability, security, and data privacy, which are the major issues that may restrict the use of ChatGPT in teleconsultations (Alanzi, 2023). Likewise in the field of physical therapy AI tools like ChatGPT face important restrictions in teleconsultations due to uncertainties over medical accuracy, privacy of patient, lack of

real time checking, accountability and ethical guidelines. AI cannot provide exact diagnosis, treatment or store patient sensitive data, so all these things make it a supportive tool for physical therapists rather than a replacement.

ChatGPT identifies the general setting of a question or discussion, and it generates detailed replies linked to the subject. ChatGPT can be used in healthcare for numerous objectives, from improving the experiences of patients and supporting personnel in the medical field to improving healthcare techniques and showing significant information. It can be capable of offering a better solution in healthcare which is useful for patients' communication and medical caregivers and providers.

Generative Pretrained Transformers (GPT) describes a system that can be able to understand and generate long strings of complex ideas. ChatGPT is a natural language processing (NLP) model built by OpenAI that allows real-time conversations with an AI chatbot similar to that of a person. It is created on GPT design, a language model that practices to create writing that looks like a human's. ChatGPT collects round data from every informant it can obtain, feeds it into the transformer model, plots the associations between the numerous pieces of data, and prepares educated estimations about what content

had better be worked in which settings. ChatGPT and the analogous technologies may be skilled in organizational data to alter the industry as the technology progresses. They moreover deliver exceptional starting points for generating software and content, supervising understanding, improving consumer collaborations, and refining the experiences of employees. Tutors, event planners, and virtual personal aides are all probably coming advancements.

Though many aspects of healthcare need a relationship with patients, it is only sometimes required for ideal treatment. By improving adherence to routines of treatment and presenting more real and friendly care, ChatGPT may improve the care given by human healthcare providers and enhance patient consequences.

ChatGPT support for the healthcare division comprises descriptions like medical translations, remembering features, expectation support, etc. Distant from these unusual descriptions and capabilities, several limits have been studied, such as the occasional production of incorrect info that can occur with biased content, etc.

ChatGPT presents support for the healthcare suppliers, which can help to lower wait times and enhance the satisfaction level of patients. This can consist of patient questions about appointments, insurance, and billing to

offer them with required information. Healthcare specialists requiring help in doing informed patient care options could use ChatGPT as a clinical decision-support means but with caution. Healthcare workers can utilize this tool or technology to understand treatments, diagnostic techniques, and drugs and get assistance on what to do afterward. This technology or tool can computerize certain processes, expand effectiveness in the healthcare industry, and even substitute various jobs. Recalling that AI can increase human abilities in healthcare activity and can open additional career projections is furthermore important. By using AI in healthcare systems, professionals may spend less time on normal tasks and more on more valuable and challenging responsibilities like care of patients, counseling, and collaboration with other healthcare specialists. ChatGPT can help increase the safety of patients, decrease errors, and improve the quality of treatment. Because of ChatGPT's extraordinary fluency and resourcefulness, it can be a game-changer.

To assist in medical coding and medical billing, ChatGPT can give suggestions for improved patient treatment as per the symptoms of patient and his medical history. It powers the clinical meeting information, medical reports, and discharge summaries, storing patient care time. This is effective for real-time, evidence-based

clinical decision support for all medical practitioners.

Critical thinking and the problem-solving expertise humans have are absent in ChatGPT. ChatGPT can approach considerable information, but ChatGPT can only approach some of the information that doctors have. It cannot be capable of answering queries involving very specified or focused fields, and it may not be up to date on existing developments or alterations in certain disciplines.

However, AI tools cannot switch a doctor. There are many limitations relating to responsibilities, ethics in medicine, interpretation of data, legal framework, and modifications in human responses and anatomy (Javaid et al., 2023).

AI technologies, including ChatGPT, have shown promise in improving diagnostics, personalized medicine, and patient care. ChatGPT can be used to create conversational agents that assist patients with medical inquiries, manage appointments, and provide health advice. AI-powered image analysis and machine learning algorithms can aid in early detection and diagnosis of diseases.

ChatGPT and AI have considerably affected the healthcare sector, leading to displacement, transformation, and creation of jobs. The challenge is to make certain that medical professionals have the required skills to modify the evolving healthcare

setting and tackle the potential of AI technologies to advance patient care and outcomes (George et al., 2023).

AI-based technology innovations in the workplace have increased fears that a rising number of jobs face the danger of being replaced by technology, which would produce widespread unemployment. The biggest risk of experience was found to be in positions that need repetitive tasks, regular decision-making, and some extent of data analysis. Of course, "information processing industries" that demand writing skills, calculation, and analysis in depth are more likely to utilize Logic Learning Machine-based AI. However, employment expecting critical thinking and science inside those sectors are contrariwise related to contact with AI. Certainly, physically commanding professions like agriculture, manufacturing, and mining were better secure, but information processing professions are even now in danger (Gondane, 2023).

There is limited literature found on the role of ChatGPT and artificial intelligence specifically in physical therapy and how it would impact employment in this field. A Conversation with ChatGPT is done in this study to meet the aim of the study. This study aims to find the best answers to some specific questions and fears regarding the physical therapy field and how ChatGPT and AI can impact employment in this field.

