

## Research Article

# Talking to Patients: Part 1 – Using AI to Suggest How to Talk with a Patient Regarding COVID-19

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Received: October 10, 2025; Accepted: October 23, 2025; Published: November 03, 2025

## Abstract

Using AI (ChatGPT 3.5) and Mind Genomics thinking, the paper shows how the medical professional can learn how to understand and converse with patients on topics such as COVID-19. The approach comprises an initial query to AI about the topic, using the Idea Coach feature on BimiLeap.com. The query can be modified and resubmitted, providing the medical professional with a real-time learning tool based on AI. Once the queries and iterations are completed and the program goes offline, the information generated by AI is subject to additional critical thinking by AI. The output comprises key themes, perspectives, analyses of responses of audiences (positive, negative, alternative viewpoints), as well as suggested innovation. The paper proposes the approach as a just-in-time teaching system for the medical professional who needs an understanding of how patients may think about a condition, and how one might communicate with the patient.

**Keywords:** Artificial Intelligence; medical communication; Mind Genomics; patient interaction

## Introduction

Many medical professionals struggle with the job of communicating with patients. This shortcoming in effective interactions with patients can lead to misunderstandings, misinformation, frustration, and ultimately, the loss of trust in the medical professional. Furthermore, poor communication skills can hinder the diagnostic process, as patients may not feel comfortable sharing important information about their health. As a result, it is crucial for medical professionals, especially students, but also new doctors and nurse practitioners to learn how to talk to patients in a clear, empathic, respectful and ultimately productive manner.

One solution to this problem is the integration of artificial intelligence (AI) technology as a colleague and tutor for medical professionals. AI can provide simulated patient interactions for students to practice and improve their communication skills in a safe environment. AI can also provide real-time feedback and suggestions on how to improve communication with patients, helping the medical professional become more confident and effective in their interactions. In addition, AI can serve as a resource for medical professionals to access information on different communication strategies, cultural nuances, and techniques for building rapport with patients. AI can provide personalized guidance based on the individual needs and preferences of each healthcare provider, helping them to tailor their communication style to better meet the needs of their patients. This personalized approach can lead to more positive patient experiences and ultimately, better health outcomes. Furthermore, AI can assist

medical professionals in gathering important information about their patients, such as their medical history, treatment preferences, and communication preferences. This information can help medical professionals build stronger relationships with their patients, as they can better understand and address their individual needs and concerns. By using AI technology, medical professionals can enhance their ability to provide patient-centered care and improve overall patient satisfaction.

## Using the Mind Genomics Platform as Access Point to AI

The Mind Genomics platform, with its access to ChatGPT 3.5, is designed to help the medical professional communicate effectively with patients, as will be shown in this paper and the companion paper. With the Idea Coach feature of the Mind Genomics platform, BimiLeap.com, the user can request AI to provide different ways to ask patients about how they are feeling, what concerns them, and so forth. The AI returns with language designed to elicit the necessary information from the patient. The exercise helps the medical professional practice their communication skills in a safe and controlled environment. The happy outcome is that the medical professional ends up learning the nature of insightful and empathic questions, the language which shows compassion, and builds rapport with patients.

The topic of this paper is the interaction with the patient regarding COVID-19 (henceforth abbreviated as COVID). The Idea Coach feature provides a variety of alternative questions, explaining the subtleties of the question where relevant. With the Idea Coach feature, the medical professional can input the specific questions they need help

with, and the Idea Coach can provide feedback on the wording, tone, and overall effectiveness of their questions. This personalized coaching can help to refine the medical professional's communication style and help them learn how to ask relevant and sensitive questions about a complex topic like COVID. For example, the Idea Coach could suggest ways to frame questions about COVID symptoms, exposure history, and vaccination status in a clear and non-judgmental manner. It could also provide guidance on how to address patient concerns and convey important information about the virus and preventive measures. Through repeated practice and feedback from AI. With direct, easy to understand feedback, the medical professional would soon become more confident and skilled in communicating effectively with patients about COVID and other health-related topics.

