

Subjective Decisions About Medicines in a Time of Financial Distress: How AI and Mind Genomics Thinking Help to Clarify the Issues

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ABSTRACT

The paper presents the results of a four-phase simulation of the response of ordinary people to the problems of affording the proper medicine in a time of financial hardship. Through AI (ChatGPT 3.5) and the emerging science of Mind Genomics, the paper generates a sense of the experience of financial hardship in a time of rising prices of drugs. Phase 1, the voice of the people, simulates interviews with ordinary people regarding their feelings and experiences. Phase 2, the town hall meeting, simulates the response of ordinary people to the presentation by drug company executives at a public meeting. Phase 3, the mind-set of pharmacists, presents the way pharmacists think about working with those customers who are facing financial hardships. Phase 4, questions and answers, shows how AI generates an instructional document about the multifaceted experience of individuals of lower income facing increasing cost of medicine. The four phases can be replicated and scaled across different aspects of medicine to provide a way by which to teach medical professionals about the inner experience of patients and customers.

Keywords: AI Simulation, Drug Prices, Financial Hardship, Mind Genomics, Mind-Sets

Introduction

During times of financial crisis, individuals and families often struggle with balancing their immediate health with their financial survival. They often categorize their medications into “necessary” and “optional,” leading to confusion and compromises. This can result in postponing doctor visits, saving on consultation fees and prescription costs, but can also lead to deteriorating health in the long run. People often seek advice from informal sources, such as family, friends, or the internet, and may seek cheaper alternatives to prescribed medication. However, the fear of a health crisis can compound the anxiety. Patients may also barter with healthcare providers or pharmacists, but this can lead to avoidance or dishonesty. Delayed or avoided treatment can lead to worse health problems,

trapping financially vulnerable individuals in a cycle of mounting expenses, deteriorating health, and increasing stress [1-3].

With this introduction, we proceed to simulations by generative AI to better understand the nuances of thinking regarding medicines in a time of crisis. The approach used here involves AI as a coach and co-researcher, generating four different types of simulations which reveal how people may think. These four simulations are:

1. The voice of the people - simulation of a set of interviews with people about the hardships due to the high cost of medicine
2. Town hall meeting - simulation of a presentation by pharmaceutical company executives, followed by a question-and-answer session
3. The mind-sets of pharmacists with respect to customers who have financial difficulties
4. Questions and answers regarding adherence in a time of financial difficulties

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Phase 1 - The Voice of the People

The use of generative AI in simulating interviews allows for a deeper understanding of human emotions, experiences, and decision-making during tough times, particularly in healthcare. By presenting the simulated statements of the 15 individuals below (see Table 1), AI provides a nuanced and relatable perspective on the decision-making process. The simulation also serves as a bridge for empathy, allowing audiences to hear the emotions of those grappling with real-world dilemmas. Simulation allows for capturing nuanced emotions and experiences, influencing how people think about medicine adherence and healthcare accessibility. Simulated interviews also encourage inclusive discussions, highlighting the complexities of real-world life which often are overlooked in the well-choreographed, objective, passionless, and simply factual progression suggested by academic papers [4-6].

Table 1: AI simulation of interviews with 15 people regarding how they feel about and how they cope with the high prices of medicines in a time of inflation

1. **The Struggling Single Mother:** “Every month, I need asthma medication for my 8-year-old son, and it’s just getting so hard to afford. I already cut down on groceries, skip meals sometimes, doing whatever it takes. I do not know how much longer I can keep doing this. The price of inhalers - they’ve doubled or more! I just keep thinking, what happens if I can’t pay? Do I start cutting his doses? It terrifies me. But I can’t face not being able to help him breathe. I’m even thinking of getting another job, maybe night shifts, to keep up with it, but I’m already exhausted. It’s like you’re waging this fight, all alone, against something way bigger than you.”
2. **The College Student with Diabetes:** “I’m a full-time student, balancing my classes and trying to make ends meet with part-time jobs. My insulin costs have skyrocketed. There are days I wonder if it’s worth skipping doses just so I can save some money. I have started rationing it by taking less than I need, which I know is dangerous. I do not want to tell my parents - I do not want to worry them - but I’m getting scared. I’m looking into prescription assistance programs, but it feels like there’s so much red tape. How did it get like this? People like me shouldn’t have to choose between staying alive or graduating.”
3. **The Retired Engineer:** “I worked my whole life, did everything right, saved money, and thought I’d be comfortable in retirement. But my blood pressure medications and arthritis drugs keep going up in price. I’m in my 70s now. I have started skipping a few medications some weeks so that I can stretch out the supply. I’m doing my best to cut out other expenses - no more dining out or trips - but surely, after a lifetime of work, healthcare shouldn’t feel like something out of reach. I’m beginning to wonder whether I’ll be forced to go without altogether, or if I’m going to outlive my savings.”
4. **The Single Father:** “I’m raising two kids on my own, and my youngest has ADHD. Her medication helps her focus at school, but the prices just keep climbing. I can’t help but feel this knot of fear grow tighter every time I pick up her prescription. Some days, I catch myself thinking of alternatives, like maybe trying

herbal remedies. What else can I do? We’ve already cut television, we do not go out, but it’s still a struggle. How am I supposed to explain to my child that her education, her functioning, is now tied to my ability to afford these pills?”