## Methods

OpenAI provided ChatGPT-3.5 was used in the paper to make content about its application in the field of physical therapy and how it would impact employment in this field. This is done through self-centered questions about the current capabilities of ChatGPT and AI to play their role in the physical therapy field.

## Results and Discussion

### *A Conversation with ChatGPT*

*Q.1 How ChatGPT and AI can help physical therapist in writing SOAP notes?*

ChatGPT and AI can assist physical therapists in writing SOAP notes (Subjective, Objective, Assessment, and Plan) by automating certain aspects of the documentation process. Here's how AI can be helpful:

<p>1. <b>Data Extraction and Summarization:</b></p> <ul style="list-style-type: none"> <li>• <b>Subjective Section:</b> AI can help extract relevant information from patient conversations or electronic health records (EHRs), summarizing key details about the patient's history, symptoms, and concerns.</li> <li>• <b>Objective Section:</b> AI can assist in extracting and summarizing objective data, such as vital signs,</li> </ul>
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measurements, and test results, making it easier for therapists to include accurate and pertinent information.

<p>2. <b>Template Generation:</b></p> <ul style="list-style-type: none"> <li>• AI can generate SOAP note templates based on standard formats or specific clinic requirements, saving time for physical therapists. The templates can include placeholders for essential information in each section.</li> </ul>
<p>3. <b>Documentation Assistance:</b></p> <ul style="list-style-type: none"> <li>• AI can suggest language and content for each section of the SOAP note based on the information provided. It can offer recommendations for clear and concise language to improve the overall quality of documentation.</li> </ul>
<p>4. <b>Coding and Billing Assistance:</b></p> <ul style="list-style-type: none"> <li>• AI can assist in coding and billing processes by suggesting appropriate codes based on the documented information. This helps ensure accurate reimbursement and compliance with healthcare coding standards.</li> </ul>
<p>5. <b>Alerts and Reminders:</b></p> <ul style="list-style-type: none"> <li>• AI can provide reminders for follow-up assessments, treatment plan adjustments, or other</li> </ul>

important considerations. This helps therapists stay organized and ensures continuity of care.

#### 6. **Integration with EHR Systems:**

- AI tools can integrate seamlessly with existing Electronic Health Record (EHR) systems, allowing for a smoother flow of information and reducing the need for manual data entry.

#### 7. **Natural Language Processing (NLP):**

- NLP capabilities can be employed to understand and interpret natural language input, making it easier for therapists to communicate with the AI system and receive relevant suggestions.

#### 8. **Continual Learning:**

- AI models can continually learn and adapt to evolving medical knowledge and documentation practices, staying up to date with the latest guidelines and standards in physical therapy.

While AI can be a valuable tool in enhancing the efficiency and accuracy of SOAP note documentation, it's important to note that human judgment and expertise are still crucial in the interpretation of patient information and the formulation of appropriate treatment plans. The use of AI should complement, not replace, the skills

and knowledge of healthcare professionals. Additionally, adherence to privacy and security regulations is paramount when dealing with patient data.

*Q.2 Does SOAP note writing by physical therapist will be more accurate than by ChatGPT and AI?*

As of my last knowledge update in January 2022, ChatGPT and AI, while capable of assisting in various aspects of SOAP note writing, may not surpass the accuracy and clinical judgment of a skilled and experienced physical therapist. Here are some reasons:

#### 1. **Clinical Expertise:**

- Physical therapists possess clinical expertise and a deep understanding of their patients' conditions. They can interpret complex clinical information, assess patient responses, and make informed decisions based on their knowledge and experience.

#### 2. **Patient Interaction:**

- The subjective component of SOAP notes involves information gathered directly from the patient. Physical therapists excel in patient communication, empathy, and the ability to extract nuanced

information that may be challenging for AI to capture accurately.

### 3. **Complexity of Assessment:**

- Physical therapy assessments often involve hands-on evaluation, observation of movement, and other physical examinations. These elements require a level of human judgment and sensory skills that AI currently does not possess.

### 4. **Individualized Treatment Plans:**

- Physical therapists develop individualized treatment plans based on the unique needs and responses of each patient. While AI can assist in suggesting general treatment options, the ability to tailor interventions to the specific characteristics of each patient is a strength of human therapists.

### 5. **Ethical and Legal Considerations:**

- Healthcare involves ethical and legal considerations that require human understanding and interpretation. Physical therapists navigate privacy issues, informed consent, and other ethical aspects in ways that go beyond the capabilities of AI.

### 6. **Continuous Adaptation:**

- Healthcare is a rapidly evolving field, and physical therapists continually update their knowledge and skills. While AI models can be trained on the latest data, they may not adapt as quickly as humans to new research findings and changes in clinical practice.

While AI can be a valuable tool for automating routine tasks, providing information, and assisting in documentation, it should be seen as a complement to, rather than a replacement for, the expertise of healthcare professionals. Collaboration between physical therapists and AI tools can lead to improved efficiency and accuracy in SOAP note writing, but the human touch, critical thinking, and clinical judgment remain essential in healthcare. Always refer to the most recent developments and guidelines in the field, as technology and AI capabilities continue to advance.