### A Worked Example: How AI can Show Ways for the Doctor to Talk to the Patient.

Table 1 presents the instructions to AI (Idea Coach in BimiLeap.com). The instructions or prompts are written in simple English (the program can work in other languages as well). The instructions are straightforward, simple and direct. At the same time, they convey very little information. All that is known is the topic (COVID), the identity of the respondent (woman, age 25-35), and some simple

requests about format (questions 15 words or fewer, simple language). The simplicity of writing the prompt to the AI removes the factor of expertise as a necessity. Anyone can write these simple instructions.

Table 1 first shows the “key idea” and then the question corresponding to that key idea. The question itself is shown in italics. The question itself (in italics) was generated immediately upon request in a so-called iteration. The user typed in the request at the top of Table 1, submitted the requests by selecting the proper “box” on the screen, and the 14 questions emerged immediately. This iteration could be repeated if desired. After the iterations were completed, and the BimiLeap.com program shut down by the user, the underlying program reviewed the results of each iteration through “critical thinking.” The first part of the critical thinking was to state the “key idea” of each question. That “key idea” is presented BEFORE the actual question.

During the “critical thinking” period, where AI analyzes its own work “off-line,” AI often comes up with additional questions that were not presented to the user at the time the iteration was occurring, viz., when the user was interacting with BimiLeap. Table 2 shows 12 additional questions suggested by AI that became available when the results of AI's off-line analyses were completed. The user receives this additional information in the form of an Excel workbook, called the Idea Book.

**Table 1:** Instructions to the AI requesting how the doctor should talk to the patient (top), and the critical thinking and related specific questions emerging from AI (bottom).

<p><b>INSTRUCTIONS TO THE AI REGARDING HOW THE DOCTOR MIGHT TALK TO THE PATIENT</b></p> <p><b>Explain in detail how a doctor should talk to a patient about COVID-19. We are interested in exact words what doctors should say to the patient. The patient is a 25- 35 years old woman. The doctor is seeing the patient for the first time. Make sure that each question asks for an explanation, not just a list. The final thing is keep every question 15 words or fewer And finally make sure 12-year-old persons can understand the answer.</b></p> <p><b>14 QUESTIONS TO ASK THE PATIENT ABOUT COVID, AS SUGGESTED BY THE AI</b></p> <p>(KEY IDEA PRESENTED FIRST, SUGGESTED QUESTION PRESENTED SECOND, AND IN ITALICS)</p> <ol style="list-style-type: none"> <li>1. Understanding and knowledge of COVID-19. <i>What is your understanding of COVID-19?</i></li> <li>2. Personal symptoms and potential exposure to the virus. <i>Have you experienced any symptoms such as fever, cough, or difficulty breathing recently? Can you recall any potential exposure to individuals with confirmed or suspected COVID-19?</i></li> <li>3. Any underlying medical conditions that may increase risk. <i>Do you have any underlying medical conditions such as diabetes or heart disease that could increase your risk?</i></li> <li>4. Medication usage and its impact on the immune system. <i>Are you currently taking any medications that may affect your immune system?</i></li> <li>5. Awareness of preventive measures to reduce the spread of the virus. <i>Are you aware of the preventive measures to reduce the spread of COVID-19, such as frequent handwashing and wearing a mask?</i></li> <li>6. Concerns or fears regarding COVID-19. <i>Can you share any concerns or fears you may have regarding COVID-19?</i></li> <li>7. Interest in learning more about transmission and overall health impact. <i>Would you like more information on how COVID-19 is transmitted and its impact on overall health?</i></li> <li>8. Vaccination status and discussion of options. <i>Are you vaccinated against COVID-19, or would you like to discuss your vaccination options?</i></li> <li>9. Occupation or activity-related guidelines or restrictions. <i>Are there any specific guidelines or restrictions you need to follow due to your occupation or daily activities?</i></li> <li>10. Awareness of potential long-term effects on the respiratory system and other organs. <i>Are you aware that COVID-19 can have long-term effects on the respiratory system and potentially other organs?</i></li> <li>11. Questions or concerns about the impact on fertility or pregnancy. <i>Do you have any questions or concerns about the potential impact of COVID-19 on your fertility or pregnancy?</i></li> <li>12. Availability of a support system during quarantine or illness. <i>Do you have a support system in place in case you need assistance during quarantine or if you become ill?</i></li> <li>13. Comfort level with getting tested if necessary. <i>Are you comfortable with the idea of getting tested if necessary to confirm a COVID-19 infection?</i></li> <li>14. Need for mental health support resources or recommendations. <i>Would you like resources or recommendations for mental health support during this challenging time?</i></li> </ol>
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**Table 2:** Twelve additional, relevant questions to ask the patient. These questions were generated as part of the AI's critical thinking analysis of its own work.