5. **The Farmer Fighting Off Chronic Illness:** “I have worked on this land all my life, and the dirt is in my blood. But now rheumatoid arthritis has me hurting every day, and the cost of the meds that keep me moving is going up year after year. I can’t stop working or the farm will fall apart, but I can’t keep paying these drug companies either. So, I have been swapping between medicines, taking what I can afford this month, and delaying some for the next. I guess what really gets me is the helplessness in the whole thing - like, I know my body is breaking down over time, but I never thought money would be what stopped me from helping myself.”
6. **The Government Employee:** “I work for the government, so I have access to some health benefits, but the rising cost of prescription drugs is even creeping into our coverage, and it’s scary. My spouse takes medication for their heart, and those prices have shot up. We’ve now started reducing dosages slower and slower, just so the pills last longer. But how much longer are we going to be safe doing this? The stress gets to you - what if the next heart attack comes and we’ve been skimping on meds? I lie awake at night thinking about that.”
7. **The Business Owner:** “I run a small business, and times are hard already, what with paying rent, employees, and taxes. But my personal medical costs have shot up twice the rate my earnings have. Lately, I have been putting off going to the doctor altogether, even though my cholesterol meds are running low. It’s ironic - I’m making just enough to get by, but not enough to keep myself healthy. One serious medical issue, and I’ll be wiped out. I worry if I should finally sell the business before it all collapses. This isn’t how I imagined life would be after striking out on my own.”
8. **The Homemaker on a Tight Budget:** “My husband and I try to make every dollar count with the family income. But the medication our son needs to control his epilepsy is so expensive, even with insurance. There are no more corners left to cut - no more “luxuries” to forego. When you’re staring at the price tag of a drug that might mean the difference between life and death, it feels like there’s no right answer. My stomach feels sick every time we go to the pharmacy. I’m thinking of finding work now, but paying for childcare will eat up what I’ll earn.”
9. **The Elderly Woman Caring for Her Husband:** “My husband has early-onset Alzheimer’s, and the cost of his medications is bleeding us dry. I barely sleep thinking about how we’ll survive this financially. Most days, I feel more like we’re slowly being buried under these pricing increases. None of the options we have are ideal. Should I cut back on my own medication for heart disease so we can afford his? It feels like there’s no one to turn to. I’m scared that when his condition worsens, we’ll have no money left for necessary care.”

10. **The Unemployed Worker:** “Since losing my job due to corporate downsizing, I have been on unemployment. But unemployment doesn’t cover medicine. I have depression, and my meds cost more than I can manage. Honestly, it’s a nightmare. It’s like the system rigs you into this situation where you either prioritize medicine over groceries or simply do not take the pills. I have thought about not taking them, but friends say I’m not the same when I stop. So where does that leave me?”
11. **The Pharmacist:** “I see people come to my pharmacy daily and struggle with tough choices. One customer said he hasn’t been buying his diabetes medication to save money for his family. It breaks my heart, because I know how dangerous it is, but I understand him. At this point, even doing my job feels complicated - how do I offer any meaningful help when I know how out of reach so much of what I sell has become? I’m stuck between serving my patients and watching families drown in health costs.”
12. **The Teacher:** “As a teacher, I live on a modest income, and the rising costs of everything are sinking us. My child has eczema, and her treatment creams are getting ridiculously expensive. We’ve tried going without them every once in a while, but her condition gets worse. At this point, I’m using over-the-counter options but they’re not as effective. I wonder, harshly, how much I am teaching her that survival in life really means tolerating discomfort - physical and financial.”
13. **The Part-time Freelancer:** “I thought freelancing would give me freedom - work my own hours, plan my life. But now I spend my days worrying about whether I can afford my blood pressure meds. With no structured healthcare plan or insurance coverage, the whole thing’s a mess. Some months, I fund the medicine. Other months, I gamble with my health to pay rent. I’m wondering if I should give up freelance and head back to a corporate job, but those jobs aren’t easy to get these days either.”
14. **The Caregiver for Aging Parents:** “My parents are aging fast, and the cost of their medication is insane. I’m doing this on top of raising my own kids. How am I supposed to keep affording everyone’s pills? I feel daily pressure to choose between my parents’ meds and the things my kids need. I’m thinking about - well, honestly, I have even considered selling the house and downsizing just so I can keep up. It’s overwhelming.”
15. **The Factory Worker:** “Factory work should cover basic healthcare, right? Wrong. My paycheck does less now than it did a few years ago, and my cholesterol and asthma medications are costing me more than I want to admit. I’m already on generic versions, but the price hikes haven’t stopped. I’m starting to think about taking fewer doses throughout the month, just to save money. It feels unfair that the people at the bottom do the most, pay the most, but get the least back in return.”