*Q.3 I think ChatGPT and AI cannot replace physical therapist in future, what do you say?*

I agree with your assessment. As of my last knowledge update in January 2022, while AI, including models like ChatGPT, can offer valuable assistance and automation in certain aspects of healthcare, it is unlikely to replace the role of a physical

therapist entirely. Here are some reasons for this perspective:

1. **Human Interaction and Empathy:**

- Physical therapy often involves a significant level of human interaction, empathy, and understanding. Physical therapists build rapport with their patients, motivate them, and provide emotional support, aspects that are challenging for AI to replicate.

2. **Clinical Judgment and Decision-Making:**

- Physical therapists rely on their clinical judgment, experience, and critical thinking skills to assess patients, interpret complex information, and make informed decisions. AI lacks the intuitive and contextual understanding that human therapists bring to their practice.

3. **Hands-On Assessment and Treatment:**

- Physical therapy often requires hands-on assessment and treatment techniques that involve a deep understanding of anatomy, physiology, and biomechanics. AI currently does not have the physical presence or tactile

capabilities to perform these tasks.

4. **Individualized Care:**

- Each patient is unique, and physical therapists tailor their interventions to the specific needs and responses of individual patients. This level of personalization goes beyond the capabilities of AI, which tends to provide more generalized recommendations.

5. **Complexity of Rehabilitation:**

- Rehabilitation involves addressing a variety of physical and functional challenges. Physical therapists work with patients to create comprehensive, multifaceted treatment plans that go beyond what AI can currently offer.

6. **Ethical and Emotional Considerations:**

- Healthcare involves ethical considerations, and physical therapists navigate these issues along with the emotional aspects of patient care. AI lacks the ethical understanding and emotional intelligence required in certain healthcare scenarios.

While AI and technology can play a supportive role in healthcare, the



collaboration between technology and human expertise is likely to be the most effective approach. Physical therapists can leverage AI for assistance in documentation, data analysis, and information retrieval, but the human touch, empathy, and complex decision-making remain crucial components of quality patient care.

It's important to note that advancements in AI and technology are ongoing, and the landscape may evolve. However, the unique skills and qualities of healthcare professionals, including physical therapists, are likely to remain essential in providing holistic and patient-centered care. Always consider the most recent developments in the field for the latest insights.

*Q.4 Is physical therapist being only professional who cannot be replaced by AI?*

The question of whether a profession can be entirely replaced by AI is complex and depends on the nature of the work involved. While AI has the potential to automate certain tasks and provide valuable support in various fields, complete replacement of human professionals, including physical therapists, is unlikely for several reasons:

#### 1. **Human Interaction and Empathy:**

- Professions that involve significant human interaction, empathy, and emotional support, such as healthcare, counseling,

and certain customer service roles, are less likely to be fully replaced by AI. The ability to understand and respond to human emotions is a unique aspect of human expertise.

#### 2. **Complex Decision-Making and Critical Thinking:**

- Professions that require complex decision-making, critical thinking, and adaptability in unpredictable situations are less susceptible to automation. Humans can navigate uncertain and dynamic environments, drawing on experience and intuition.

#### 3. **Creativity and Innovation:**

- Jobs that involve creativity, innovation, and the ability to think outside the box are less likely to be automated. Humans have a unique capacity for creativity, problem-solving, and generating novel ideas.

#### 4. **Physical and Tactile Skills:**

- Professions that involve physical skills, especially those requiring hands-on work, such as surgery, craftsmanship, and certain aspects of physical therapy, are less likely to be replaced by AI. AI lacks the physical presence

and dexterity required for these tasks.

**5. Ethical Decision-Making:**

- Professions that involve complex ethical decision-making and a deep understanding of moral and societal values, such as law, ethics, and certain healthcare roles, are less likely to be completely automated. Ethical considerations often require a nuanced understanding of human values and cultural context.

**6. Unique Human Qualities:**

- Certain professions leverage uniquely human qualities, such as intuition, intuition, and the ability to establish trust. These qualities are challenging for AI to replicate fully.

It's important to note that while AI may not replace entire professions, it can complement and augment human capabilities in various ways. Many professions will likely undergo transformations, with AI handling routine and repetitive tasks, allowing professionals to focus on higher-level decision-making, creativity, and interpersonal aspects of their work.

The impact of AI on the job market is an ongoing topic of discussion and research. As technology advances, it is crucial for

professionals to stay adaptable, acquire new skills, and be prepared for changes in the job landscape.

*Q.5 What are the specific characteristics of a physical therapist that cannot be replaced by AI?*

Physical therapists possess a combination of skills, qualities, and attributes that are challenging for artificial intelligence (AI) to fully replicate. While AI can assist in certain aspects of healthcare, the following specific characteristics of physical therapists make their role unique and less likely to be replaced by AI:

**1. Human Interaction and Empathy:**

- Physical therapists build strong relationships with patients, demonstrating empathy and understanding. They provide emotional support and encouragement, helping patients cope with the challenges of rehabilitation. The ability to connect with patients on an emotional level is a distinct human quality that AI struggles to replicate.

**2. Individualized Assessment and Treatment:**

- Physical therapists conduct thorough assessments that take into account a patient's unique

medical history, physical condition, and personal goals. The ability to perform nuanced and individualized assessments, considering both physical and psychosocial factors, is a complex skill that goes beyond the capabilities of current AI.