<p><b>HERE ARE A FEW ADDITIONAL QUESTIONS THAT CAN FURTHER COMPLETE THE UNDERSTANDING OF THE TOPIC:</b></p> <ol style="list-style-type: none"> <li>1. Have you been following any specific guidelines or recommendations from health authorities regarding COVID-19?</li> <li>2. How has COVID-19 affected your daily life, such as work, school, or social activities?</li> <li>3. Have you received any previous information or education on COVID-19 and its impact?</li> <li>4. Have you been practicing social distancing and avoiding large gatherings?</li> <li>5. Have you traveled recently, especially to areas with high COVID-19 transmission rates?</li> <li>6. Have you been in contact with anyone who has tested positive for COVID-19?</li> <li>7. Do you have access to necessary resources, such as face masks, hand sanitizers, and disinfectants?</li> <li>8. How have you been staying informed about COVID-19 updates and developments?</li> <li>9. Are you aware of any local or regional COVID-19 testing facilities?</li> <li>10. Have you received any COVID-19-related notifications or recommendations from your workplace or educational institution?</li> <li>11. Are you comfortable with receiving the COVID-19 vaccine if it becomes available to you?</li> <li>12. Have you made any changes to your lifestyle or habits to mitigate the risk of COVID-19 transmission?</li> </ol>
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## Critical Thinking by AI Regarding the 15 Questions

Critical thinking by the Idea Coach feature in BimiLeap is designed to provide deeper insights of a practical nature for the user, insights which teach. Critical thinking begins with the identification of themes and perspectives within the set of questions that the AI had generated. The critical thinking is “built-in.” That is, for every iteration, the critical thinking questions and analyses are done automatically. Thus, for this study, the user actually did eight iterations. We are looking at one iteration. The critical thinking analysis done off-line was done separately for each of the eight iterations, providing a useful compendium of material from which to understand the nature of questions that one could ask. The objective of repeating the

critical thinking for each iteration was to create a resource for the medical professional. Table 3 shows the 12 themes and perspectives emerging from the questions. Table 3 goes a bit deeper into the theme, considering different questions that one might ask.

## AI Suggests Three Audiences: Those Who Accept, Those Who Oppose, and Those Who Think Differently

By hearing different points of view on COVID, medical professionals can learn how each patient reacts and adjust their communication methods accordingly. This helps them handle tough talks and give each patient individualized care. By staying informed about evolving beliefs and attitudes, healthcare providers can identify trends, misconceptions,

Table 3: Twelve themes and perspectives identified by AI.