Phase 2 - The Drug Executives Come to the Town Meeting

A town hall meeting with experts discussing a relevant issue, like the high costs of medicine during an economic downturn, offers a rich, interactive learning experience. This format fosters dynamic dialogue between experts and the audience, allowing complex issues to unfold tailored to the immediate concerns

of the community. Real-world problems, such as the financial burden of medications, can be explored with tangible solutions. The spontaneity of the format allows for deeper thinking and insights, as individuals can raise unanticipated concerns. The emotional and intellectual engagement of the audience adds another layer of learning, as they are personally invested in the material being discussed. The town hall format also allows participants to explore the minds of specialists, granting them a glimpse into their thinking, problem-solving approach, and public scrutiny [7-8]. Table 2A shows the instructions given to the AI and the simulated presentation of the pharmaceutical executives. Table 2B shows six questions, answers, reactions, and simulated “private thinking” created by AI as part of its simulation of the town hall meeting.

Table 2A: AI simulation of a town hall meeting where two executives from a pharmaceutical manufacturer answer questions posed by citizens of the town

Instructions Provided to the AI about the Conduct of the Town Hall Meeting

The mayor of the town and her husband are close personal friends with two of the executives of a drug manufacturer. Both of these executives live near the town and are familiar with the economic circumstances and the high cost of medicine. The executives are both interested in helping the people who are having problems affording the high cost of medicines by giving them advice about ways to deal with the cost of their medicines. The mayor has created a special town hall meeting on a Wednesday evening, when she knew that a lot of people would be around because the next day would be the local play-off game. The mayor invited the executives to present their vision of what could be done regarding the cost of medicines in light of the financial hard times, and then asked the executives whether they would be agreeable to answering the questions from the townspeople focusing only on dealing with the high cost of medicines being felt by the people at this time of economic difficulty. The executives said yes.

Assume that we are at the town hall meeting, after having our snacks (fruit juice, fruit, crackers, cheeses). Everyone is happy and waiting to learn from the executives regarding the specific topic of managing one’s cost of medicines in this time of economic difficulty.

Please give me a five-paragraph summary of the presentation of the executives.

Afterwards, please give me 10 questions from the audience and answers, following this format:

- Repeat the question as asked. Preface by QUESTION:
- Who asked the question, and what was the asker thinking? Preface by ASKER & REASON FOR QUESTION:
- What was the executive’s answer, and why did the executive answer the question that way? Preface by EXECUTIVE’S ANSWER:
- What was the executive thinking? Preface by EXECUTIVE WAS THINKING:
- What did the asker feel about the answer? Preface by ASKER FELT ABOUT ANSWER:
- What did the audience feel about the answer, and what was their attitude towards the executive after hearing the

answer? Preface by AUDIENCE FELT ABOUT THE ANSWER:

- What did people in the audience say to each other about what they just heard? How did they feel? Preface by THE AUDIENCE MEMBER'S COMMENT TO THE PERSON SITTING NEXT TO THEM:

AI Simulation of the Summarized Presentations Given by the Two Pharmaceutical Executives

The two executives, who represent one of the leading drug manufacturers in the region, opened their presentation by acknowledging the overwhelming financial pressure that many families are facing, especially regarding healthcare and prescription medications. They emphasized that whereas their primary goal as a company is to innovate and make life-saving medications available, they are equally committed to helping communities who are struggling with the rising costs of prescription drugs. Their presentation focused on several strategies that individuals, families, and local governments can use to manage and mitigate the costs of medicine.

First, they introduced several assistance programs that are designed to help those who cannot afford their medications. Many pharmaceutical companies, including theirs, have patient assistance programs that can drastically reduce or even eliminate the cost of life-saving medicines for those who meet certain income criteria. They provided details on how these programs work and how to apply through trusted clinics and direct applications.