### 3. **Hands-On Techniques:**

- Physical therapy often involves hands-on techniques for assessment and treatment. Physical therapists use manual skills, such as joint mobilization, soft tissue mobilization, and therapeutic exercises, requiring a level of dexterity and sensitivity that AI lacks.

### 4. **Adaptability and Dynamic Decision-Making:**

- Physical therapists frequently make dynamic decisions based on real-time patient responses, adapting treatment plans as needed. The ability to adjust interventions in response to subtle cues and changes in a patient's condition requires a level of adaptability and clinical judgment that is currently challenging for AI.

### 5. **Motivational and Educational Skills:**

- Physical therapists play a motivational role, encouraging patients to adhere to their treatment plans and make lifestyle changes. They also educate patients about their conditions and empower them to take an active role in their recovery. Motivational and educational skills involve interpersonal communication and individualized strategies that go beyond AI capabilities.

### 6. **Ethical Decision-Making:**

- Physical therapists navigate ethical considerations, respecting patient autonomy, privacy, and confidentiality. Ethical decision-making involves a deep understanding of moral and ethical principles within a healthcare context, which may be challenging for AI to navigate independently.

### 7. **Collaboration with Interdisciplinary Teams:**

- Physical therapists often collaborate with other healthcare professionals, such as physicians, nurses, and occupational therapists, to provide comprehensive care. Effective collaboration involves

communication, teamwork, and a holistic approach to patient care.

**8. Cultural Competence:**

- Physical therapists need to be culturally competent and sensitive to diverse patient backgrounds. Understanding and respecting cultural differences in healthcare practices and beliefs requires a nuanced and human touch.

While AI can support physical therapists by automating routine tasks, providing information, and assisting in documentation, the unique combination of human qualities, interpersonal skills, and clinical judgment makes physical therapists essential in delivering holistic and patient-centered care. It's likely that future collaborations between human professionals and AI will focus on enhancing efficiency and effectiveness rather than complete replacement.

*Q.6 Is it good for a physical therapist that he cannot be completely replaced by AI?*

Yes, it can be considered positive for physical therapists that their role cannot be completely replaced by AI. Here are several reasons why this is beneficial:

**1. Human Connection and Empathy:**

- Physical therapists often build strong relationships with their

patients, providing emotional support and empathy during the rehabilitation process. These human qualities contribute significantly to the overall patient experience and can positively impact treatment outcomes.

**2. Individualized Care:**

- The ability of physical therapists to conduct thorough assessments and create individualized treatment plans based on a patient's unique needs is a key strength. This personalized approach contributes to better outcomes and patient satisfaction.

**3. Hands-On Skills:**

- Physical therapy often involves hands-on techniques for assessment and treatment. The tactile skills and manual dexterity required for these procedures are unique to human therapists and contribute to the effectiveness of certain interventions.

**4. Adaptability and Clinical Judgment:**

- Physical therapists make dynamic decisions based on real-time patient responses and adapt treatment plans accordingly. This level of adaptability and clinical

judgment is a complex skill that relies on experience, intuition, and a deep understanding of both medical and human factors.

#### 5. **Motivational and Educational Role:**

- Physical therapists play a crucial role in motivating patients to adhere to treatment plans and make lifestyle changes. They also educate patients about their conditions and empower them to take an active role in their recovery. These motivational and educational aspects involve interpersonal skills that are challenging for AI to replicate.

#### 6. **Ethical Decision-Making:**

- Physical therapists navigate complex ethical considerations, respecting patient autonomy, privacy, and confidentiality. The ability to make ethical decisions within a healthcare context is a skill that requires a nuanced understanding of human values and principles.

#### 7. **Cultural Competence and Communication:**

- Physical therapists need to be culturally competent and skilled in effective communication. Understanding and respecting diverse cultural backgrounds

contribute to better patient interactions and treatment outcomes.

#### 8. **Job Security and Professional Satisfaction:**

- The fact that certain aspects of the physical therapist's role cannot be automated by AI provides job security for professionals in the field. This can contribute to higher job satisfaction and a sense of fulfillment in their roles.

While AI can be a valuable tool to enhance efficiency, automate routine tasks, and support decision-making, the unique human qualities of physical therapists remain essential in providing holistic and patient-centered care. The collaboration between human expertise and AI can lead to a synergistic approach that benefits both healthcare professionals and the patients they serve.

*Q.7 In what ways ChatGPT and AI can help physical therapist in his work?*

ChatGPT and AI can assist physical therapists in various ways, providing support and enhancing certain aspects of their work. Here are several ways in which AI can be helpful for physical therapists:

#### 1. **Documentation Assistance:**

- AI can assist in the documentation process by providing suggestions and templates for SOAP notes (Subjective, Objective, Assessment, and Plan), saving time for physical therapists and ensuring comprehensive and organized documentation.

## 2. **Data Analysis and Insights:**

- AI can analyze large sets of patient data, helping physical therapists identify patterns, trends, and correlations that may inform treatment plans and interventions. This data-driven approach can contribute to more effective decision-making.