THEMES AND PERSPECTIVES
<p><b>1. Understanding and knowledge of COVID-19.</b>  <b>Plus:</b> Increased awareness and education on the virus and its prevention.  <b>Minus:</b> Misinformation and confusion surrounding the virus.  <b>Interesting:</b> Rapid scientific advancements and research on COVID19.</p>
<p><b>2. Personal symptoms, exposure, and risk factors.</b>  <b>Plus:</b> Early detection and monitoring of symptoms to prevent transmission.  <b>Minus:</b> Anxiety and uncertainty regarding exposure and risk factors.  <b>Interesting:</b> Variability in symptoms and the potential for asymptomatic transmission.</p>
<p><b>3. Medication usage and immune system impact.</b>  <b>Plus:</b> Availability of medication for symptom management and potential immune system support.  <b>Minus:</b> Risk of drug interactions and potential side effects.  <b>Interesting:</b> The role of the immune system in COVID19 severity and recovery.</p>
<p><b>4. Preventive measures and awareness.</b>  <b>Plus:</b> Increased hygiene practices and adherence to preventive measures.  <b>Minus:</b> Fatigue or resistance towards preventive measures.  <b>Interesting:</b> Creative and innovative solutions for maintaining social distancing and preventing transmission.</p>
<p><b>5. Concerns, fears, and learning about transmission.</b>  <b>Plus:</b> Heightened awareness and caution in avoiding high-risk situations.  <b>Minus:</b> Anxiety and fear related to transmission and contracting the virus.  <b>Interesting:</b> Understanding how the virus spreads and the different modes of transmission.</p>
<p><b>6. Vaccination status and options.</b>  <b>Plus:</b> Vaccines offer protection against severe illness and reduce transmission.  <b>Minus:</b> Limited vaccine availability and distribution challenges.  <b>Interesting:</b> Development and efficacy of various vaccine options.</p>
<p><b>7. Occupation or activity related guidelines.</b>  <b>Plus:</b> Specific guidelines and protocols for different occupations and activities.  <b>Minus:</b> Disruption or limitations on certain occupations and activities.  <b>Interesting:</b> Adaptation of workplaces and activities to ensure safety.</p>
<p><b>8. Long-term effects on respiratory system and organs.</b>  <b>Plus:</b> Research and understanding of potential long-term effects for better care and management.  <b>Minus:</b> Unknown long-term consequences and potential organ damage.  <b>Interesting:</b> Differences in long-term effects among individuals and age groups.</p>
<p><b>9. Impact on fertility or pregnancy.</b>  <b>Plus:</b> Research on the impact of COVID19 on fertility and pregnancies.  <b>Minus:</b> Concerns and uncertainty about the virus's effect on reproductive health. <b>Interesting:</b> Studies on vertical transmission and the safety of vaccines during pregnancy.</p>
<p><b>10. Support system during quarantine or illness.</b>  <b>Plus:</b> Increased focus on social support and mental health resources during quarantine or illness.  <b>Minus:</b> Isolation and limited access to support systems. <b>Interesting:</b> Utilization of technology for virtual support and care.</p>
<p><b>11. Comfort level with getting tested.</b>  <b>Plus:</b> Increased testing availability for early detection and containment.  <b>Minus:</b> Fear or discomfort associated with testing procedures.  <b>Interesting:</b> Different testing methods and their accuracy.</p>
<p><b>12. Mental health support resources.</b>  <b>Plus:</b> Increased awareness and accessibility of mental health resources.  <b>Minus:</b> Overwhelmed mental health systems and limited resources.  <b>Interesting:</b> Understanding the psychological impact of the pandemic and the importance of mental health support.</p>

and misinformation, build trust with patients, and ensure accurate information sharing. Also, seeing things from different points of view prepares the medical professional for possible relationship problems, like language or cultural hurdles. By consistently engaging with diverse viewpoints, medical professionals enhance their ability to dispel myths, address misconceptions, and provide accurate information which resonates with diverse patient experiences.

Table 4 presents possible responses by three populations to the

issues surrounding COVID. These populations are those who are interested, those who oppose, and those who “think differently,” because the “facts” that they believe to be true are not true according to orthodox medical belief.

### Innovations

The feature of critical thinking generated by AI in the Mind Genomics platform are suggested innovations. The AI can only go so far, and the innovations may already be in place. Yet, simply having AI suggest these

Table 4: Responses of three likely audiences; Interested, Opposing, and Alternative Viewpoints.