Second, they discussed alternative options such as generic drugs. Generics, they explained, are often just as effective as their brand-name counterparts but come at a fraction of the cost. The executives encouraged the attendees to have open conversations with their healthcare providers to ensure they're being prescribed generic alternatives whenever possible. They also noted that some medications have therapeutic equivalents that may be more affordable.

Third, the executives outlined the potential benefits of state and federal initiatives aimed at reducing medication costs. This included possible legislative reforms in the coming years to regulate drug prices, improve competition among manufacturers, and reduce overall healthcare costs. They encouraged attendees to reach out to their representatives to push these efforts forward.

Fourth, they spoke about other cost-saving measures, such as using discount cards available through many pharmacies and some nonprofit organizations. These cards can sometimes lower medication prices, especially for those without insurance coverage or those with insufficient coverage. Additionally, they encouraged people to shop around between pharmacies, as prices can vary significantly even within the same town.

Finally, they concluded by talking about cost transparency. One of the ongoing challenges for many consumers is that they often do not know how much a prescription will cost until they're at the pharmacy. The executives outlined methods of

finding price information in advance, such as using online tools and apps that allow price comparisons before making a commitment to purchase.

Table 2B: AI simulation of questions, answers, and responses generated at the town hall meeting with the two executives from the pharmaceutical manufacturer.

QUESTION 1: "Why do drug prices go up so high in the first place, and can your company do anything to stop that?"

ASKER & REASON FOR QUESTION: This question was asked by an older gentleman in the back, a retiree on a fixed income. He was likely feeling the pinch of rapidly increasing drug prices and wanted a direct answer on accountability and responsibility.

THE EXECUTIVE'S ANSWER: The executive explained that drug prices reflect the high cost of research and development, including expensive clinical trials and the regulatory approval process, which can take years. He assured the gentleman that their company is focused on responsible pricing and reinvesting profits into new research to save lives.

THE EXECUTIVE WAS THINKING: The executive aimed to provide a rational explanation that balanced business realities with empathy, knowing that the more technical aspects of the answer wouldn't satisfy everyone in the room.

THE ASKER FELT ABOUT ANSWER: The gentleman seemed somewhat dissatisfied, as he audibly muttered that R&D "shouldn't be on us." He likely wanted a clearer explanation on how the company could reduce prices independent of broader market factors.

THE AUDIENCE FELT ABOUT THE ANSWER: Several audience members nodded in agreement with the gentleman's frustration. The response prompted more skepticism and unease, especially among those grappling with high drug costs. Some people in the crowd were still open to listening.

THE AUDIENCE MEMBER'S COMMENT TO THE PERSON SITTING NEXT TO THEM: "I just do not get it, how is R&D our problem? They're making millions. It doesn't sit right with me."

QUESTION 2: "Will these assistance programs apply to everyone, or only those who meet a certain income limit?"

ASKER & REASON FOR QUESTION: A middle-aged woman, likely a single parent with children, asked this question. She was probably hoping to qualify for assistance but uncertain whether her income, though modest, would be low enough to benefit.

THE EXECUTIVE'S ANSWER: The executive responded that most assistance programs have income limits designed to help those in the greatest need, but some programs consider individual circumstances, like having multiple dependents. He recommended she look into specific local programs and pharmaceutical assistance options.

THE EXECUTIVE WAS THINKING: He intended to provide reassurance without guaranteeing that everyone would qualify, knowing the frustration that rejection from assistance programs might cause.

THE ASKER FELT ABOUT ANSWER: The woman still looked uncertain, possibly sensing that qualification guidelines might be too rigid for her situation. She cautiously nodded, perhaps unconvinced that she would fall under the program's qualifications.

THE AUDIENCE FELT ABOUT THE ANSWER: The audience murmured, with people uncertain about whether these "assistance programs" would truly address the widespread need in the community. The crowd sensed that only a subset of people would benefit.

THE AUDIENCE MEMBER'S COMMENT TO THE PERSON SITTING NEXT TO THEM: "Sounds like only the poorest people get to benefit from these programs. What about everyone else?"

QUESTION 3: "Why do my medications cost different amounts at different pharmacies? Shouldn't they all cost the same?"

ASKER & REASON FOR QUESTION: A young man, possibly a college student or someone just starting in the workforce, asked this question. He was likely frustrated with the inconsistency and surprise costs of his prescriptions.

THE EXECUTIVE'S ANSWER: The executive explained that drug pricing structures are incredibly complex and can vary among pharmacies based on factors like pharmacy benefits managers (PBMs), wholesale costs, and even local competition. He recommended using online price comparison tools to ensure he's finding the best deals.

THE EXECUTIVE WAS THINKING: He knew this question highlighted a recurring annoyance for many of those impacted by the system's capriciousness and tried to pivot the frustration by offering practical solutions.