## 3. **Patient Communication and Education:**

- AI-powered chatbots or virtual assistants can be used to engage with patients, answer frequently asked questions, and provide educational materials. This can enhance patient understanding of their conditions and treatment plans.

## 4. **Remote Monitoring:**

- AI can facilitate remote monitoring of patients, collecting data on their progress and adherence to treatment plans.

This can enable physical therapists to track outcomes and intervene when necessary, even in telehealth settings.

## 5. **Rehabilitation Exercise Guidance:**

- AI can provide visual or textual guidance on rehabilitation exercises, ensuring that patients perform exercises correctly at home. Virtual assistants can offer real-time feedback and monitor adherence to prescribed routines.

## 6. **Decision Support Systems:**

- AI models can offer decision support by providing information on the latest research, treatment guidelines, and relevant case studies. This helps physical therapists stay informed and make evidence-based decisions.

## 7. **Speech-to-Text Transcription:**

- AI-powered transcription tools can convert spoken notes or instructions into text, facilitating faster and more accurate documentation for physical therapists. This can be particularly useful during patient interactions.

## 8. **Appointment Scheduling and Administrative Tasks:**

- AI can assist in managing administrative tasks, such as

scheduling appointments, sending reminders, and handling routine inquiries. This allows physical therapists to focus more on direct patient care.

#### 9. **Biomechanical Analysis:**

- AI algorithms can assist in analyzing biomechanical data, such as gait analysis or movement patterns. This information can aid in the assessment of a patient's condition and guide the development of targeted treatment plans.

#### 10. **Language Translation Services:**

- AI-powered translation tools can assist in overcoming language barriers, enabling effective communication between physical therapists and patients from diverse linguistic backgrounds.

It's important to note that while AI can offer valuable support, it should complement the skills and expertise of physical therapists rather than replace them entirely. The collaborative use of AI tools can lead to more efficient workflows, improved patient outcomes, and enhanced overall quality of care. Additionally, considerations regarding patient privacy, data security, and ethical use of AI should be prioritized in healthcare settings.

*Q.8 Do you think AI can do better for patients than a physical therapist?*

No, AI is not expected to fully replace physical therapists. The unique human qualities of empathy, adaptability, hands-on skills, and individualized care that physical therapists provide are challenging for AI to replicate completely. While AI can be a valuable tool in supporting certain aspects of healthcare, the collaborative approach, combining human expertise with AI assistance, is considered more likely and beneficial for the future of patient care.

*Q.9 Is AI able to do mobilization on patients like physical therapist?*

As of my last knowledge update in January 2022, AI does not possess the physical capabilities to perform hands-on mobilization on patients like a physical therapist. Physical therapists use manual techniques, including joint mobilization and soft tissue mobilization, which involve touch, pressure, and specific movements to improve joint mobility and alleviate pain.

While AI can provide valuable support in healthcare through data analysis, decision support, and other applications, it does not have a physical presence or the ability to perform hands-on interventions. The hands-on aspect of physical therapy remains a unique skill that requires the expertise,

training, and physical dexterity of a human professional.

It's important to note that advancements in technology and robotics may introduce new possibilities in the future, but as of now, hands-on mobilization is a skill performed by human physical therapists. Always refer to the latest developments in the field for the most up-to-date information.

*Q.10 According to your knowledge how much AI would be helpful for physical therapist?*

As of my last knowledge update in January 2022, AI has the potential to be highly beneficial for physical therapists in several ways, although the extent of its usefulness may depend on factors such as technological advancements, integration strategies, and the specific needs of healthcare settings. Here are ways in which AI can be helpful for physical therapists:

1. **Documentation Assistance:** AI can assist in automating and streamlining the documentation process, helping physical therapists create comprehensive and accurate patient records.
2. **Data Analysis and Insights:** AI can analyze large datasets to identify patterns, trends, and correlations, providing valuable insights for

treatment planning and outcomes assessment.

3. **Patient Education:** AI-powered tools can enhance patient education by providing tailored information, answering questions, and supporting ongoing communication between physical therapists and their patients.
4. **Rehabilitation Exercise Guidance:** AI can offer guidance on proper form and technique for rehabilitation exercises, ensuring patients perform them correctly, even in remote settings.
5. **Decision Support:** AI can provide decision support by offering information on the latest research, treatment guidelines, and relevant case studies to assist physical therapists in making informed decisions.
6. **Appointment Scheduling and Administrative Tasks:** AI can automate administrative tasks, such as appointment scheduling, sending reminders, and handling routine inquiries, allowing physical therapists to focus more on patient care.
7. **Telehealth and Remote Monitoring:** AI can support telehealth initiatives by facilitating remote monitoring of patients and assisting in virtual consultations.



**8. Language Translation Services:**

AI-powered translation tools can help overcome language barriers, ensuring effective communication between physical therapists and patients from diverse linguistic backgrounds.

**9. Biomechanical Analysis:**

AI algorithms can assist in analyzing biomechanical data, providing valuable information for assessing movement patterns and tailoring treatment plans.

It's important to note that while AI can enhance efficiency and support certain aspects of physical therapy, it is not a replacement for the unique human qualities that physical therapists bring to patient care, including empathy, adaptability, and hands-on skills. The collaborative use of AI, where technology supports and augments the capabilities of healthcare professionals, is likely to be a more effective approach. The field of healthcare and technology is dynamic, so ongoing monitoring of advancements and evolving best practices is recommended.