<p><b>INTERESTED AUDIENCES</b></p> <ol style="list-style-type: none"> <li><b>General population:</b> The general population would be interested in these topic questions as they provide valuable information and guidance on COVID-19, its symptoms, preventive measures, and potential risks. This can help individuals stay informed, make informed decisions, and take necessary precautions.</li> <li><b>Healthcare professionals:</b> Healthcare professionals would be interested in these topic questions as they are dealing directly with COVID-19 patients and need to understand the symptoms, risk factors, and preventive measures. They also need to stay updated on the latest information regarding COVID-19 transmission and its impact on health.</li> <li><b>Individuals with pre-existing medical conditions:</b> This audience would be interested in understanding the specific risks and challenges associated with COVID-19 if they have pre-existing medical conditions such as diabetes or heart disease. They would also be interested in information related to the impact of COVID-19 on their conditions and potential precautions.</li> <li><b>Individuals who are immunocompromised or taking immunosuppressive medications:</b> This audience would be interested in knowing if their current medications could affect their immune system and increase their risk of COVID-19. They would also be interested in understanding the preventive measures they can take to reduce their risk.</li> <li><b>Individuals who are planning a pregnancy or currently pregnant:</b> This audience would be interested in learning about the potential impact of COVID-19 on their fertility and pregnancy. They would also be interested in understanding any specific guidelines or precautions they need to follow during this time.</li> <li><b>Individuals experiencing anxiety or concerns about COVID-19:</b> This audience would be interested in the topic questions related to mental health support and resources available to cope with the stress and fears associated with COVID-19.</li> <li><b>Occupational and daily activity-specific groups:</b> Certain occupations or daily activities may have specific guidelines or restrictions related to COVID-19. This audience would be interested in understanding if there are any specific guidelines they need to follow based on their occupation or activities.</li> </ol> <p><b>OPPOSING AUDIENCES</b></p> <ol style="list-style-type: none"> <li><b>COVID-19 skeptics or conspiracy theorists:</b> These individuals may deny the severity or existence of the virus and may oppose discussions related to COVID-19.</li> <li><b>Anti-vaccination advocates:</b> Some individuals might oppose discussions about vaccinations or vaccination options, as they may have concerns about vaccine efficacy or safety.</li> <li><b>Those who are against public health measures:</b> People who are against wearing masks, social distancing, or other preventive measures may oppose discussions related to COVID-19.</li> <li><b>Those who believe in personal freedoms or individual rights:</b> Some individuals may argue that discussing COVID-19 guidelines, restrictions, or testing infringes on their personal freedoms or rights.</li> <li><b>Business owners or individuals impacted by lockdowns or closures:</b> People who have suffered economically due to lockdowns or closures may oppose discussions related to COVID-19 if they perceive these measures negatively affecting their livelihoods.</li> </ol> <p><b>ALTERNATIVE VIEWPOINTS</b></p> <ol style="list-style-type: none"> <li><b>What is your understanding of COVID-19?</b> Some alternative viewpoints may include individuals who believe COVID-19 is a conspiracy or hoax, or those who hold misinformation about the virus and its origins.</li> <li><b>Have you experienced any symptoms such as fever, cough, or difficulty breathing recently?</b> Some individuals may deny experiencing symptoms or downplay their severity due to personal beliefs or fears related to seeking medical help.</li> <li><b>Can you recall any potential exposure to individuals with confirmed or suspected COVID-19?</b> Some individuals may not fully disclose or be aware of their potential exposure due to limited understanding of the virus or fear of quarantine or isolation.</li> <li><b>Do you have any underlying medical conditions such as diabetes or heart disease that could increase your risk?</b> Some individuals may not acknowledge or be aware of their underlying medical conditions, potentially underestimating their risk.</li> <li><b>Are you currently taking any medications that may affect your immune system?</b> Alternative viewpoints may include individuals who refuse to take medications or believe in alternative treatments that could affect their immune system.</li> <li><b>Are you aware of the preventive measures to reduce the spread of COVID-19, such as frequent handwashing and wearing a mask?</b> Some individuals may have misinformation or doubts about the effectiveness of preventive measures, leading to resistance in following them.</li> <li><b>Can you share any concerns or fears you may have regarding COVID-19?</b> Different individuals may have various concerns, fears, or conspiracy theories related to the virus, such as fears of government control or vaccine-related concerns.</li> <li><b>Would you like more information on how COVID-19 is transmitted and its impact on overall health?</b> Some individuals may refuse or be hesitant to seek information about COVID-19, choosing to rely on alternative sources or conspiracy theories.</li> <li><b>Are you vaccinated against COVID-19 or would you like to discuss your vaccination options?</b> Alternative viewpoints may include individuals who are against vaccinations in general or have concerns about the safety or effectiveness of COVID-19 vaccines.</li> <li><b>Are you aware that COVID-19 can have long-term effects on the respiratory system and potentially other organs?</b> Some individuals may deny or dismiss the long-term effects of COVID-19, believing it to be exaggerated or not a significant concern.</li> <li><b>Do you have any questions or concerns about the potential impact of COVID-19 on your fertility or pregnancy?</b> Alternative viewpoints may include individuals who believe misinformation linking COVID-19 vaccines to fertility issues or those who deny any potential impact on fertility or pregnancy.</li> <li><b>Do you have a support system in place in case you need assistance during quarantine or if you become ill?</b> Some individuals may not have a support system in place due to social or personal circumstances, potentially leading to additional challenges during quarantine or illness.</li> <li><b>Are you comfortable with the idea of getting tested if necessary to confirm a COVID-19 infection?</b> Alternative viewpoints may include individuals who are hesitant or skeptical about testing, potentially due to concerns about accuracy or privacy issues.</li> <li><b>Would you like resources or recommendations for mental health support during this challenging time?</b> Some individuals may deny or downplay the need for mental health support, potentially due to stigma or misconceptions surrounding mental health.</li> </ol>
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ideas, and then using AI to expand the interest creates a framework where AI becomes a true collaborator. In this spirit, Table 5 presents 12 innovations as AI conceptualizes them at the early stages [1-15].