THE ASKER FELT ABOUT ANSWER: The young man was somewhat relieved to learn of price comparison tools but appeared confused about why this complexity existed in the first place. He had hoped for a simpler explanation or solution.

THE AUDIENCE FELT ABOUT THE ANSWER: Many attendees appeared frustrated with the need to "shop around" for something as essential as medication. The atmosphere became more critical toward the pharmaceutical industry's confusing and opaque pricing systems.

THE AUDIENCE MEMBER'S COMMENT TO THE PERSON SITTING NEXT TO THEM: "It's ridiculous that we have to work this hard just to afford something so basic. Why all the secrecy?"

QUESTION 4: "How do generic drugs compare in quality to the expensive brand-name ones I have been using?"

ASKER & REASON FOR QUESTION: A concerned middle-aged man who might have been on multiple medications asked this. He wanted to save money but was anxious about making compromises in his treatment.

THE EXECUTIVE'S ANSWER: The executive reassured the man that generics are required by the FDA to be bioequivalent to their brand-name counterparts. Whereas they may contain different inactive ingredients, the active ingredients and effectiveness are held to the same strict standards.

THE EXECUTIVE WAS THINKING: He understood this was a common concern and aimed to emphasize the safety and quality of generics without minimizing the man's concerns.

THE ASKER FELT ABOUT ANSWER: The man appeared reasonably satisfied, though perhaps wary of the idea that "identical" meant "just as good." However, he seemed reassured by the mention of FDA standards.

THE AUDIENCE FELT ABOUT THE ANSWER: Many in the audience were visibly relieved to hear that generics could be good alternatives. Several people nodded in approval, happy at the prospect of a cheaper but effective option.

THE AUDIENCE MEMBER'S COMMENT TO THE PERSON SITTING NEXT TO THEM: "I might actually ask my doctor about generics after this, if they're really the same thing."

QUESTION 5: "If we push for legislation to reduce drug prices, will that hurt the chance of new medicines being developed?"

ASKER & REASON FOR QUESTION: A local teacher, who likely wanted a balanced view of social responsibility and innovation, posed the question. She was concerned that reducing prices too much could stifle progress.

THE EXECUTIVE'S ANSWER: The executive admitted that extreme price controls could indeed affect research and innovation, but current efforts focus on price transparency and affordability without sacrificing the funds needed for further innovation. He encouraged pushing for legislation that balances both.

THE EXECUTIVE WAS THINKING: He wanted to walk a fine line in addressing her legitimate concerns while also reinforcing the company's stance on the need to maintain profitability for continued research.

ASKER FELT ABOUT ANSWER: The teacher seemed slightly reassured but not fully convinced that such balance was achievable without more radical reforms. She nodded but had a contemplative look on her face.

THE AUDIENCE FELT ABOUT THE ANSWER: The audience had mixed reactions. Some felt comforted by the talk about balance, whereas others remained skeptical. The subject of profits and innovation clearly struck a nerve with people who questioned the balance between corporate interests and public health.

SAID TO PERSON NEXT TO THEM: “Seems like they’re always saying it’ll hurt innovation, but do they really need all that cash?”

Phase 3 - The Mind-Set of Pharmacists with Regard to the Affordability of Medicines

Pharmacists’ attitudes towards affordability and customer service are crucial for patients and the healthcare system. They act as intermediaries between patients and expensive medications, addressing concerns about drug price, availability, and alternative solutions. Some pharmacists may suggest generic versions, enroll in discount programs, or work with physicians to adjust dosages. However, those less aware of affordability may undermine adherence to prescribed therapies, exacerbating healthcare disparities. Pharmacists who are mindful of affordability can improve patient outcomes, reduce long-term medical expenses, and improve quality of life. On a larger scale, pharmacists who understand affordability can prevent systemic inefficiencies, reduce unnecessary hospital stays, and contribute to broader social and economic welfare. Understanding pharmacists’ varying mind-sets and promoting affordability-sensitive approaches can lead to better national health outcomes and economic sustainability [9-11].

Table 3 shows 15 questions based on the idea of pharmacists having different mind-sets in their interactions with customers, especially in a context of dealing with rising medication costs. These questions explore how pharmacists with varying mind-sets approach customer interactions, affordability challenges, ethical issues, and economic hardship.

Table 3: Questions generated by AI as being relevant to the different mind-sets of pharmacists dealing with the affordability of medicines as perceived by their customers.

Instructions to the AI to Simulate Mind-Sets of Pharmacists Dealing with Customers

Pharmacists differ in the way that they deal with customers and with issues of affordability. These pharmacists fall into different mind-sets. Knowing that, please describe the mind-sets, and for each mind-set describe the way the mind-set deals with the issue of rising costs of medicine in a time of economic hardship.