*Q.11 Do you think physical therapists are the professionals who will get the least benefits from AI in their job settings?*

No, physical therapists can benefit significantly from AI in various aspects of their job, including administrative tasks, data analysis, telehealth support, exercise

guidance, decision support, and patient education. The impact of AI depends on effective integration and the specific needs of healthcare settings.

*Q.12 Does AI would be able to observe and examine patient's sign and symptoms?*

The capability of AI to observe and examine patient signs and symptoms is evolving, and there are ongoing efforts to integrate AI into medical imaging and diagnostics. AI can be trained to analyze medical images, such as X-rays, MRIs, and CT scans, to assist in identifying patterns, abnormalities, and potential signs of various medical conditions. In this context, AI can contribute to the interpretation of visual data and aid healthcare professionals in diagnostics.

Additionally, AI systems can process and analyze large datasets, including electronic health records and physiological data, to identify correlations and trends that may be indicative of certain symptoms or conditions.

However, it's important to note that AI, as of now, does not replace the comprehensive and nuanced observational skills of human healthcare professionals. The ability to assess a patient's symptoms involves not only visual cues but also a holistic understanding of the patient's history, context, and non-verbal

communication – aspects that currently require human judgment and expertise.

As technology continues to advance, the role of AI in healthcare is likely to expand, but the collaboration between AI and human healthcare professionals is expected to be the most effective approach, combining the strengths of both to enhance patient care. Always consider the latest developments and research in the field for the most accurate and up-to-date information.

*Q.13 Do you not think physical therapist will always do better to patients than solely done by AI?*

As of now, physical therapists are likely to provide a level of care and expertise that is challenging for AI to replicate fully. The human touch, empathy, adaptability, and hands-on skills of physical therapists contribute significantly to the effectiveness of patient care. While AI can assist in certain aspects, the unique qualities and personalized approach of human therapists are likely to be valued in healthcare settings.

The collaboration between physical therapists and AI is a more promising approach, where technology supports and enhances the capabilities of healthcare professionals rather than replacing them entirely. AI can play a valuable role in automating routine tasks, analyzing data, and providing decision support, allowing

physical therapists to focus on the more nuanced and personalized aspects of patient care.

It's important to recognize that healthcare is a multidimensional field, and while AI continues to advance, the role of human healthcare professionals remains crucial, particularly in areas that require emotional intelligence, complex decision-making, and hands-on interventions. Ongoing advancements in technology and research will continue to shape the landscape, and the optimal approach is likely to involve a thoughtful integration of AI with the expertise of human professionals.

*Q.14 Are physical therapists relatively safe from job loss due to the complete replacement by AI in the future?*

While it's challenging to predict the future with certainty, physical therapists are generally considered to be in a profession that is less susceptible to complete replacement by AI in the foreseeable future. The unique skills and qualities that physical therapists bring to their work, including empathy, hands-on care, and personalized treatment plans, are challenging for AI to replicate entirely.

However, it's essential for healthcare professionals, including physical therapists, to stay informed about advancements in technology and how they may impact their field. While AI is unlikely to replace

physical therapists entirely, it can play a supportive role by automating certain tasks, providing data insights, and enhancing aspects of patient care.

Professionals in all fields are encouraged to adapt to evolving technologies, engage in continuous learning, and embrace the opportunities presented by advancements in healthcare and AI. The collaborative use of technology alongside human expertise is often the most effective approach to improving patient outcomes and the efficiency of healthcare delivery.

*Q.15 How it is a great challenge for AI to replace physical therapists?*

Replacing physical therapists with AI presents a significant challenge due to several key factors:

#### 1. **Human Interaction and Empathy:**

- Physical therapists build strong relationships with patients, providing emotional support and empathy. The ability to connect with patients on a personal level is a nuanced and complex aspect that is challenging for AI to replicate.

#### 2. **Hands-On Assessment and Treatment:**

- Physical therapy often involves hands-on assessments and interventions, requiring a level of

physical dexterity and tactile sensitivity that current AI lacks.

#### 3. **Individualized Care:**

- Physical therapists tailor treatment plans based on the unique needs, preferences, and responses of each patient. The ability to provide individualized and personalized care is a strength of human therapists.

#### 4. **Adaptability and Dynamic Decision-Making:**

- Physical therapists make real-time decisions based on patient responses, adapting treatment plans as needed. The dynamic and adaptive nature of physical therapy requires a level of clinical judgment that is challenging for AI.

#### 5. **Complexity of Human Movement:**

- Evaluating and addressing human movement patterns, biomechanics, and functional limitations require a deep understanding of human anatomy and physiology, posing a challenge for AI systems.

#### 6. **Motivational Support:**

- Physical therapists play a motivational role in encouraging patients to adhere to treatment plans and make lifestyle changes.

Motivating individuals involves interpersonal skills and understanding that go beyond the capabilities of AI.

#### 7. **Multifaceted Care:**

- Physical therapy often involves a multifaceted approach, addressing not only physical symptoms but also considering psychological, social, and environmental factors. This holistic approach is complex and requires a comprehensive understanding of the patient.