## Discussion and Conclusions

Using AI as a coworker and teacher for medical workers is important

for improving soft skills like knowing how people with COVID think. AI can model conversations with patients to help workers learn how to understand and talk to patients in tough situations. One of the best things about using AI in medical education is that it can figure out the different ways that people may talk to medical professionals when they need help. AI can help the professional understand and adapt to the

**Table 5:** Twelve innovations suggested by AI for the patients and medical professionals dealing with COVID.

<p><b>INNOVATION 1: COVID-19 educational online courses or workshops.</b> With the ongoing pandemic, COVID-19 educational online courses or workshops have emerged as a valuable resource for individuals to learn about the virus, its transmission, preventive measures, and the latest research. These online platforms allow people to access accurate information from trusted sources, stay informed about the evolving situation, and make informed decisions regarding their health and safety. By providing easy-to-understand content in a virtual format, these courses help bridge the gap between experts and the general public, promoting awareness and understanding of the virus and its impact.</p> <p><b>INNOVATION 2: Symptom tracking apps that help individuals monitor their symptoms and assess their risk.</b> Symptom tracking apps have become essential tools for individuals to monitor their health and assess their risk of COVID-19 infection. These apps allow users to log their symptoms, track changes over time, and receive personalized recommendations based on their reported data. By providing real-time information and guidance, these apps empower individuals to take proactive steps to protect themselves and others, such as seeking medical advice or getting tested for the virus. With features like daily health check-ins and alerts for potential exposure, these apps play a crucial role in early detection and prevention of COVID-19.</p> <p><b>INNOVATION 3: Immune system support products or supplements.</b> Immune system support products or supplements have gained popularity as individuals look for ways to boost their immune health and reduce their risk of infections, including COVID-19. These products often contain vitamins, minerals, and antioxidants that are believed to support immune function and overall health. By incorporating these supplements into their daily routine, individuals aim to strengthen their immune system and enhance their body's natural defense mechanisms against pathogens. While further research is needed to evaluate the efficacy of these products in preventing COVID-19, many people see them as a proactive approach to maintaining their health during the pandemic.</p> <p><b>INNOVATION 4: Virtual reality simulations to promote preventive measures and awareness.</b> Virtual reality simulations have been used to create immersive and engaging experiences that educate individuals about COVID-19 preventive measures and raise awareness about the importance of following public health guidelines. These simulations can simulate scenarios such as handwashing techniques, social distancing practices, and mask-wearing protocols in a realistic and interactive manner. By allowing users to visualize the impact of their actions on virus transmission and public health, virtual reality simulations make learning about COVID-19 prevention more memorable and effective. Through these innovative tools, individuals can practice and reinforce key behaviors that can help reduce the spread of the virus in their communities.</p> <p><b>INNOVATION 5: Online forums or support groups where individuals can share their concerns and learn about transmission.</b> Online forums and support groups have become valuable platforms for individuals to connect, share information, and seek advice related to COVID-19. These virtual communities provide a space for people to discuss their concerns, ask questions, and exchange resources on topics such as virus transmission, testing, and vaccination. By facilitating conversations and peer support, these online forums help alleviate anxiety, dispel misinformation, and foster a sense of solidarity during challenging times. Through shared experiences and knowledge-sharing, individuals can empower each other to navigate the complexities of the pandemic and make informed decisions for their health and well-being.</p> <p><b>INNOVATION 6: Vaccine passport apps or digital vaccination records.</b> Vaccine passport apps or digital vaccination records have been developed to streamline the verification of individuals' vaccination status and facilitate safe travel and access to public venues. These apps allow vaccinated individuals to store and present their immunization records in a secure and convenient digital format, enabling them to demonstrate their protection against COVID-19. By providing a standardized and easily accessible proof of vaccination, these digital solutions help reopen economies, facilitate cross-border travel, and ensure the safety of attendees at events and gatherings. While addressing concerns about privacy and data security, vaccine passport apps play a key role in the post-pandemic recovery and normalization of societal activities.</p> <p><b>INNOVATION 7: Occupation-specific guidelines for safe working environments.