Output from AI Showing How AI Interprets the Concept of “Mind-Sets” of Pharmacists, When the Mind-Sets are Focused on Patterns of Behaviors of Pharmacists

1. How would you describe the various mind-sets displayed by pharmacists in their approach to customer service and affordability?
2. What are the defining characteristics of a pharmacist with a “compassionate” or “empathetic” mind-set, and how do they address the issue of rising drug costs?
3. How might a “clinical” or “by-the-book” pharmacist differ from other mind-sets in dealing with customers facing economic hardship?
4. What strategies would a “pragmatic” pharmacist use to help customers navigate the growing cost of medications during tough economic times?
5. Do you think a “profit-driven” or “business-oriented” pharmacist prioritizes the customer’s financial well-being when confronted with high prescription prices? Why or why not?
6. How do “community-focused” pharmacists approach rising drug costs, and in what ways might they advocate for their patients beyond dispensing medication?
7. What mind-set(s) might push a pharmacist to recommend discounts, generics, or patient assistance programs when faced with rising costs, and why?
8. How does a pharmacist’s personal belief system, such as “strict adherence to policies” versus “flexibility to accommodate patients’ needs,” shape how they respond to the issue of unaffordability in prescriptions?
9. In what ways do pharmacists with a “relationship-building” mind-set differ from those with a more transactional approach in a time of economic struggles?
10. What ethical challenges might emerge for a pharmacist with a corporate-focused mind-set as they confront patients who cannot afford rising medication prices?
11. Would a “patient-centric” pharmacist be more likely to explore alternative or creative solutions to help customers afford their medications during an economic downturn?
12. How would the mind-set of a “solutions-oriented” pharmacist influence the way they interact with customers about cost-saving methods, such as generics or splitting pills?
13. During periods of economic hardship, how do “advocates” within the pharmacy profession tend to engage with insurance companies or healthcare providers on behalf of their patients?
14. What role does the “educator” mind-set play in helping customers understand their options for reducing medication costs, such as through subscription plans or bulk purchasing?
15. Is it ethical for a “business-minded” pharmacist to prioritize profit margins over patient affordability during difficult economic times? What mind-set allows for a balanced approach?

Phase 4 - Learning From AI-Generated Questions, Answers, and Elaborations

AI-generated questions and answers provide valuable insights into complex issues, such as patients’ concerns about medicine prices during inflationary periods. AI algorithms can delve deeper into themes overlooked by humans, highlighting neglected aspects like global economic policies and pharmaceutical transparency. Its adaptability and analytical power allow for comprehensive and

nanced answers, synthesizing information from various studies and consumer surveys. AI can provide insights into macro-level economic inflation impacts, as well as finer details like supply chain inefficiencies and subsidies. The questions end up offering insights, enhancing learners' understanding and critical thinking. Table 4A presents six questions and elaborated answers. Table 4B shows summarized answers from 45 questions created by AI, elaborated by AI, and then the elaborations summarized by a separate AI program, QuillBot [12].

Table 4A: Six questions and elaborated answers about what patients do to reduce the cost of medicine in an inflationary period.

Please give me six questions about what patients do to reduce cost of medicine in an inflationary period, such as now, when the cost of medicine appears to be “skyrocketing,” at least to the less affluent patients.

After each question, provide a three-paragraph answer, prefaced by FULL ANSWER:

After providing the full answer, provide a one paragraph shorter answer, summarizing the full answer. Call this shorter answer the SUMMARIZED ANSWER:

Question 1: How are patients responding to skyrocketing medication costs in an inflationary period?

FULL ANSWER: Many patients, especially those with limited financial resources, are taking a variety of measures to navigate rising medication costs during inflationary periods. One common strategy is price comparison and shopping at different pharmacies to find the most affordable prices. Patients now frequently use online tools, apps, and services that compare prescription prices across multiple platforms. Some even switch to online pharmacies that offer lower prices, particularly for generic medications, which tend to be significantly more affordable than brand-name drugs.

Another approach patients take is asking their healthcare providers for cheaper alternatives or generic versions of their prescribed medications. Generics contain the same active ingredients as brand-name drugs and are regulated to ensure efficacy and safety, but they come at a fraction of the cost. Many doctors are aware of the financial strain on patients and are willing to help by prescribing these less expensive options when they are available.

In addition, some patients may extend their prescriptions longer than prescribed by taking less than the recommended dose, such as splitting pills or skipping doses. Whereas this may cut down immediate costs, it can pose serious health risks in the long run, such as under-treating a medical condition or causing resistance to certain medications. This strategy is not generally advised and should be avoided unless under direct supervision of a healthcare provider.