#### 8. **Ethical and Emotional Considerations:**

- Physical therapists navigate ethical considerations and emotional aspects of patient care, requiring a level of ethical judgment and emotional intelligence that AI currently lacks.

While AI can assist in certain tasks, enhance efficiency, and provide valuable support, the complexity of the physical therapist's role involves a combination of skills that are deeply rooted in human qualities. The collaborative use of AI alongside human expertise is seen as a more realistic and effective approach in healthcare.

*Q.16 Does AI not have the capability to replace physical therapists in the future?*

As of now, AI is not fully capable of replacing physical therapists. The unique combination of skills, including human interaction, empathy, adaptability, hands-on assessment, and personalized care, poses challenges for AI to replicate entirely. While AI can assist in certain aspects, the comprehensive and nuanced nature of physical therapy makes complete replacement by AI unlikely in the foreseeable future. The collaborative use of AI alongside human expertise is seen as a more realistic and effective approach in healthcare.

*Q.17 What are the most challenging professions for AI to replace completely in future?*

The most challenging professions for AI to replace completely in the future are those that involve complex human interactions, emotional intelligence, creativity, and nuanced decision-making. Some of these professions include:

#### 1. **Healthcare Professions:**

- Roles such as physicians, nurses, and therapists involve intricate patient interactions, empathy, and complex decision-making based on a combination of medical knowledge and

	understanding of individual patient needs.		challenging for AI to fully replicate.
2.	<b>Mental Health Professions:</b>	6.	<b>Leadership and Human Resources Management:</b>
	<ul style="list-style-type: none"> <li>Jobs in counseling, psychotherapy, and psychiatry require a deep understanding of human emotions, empathy, and the ability to navigate complex and individualized mental health challenges.</li> </ul>		<ul style="list-style-type: none"> <li>Roles that involve leadership, human resources management, and organizational development require emotional intelligence, understanding of interpersonal dynamics, and complex decision-making in varied situations.</li> </ul>
3.	<b>Creative Arts:</b>	7.	<b>Therapeutic and Holistic Wellness Professions:</b>
	<ul style="list-style-type: none"> <li>Professions in the creative arts, including writing, visual arts, and music composition, demand a level of creativity, intuition, and emotional expression that is currently beyond the capabilities of AI.</li> </ul>		<ul style="list-style-type: none"> <li>Professions focusing on holistic wellness, such as yoga instructors, holistic healers, and alternative medicine practitioners, often involve a deep understanding of individual needs and a holistic approach to well-being.</li> </ul>
4.	<b>Teaching and Education:</b>	8.	<b>Research and Development:</b>
	<ul style="list-style-type: none"> <li>Effective teaching involves not only imparting knowledge but also understanding individual learning styles, adapting to diverse student needs, and providing mentorship and support.</li> </ul>		<ul style="list-style-type: none"> <li>Professions that involve groundbreaking research, innovation, and scientific discovery often require creative thinking, hypothesis generation, and problem-solving that go beyond the current capabilities of AI.</li> </ul>
5.	<b>Social Work:</b>	9.	<b>Emergency Response and Crisis Management:</b>
	<ul style="list-style-type: none"> <li>Social workers engage with individuals and communities, addressing complex social issues and providing support. The empathetic and context-specific nature of their work is</li> </ul>		

- Jobs in emergency response and crisis management demand quick decision-making, adaptability to dynamic situations, and a deep understanding of human behavior in high-stress scenarios.

#### 10. **Ethical and Legal Professions:**

- Professions involving ethical decision-making, legal interpretation, and complex problem-solving in areas such as law and ethics pose challenges for AI due to the nuanced nature of human morality and legal reasoning.

While AI can augment and assist professionals in these fields, the multidimensional, context-dependent, and emotionally nuanced aspects of these professions make them particularly challenging to fully automate. Human qualities such as empathy, creativity, and adaptability remain essential in these roles (OpenAI, 2024).

### **Discussion**

ChatGPT is a model artificial intelligence chatbot, which was developed by OpenAI in November 2022, with a focus on serviceability and chat. The ChatGPT was trained through reinforcement learning based on GPT-3.5 architecture, a big language model. GPT-3.5 is an improved language model following the GPT-3 that

can create sentences very similar to those written by humans. Tasks that GPT-3 can do include solving several language-related problems, simple arithmetic operations, translation, writing casual texts, and simple web coding corresponding to given sentences. Even, the GPT-3 wrote a seven-page article in accordance with format, such as citing references, in response to an input message to write an article about itself, and this article was published in preprint with the GPT-3 as a first author.

GPT-3 is envisioned to have many influences in the medical field. First, the computerization of tedious and simple computer tasks performed in clinical settings can productively enhance clinical workers' job contentment and reduce the amount of time given to computers. It can also route complex electronic health record (EHR) systems and can easily automate documentation for human medical decision-making, order preparation, and other everyday tasks. In addition to this, ChatGPT will likely be able to work as a personalized therapist. When GPT-3 was applied to answer the medical examination questions and medical research-related questions, it was noticed that overall GPT-3 performed at a high level and that the GPT-3 was knowledgeable and able to reason about the medical questions. GPT-3 showed reasoning patterns similar to human-like medical problem-solving, though it often

presented biased predictions when asked unanswerable questions and sometimes did not match with human performance. However, extending the model and data, increasing prompt sorting, and allowing a better contextualization of conclusions would be enough to reach human-level performance in the tasks on medical questions. As such, language models based on GPT-3 appear to be able to do medical tasks instead or give answers based on the reasoning about medical terminology.