</b> Occupation-specific guidelines for safe working environments have been developed to help businesses and employers implement protective measures and protocols that minimize the risk of COVID-19 transmission in the workplace. These guidelines tailor recommendations to the unique needs and challenges of different industries and occupations, taking into account factors such as close contact with customers, shared workspaces, and high-risk environments. By providing clear and practical instructions on hygiene practices, physical distancing, and ventilation requirements, these guidelines help organizations create a safe and healthy work environment for their employees. Through proactive risk assessment and compliance with industry-specific recommendations, businesses can mitigate the spread of the virus among their workforce and contribute to overall public health efforts.</p> <p><b>INNOVATION 8: Long-term respiratory monitoring devices for individuals recovering from COVID-19.</b> Long-term respiratory monitoring devices have been introduced to support individuals in their recovery from COVID-19 and monitor potential respiratory complications post-infection. These wearable devices can track respiratory parameters such as lung function, oxygen saturation levels, and breathing patterns over an extended period, providing valuable insights into the progress of recovery and respiratory health. By enabling continuous monitoring and early detection of respiratory issues, these devices empower individuals and healthcare providers to intervene promptly and optimize treatment outcomes. As COVID-19 has been associated with respiratory symptoms and long-term complications, these monitoring tools play a crucial role in managing the respiratory health of recovering patients and promoting their overall well-being.</p> <p><b>INNOVATION 9: Telemedicine platforms for fertility and prenatal care.</b> Telemedicine platforms have expanded to offer specialized services for fertility and prenatal care, allowing individuals to access remote consultations, monitoring, and support throughout their reproductive journey. These platforms leverage technology to connect patients with fertility specialists, obstetricians, and maternal-fetal medicine experts, enabling them to receive personalized care and guidance from the comfort of their homes. By offering virtual appointments, prescription management, and educational resources tailored to fertility and pregnancy needs, telemedicine platforms ensure continuity of care and promote maternal health outcomes. With the convenience and accessibility of telehealth services, individuals can navigate fertility treatments, prenatal care, and pregnancy-related concerns with greater ease and peace of mind.</p> <p><b>INNOVATION 10: Virtual support groups or therapy sessions for individuals in quarantine or with COVID-19.</b> Virtual support groups and therapy sessions have emerged as vital resources for individuals in quarantine or facing challenges related to COVID-19, providing a safe space for emotional support, coping strategies, and mental health care. These online sessions offer a supportive environment where individuals can share their experiences, express their feelings, and connect with others who are going through similar circumstances. By facilitating group discussions, individual sessions, and therapeutic interventions, virtual support groups and therapy sessions help address feelings of isolation, anxiety, and stress that may arise during quarantine or illness. Through the guidance of trained mental health professionals and peer support, participants can build resilience, manage their emotions, and navigate the psychological impact of the pandemic with greater resilience and self-care.</p> <p><b>INNOVATION 11: Innovative self-testing kits for COVID-19 with user-friendly instructions.</b> Innovative self-testing kits for COVID-19 have been developed to enable individuals to perform rapid and accurate testing at home or in other non-clinical settings. These self-testing kits typically include all the necessary components and instructions for collecting samples, conducting tests, and interpreting results without the need for professional assistance. By offering user-friendly designs, clear step-by-step guidance, and reliable testing technology, these kits empower individuals to quickly assess their COVID-19 status and take appropriate actions based on the results. With the convenience and accessibility of self-testing kits, individuals monitor their health, detect potential infections early, and prevent further spread of the virus within their households and communities.</p> <p><b>INNOVATION 12: Mental health apps or online platforms offering counseling services and resources for coping with pandemic-related stress and anxiety.</b> Mental health apps and online platforms have emerged as valuable resources for individuals seeking support and guidance to cope with the psychological impact of the COVID-19 pandemic. These digital platforms offer a range of mental health services, including teletherapy, counseling sessions, mindfulness practices, and stress management tools, delivered by licensed therapists and mental health professionals. By providing personalized support, coping strategies, and evidence-based interventions, these apps help users navigate feelings of anxiety, isolation, and uncertainty caused by the pandemic. Through self-care resources, remote counseling sessions, and peer support networks, individuals can access mental health care in a convenient and confidential manner, fostering emotional well-being and resilience in times of crisis.</p>
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different needs and communication styles of patients by giving them specific advice and feedback in real time.