SUMMARIZED ANSWER: Patients are responding to increased medicine costs by comparison-shopping between pharmacies, switching to generic medications, or asking healthcare providers for cheaper alternatives. Whereas some

patients may resort to unsafe methods like skipping doses or splitting pills to extend their prescriptions, such practices can pose serious health risks.

Question 2: What roles do patient assistance programs (PAPs) play in helping patients manage medication costs during times of high inflation?

FULL ANSWER: Patient Assistance Programs (PAPs), typically sponsored by pharmaceutical companies or nonprofit organizations, play a significant role in helping individuals manage their medication expenses, especially during inflationary periods when costs are high. These programs provide free or deeply discounted medications to qualifying patients who cannot afford their prescriptions. PAPs can be particularly beneficial for patients without insurance or those on high-deductible healthcare plans who face substantial out-of-pocket costs.

To access PAPs, patients often need to meet specific eligibility criteria, such as income requirements, lack of insurance, or medical necessity for a particular drug. Some programs cater specifically to patients with chronic or life-threatening conditions like cancer, diabetes, or rheumatoid arthritis, where the cost of treatment can be especially burdensome. Patients typically apply for these programs through their healthcare provider or directly with the pharmaceutical companies that manufacture the medications.

However, participation in patient assistance programs requires time and effort, and not all patients are eligible. Navigating approvals, submitting paperwork, and adhering to specific timelines can be tedious. Despite these challenges, for those who qualify, PAPs can dramatically reduce or eliminate the cost of essential medications, offering relief during financially stressful periods.

SUMMARIZED ANSWER: Patient Assistance Programs (PAPs) help alleviate medication costs by providing free or low-cost drugs to qualifying patients. These programs are especially helpful for uninsured individuals or those facing high out-of-pocket costs. Whereas the application process may be time-consuming, PAPs can significantly improve access to necessary medications during inflationary periods.

Question 3: How do high deductible healthcare plans impact patients' ability to afford medications during inflationary times?

FULL ANSWER: High-deductible healthcare plans (HDHPs) can significantly impact patients' ability to afford medications, especially during inflationary periods. These plans typically offer lower monthly premiums but come with higher out-of-pocket expenses until the deductible is met. As medication prices increase due to inflation, patients under HDHPs face even greater financial strain, as they are often required to pay full price for their medications until they meet their deductible.

One challenge with HDHPs is that patients may delay or avoid filling their prescriptions entirely because the upfront costs are too high. This can lead to a deterioration of their medical condition, potentially resulting in more severe and expensive health issues in the future. Some patients may even be forced to choose between paying for their medications and other essentials like food or utilities.

Despite these challenges, some HDHPs offer tools like Health Savings Accounts (HSAs) to help patients mitigate costs. An HSA allows people to save pre-tax income specifically for medical expenses, which can be a source of relief during high-cost periods. However, this requires proactive financial planning, and not all patients may have the ability to contribute significant amounts to their HSAs, especially during times of economic uncertainty.

SUMMARIZED ANSWER: High-deductible healthcare plans often exacerbate the financial burden of affording medications, as patients must pay the full price until the deductible is met, leading some to delay or skip their prescriptions altogether. Although Health Savings Accounts (HSAs) can help offset costs, many patients struggle to contribute enough to these accounts during inflationary times.

Question 4: What role do generic medications play in helping patients manage high prescription cost inflation?

FULL ANSWER: Generic medications are one of the most effective ways patients manage skyrocketing prescription costs during periods of inflation. These medications are chemically equivalent to brand-name drugs but are sold at a fraction of the price, as they do not bear the costs associated with drug development, marketing, and distribution that branded medications do. As inflation raises the cost of healthcare, more patients and healthcare providers are switching to generics as an affordable alternative without compromising treatment quality.

Generics offer significant savings, sometimes up to 80% lower than their brand-name counterparts. Government agencies, like the FDA in the United States, strictly regulate the approval of generic drugs to ensure they meet similar safety and efficacy standards as brand-name drugs. Because of this, patients can confidently transition to generics without significant concern about lower quality or reduced effectiveness.

Whereas generics are a helpful option for many patients, they are not available for every medication. Certain newer treatments, especially those related to specialty care like biologic drugs, may still only be available in brand-name form, limiting the savings that can be achieved in some cases. For the vast majority of common health conditions, however, generics remain a crucial tool for cost management in challenging financial times.

SUMMARIZED ANSWER: Generic medications help patients save considerably during inflationary periods by offering the same efficacy as brand-name drugs at significantly reduced prices. Whereas not all medications have generic versions, generics play a critical role in reducing overall prescription costs for a wide range of common conditions.