It is still challenging for artificial intelligence chatbots to offer accurate medical information or offer correct treatment options to individuals on behalf of humans. Earlier natural language processing artificial intelligence was at the point of performing simple and basic tasks on behalf of humans, but at the current point, it could offer basic and general level medical information and treatment options on behalf of humans. In the future, if all technological advances in natural language processing models are yielded together with the medical field, more detailed medical information and treatment options can probably be provided instead of humans (Kim, 2022).

According to my study, the details that I got from ChatGPT while having a conversation with it, show that the integration in physical therapy has

introduced numerous benefits, primarily in improving efficiency and accuracy in several tasks. AI assists physical therapists in tasks such as data extraction, documentation, and coding, letting them gather central patient information promptly and maintain thorough and organized records. For instance, AI extracts and summarizes patient information from all conversations or electronic records, providing therapists with key details swiftly. Moreover, AI-generated SOAP note templates decrease formatting time and confirm reliability across documentation, while also implying language and content for SOAP note sections, increasing clarity, and retaining accuracy.

Regardless of these technological advancements, the role of physical therapists remains essential due to their exceptional qualities and skills. Physical therapists have innate qualities such as empathy, adaptability, and hands-on skills, which are critical for effective patient care. These professionals build deep relationships with patients, supplying emotional support and motivation during the rehabilitation process. Additionally, they modify treatment plans in real time based on their patient responses, confirming personalized and tailored care. While AI can assist in certain aspects of patient care, it does not have the human touch and innate

understanding that physical therapists provide.

The integration of AI in physical therapy also develops past administrative tasks, with AI expanding valuable understandings and support in processes of decision-making. AI can explore huge datasets to recognize patterns and trends, supporting therapists with significant insights for treatment planning and assessment of outcomes. Additionally, AI impeccably combines with Electronic Health Record (EHR) systems, easing manual data entry and enhancing organizational efficiency. The abilities of its natural language processing (NLP) also let AI recognize natural language input, improving communication between physical therapists and AI systems.

Though, regardless of these advancements, AI cannot totally replace the expertise and the human touch that a physical therapist has. The compassionate and adaptive values that a physical therapist has are needed in recognizing the emotional and physical needs of patients and offering them holistic care. While AI can help in reform processes and provide considerable understanding, it cannot copy the expert decision-making and concerned care provided by human professionals.

Also, in other professions involving complex human interactions and emotional intelligence, AI meets challenges in the

complete replacement. The multidimensional quality of human interactions, creativity, and experienced decision-making mounts obstructions for AI in fully replacing the human professionals. Therefore, while AI remains to play an important role in improving efficiency and usefulness in various fields, the combined use of AI with human expertise is critical for getting optimum outcomes in patient care and other professional territories.

The addition of AI in physical therapy offers valuable support in tasks such as documentation, analysis of data, and patient communication, but the exceptional human qualities and services of the physical therapists are doubtful to be entirely replaced by AI, highlighting the importance of collective application of both AI and the human expertise in the field of physical therapy.

AI in physical therapy provides strength like analysis of data, tracking of motion and gait, personalized rehab tools, and automating tasks of admin. However, it lacks human empathy, struggles with complex individualization, cannot perform physical assessments and have privacy concerns.

According to a study done by Javaid et al. (2023), ChatGPT can soon be extensively utilized in clinical practice, with several applications in nearly all medical



specialties, for example, communication with patients and clinical decision-making support.

In my study, the conversation with ChatGPT shows that, according to ChatGPT, it is very challenging for ChatGPT and AI to completely replace physical therapists due to their special innate characteristics as compared to other professionals, so physical therapists are on the safe side, as their employments can't be affected by AI as much as of other professionals.

To my knowledge, it is a pioneer study of its type and includes some questions specifically about the physical therapy field. One of the major limitations of this study is that it does not include many other important questions about the field of physical therapy. In the future major work can be done on many other concerns related to physical therapy and physical therapists. There is much more to do in highlighting present and future challenges that can come in the physical therapy field due to advanced technologies like ChatGPT and AI and how different advanced technologies can help physical therapists in their jobs and reduce their job workloads and how dependence on new technologies like AI, rehab apps can reduce physical therapists' hand on skills, and clinical reasoning and judgment. Depending too much on automated data can lead to less

personalized treatment and misunderstanding of patients' needs. This can compromise the precision of care, as machines may miss details that human observation and expertise provide.

## Conclusion

AI offers considerable advantages for physical therapists, improving efficiency and accuracy in documentation writing and other things and it is time saving for them. Currently, as per need physical therapists should integrate training of AI in their education and practice. Ethical considerations like privacy of patient's data, informed consent and liability must remain essential. AI counters human expertise, it should be assessed as a supportive tool rather than a replacement. AI is unlikely to affect employment of physical therapists, as this field requires human empathy, hands on techniques and personalized care that technology can not replicate.

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