Medical workers can learn how to have tough talks and get along with patients by simulating real-life contacts with patients using AI technology. This can help build trust and make patients happier, which can lead to better results in the long run. Moreover, AI can give doctors information about how patients behave and what they like, which lets them adjust how they talk to each patient to best meet their needs. This personalized method can help people talk to each other better and help patients do better. Finally, AI can help doctors learn more about the mental and emotional parts of patient care, in addition to making it easier for them to talk to each other.

As a whole, incorporating AI into medical education gives students a one-of-a-kind chance to improve their soft skills and talk to patients more clearly. At the same time, with AI technology, medical workers of all types can learn to understand, connect with, and give patient-centered care which meets each patient's unique needs.

## Acknowledgment

The authors gratefully acknowledge the ongoing support and encouragement of Dr. Rizwan Hamid of the Global Healthcare Management Forum in Brooklyn. Dr. Hamid is a continuing source of encouragement for young medical professionals to create a more patient-focused, knowledge-driven healthcare system.

The authors are grateful to Vanessa A. and Angela A. for their ongoing help in preparing these and other manuscripts for publication.

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## Citation:

Javed M, Saharan S, Wingert S, Moskowitz HR (2025) Talking to Patients: Part 1 – Using AI to Suggest How to Talk with a Patient Regarding COVID-19. *Mind Genom Stud Psychol Exp* Volume 5(2): 1-6.