Question 5: How do patients use coupons and discount cards to help manage rising medication costs?

FULL ANSWER: Coupons and discount cards have become essential tools for patients trying to reduce their out-of-pocket expenses on medications during inflationary periods. Many pharmaceutical companies issue coupons or savings cards specifically for high-cost brand-name drugs that are not available in generic form. These coupons can significantly lower copays for insured patients or reduce prices for those paying out-of-pocket.

Patients can often obtain these discount cards through their doctors, pharmacies, or directly from the drug manufacturer's website. Popular services such as GoodRx and SingleCare also provide comparison shopping for drug prices and issue savings cards that patients can use at participating pharmacies. In some cases, these services offer better discounts than what is covered under insurance, making them an attractive option for cash-paying customers or individuals with high deductibles.

However, not all pharmacies accept these discount cards, and some drugs may not be included in discounted programs. Also, pharmaceutical-issued coupons generally provide short-term relief, as they are often only valid for several months or expire after patient usage over a certain number of refills. However, when leveraged effectively, these tools can help alleviate medication costs for patients during times of financial difficulty.

SUMMARIZED ANSWER: Patients are increasingly turning to coupons and discount cards to offset medication costs during inflationary periods. These tools, offered by pharmaceutical companies and comparison services, provide immediate cost reductions, though their availability and acceptance may vary depending on the medication or pharmacy.

Question 6: How are mail-order pharmacies helping patients save on medication costs during inflation?

FULL ANSWER: Mail-order pharmacies are becoming a popular way for patients to save on medication expenses, particularly as inflation drives up prices at retail pharmacies. By cutting overhead costs, including building leases and in-store staffing, mail-order services can pass on savings to consumers. Additionally, bulk purchasing through mail-order can result in further savings because pharmacies can offer three-month supplies of medication at a discounted rate.

These services also provide the added convenience of delivering medications directly to patients' homes, which can help patients avoid transportation costs or frequent trips to the pharmacy. Furthermore, some people may live in areas with limited physical access to pharmacies, making mail-order a cost-effective and practical solution. For individuals who need maintenance medications for chronic conditions such as hypertension or diabetes, mail-order setups ensure a consistent supply of essential medications while saving them money over time.

Concerns with reliability due to shipping delays or supply chain issues exist, especially during inflationary or crisis periods. Nonetheless, many find mail-order pharmacies a financially viable alternative, which can substantially cut medication costs, especially when combined with insurance coverage or generic options.

SUMMARIZED ANSWER: Mail-order pharmacies help reduce medication costs by offering bulk quantities at lower prices, cutting overhead expenses, and delivering directly to patients. Whereas some patients might face occasional challenges like shipping delays, the overall savings and convenience make these services attractive during inflation.

Table 4B: Summarized results from 45 questions dealing with people and medicine in a period of inflation.

1. Financial hardship often leads to people prioritizing medications that treat life-threatening conditions or provide immediate relief from symptoms. Emotional pressures arise when patients realize they cannot manage their health conditions due to financial constraints, leading to anxiety, guilt, and helplessness. People rationalize delaying or cutting back on specific prescriptions, downplaying the effectiveness of certain prescriptions or relying on lifestyle changes as substitutes. Patients may avoid discussing their financial hardships upfront or feel embarrassed to share their struggles with their doctor. Online communities and social networks contribute to people’s decisions about medicine in times of crisis by sharing advice and offering practical strategies.
2. Taking lower doses or skipping medication doses can lead to significant health risks, such as complications, worsening of the disease, or hospitalizations, which may increase long-term healthcare costs. Negotiating with pharmacies can be challenging, but some may ask for cheaper options or extend payment plans. People often share their financial worries with trusted family members, who can help manage the emotional toll of prioritizing financial needs over personal health.
3. Doctors play a critical role in helping financially stressed patients manage their medicine needs by suggesting cheaper alternatives or adjusting treatment plans. When medical prescriptions become too costly, people may resort to home remedies or alternative treatments stemming from cultural practices or advice from social networks. The decision to cut back or skip medications can carry significant social stigma, leading to isolation and exacerbated financial and health struggles.
4. People make decisions about which medications to cut back on first when facing financial difficulties, influenced by perceived importance, medication cost, availability of alternatives, and potential impact on quality of life. Personal beliefs about medicine and health management also influence decisions to switch to generic or alternative treatments during financial hardship. Cultural factors, such as self-reliance, trust in traditional medicine, and familial support, can also influence how different groups address medication costs.

5. Community health programs or charitable organizations can help financially struggling individuals afford their medications, but these programs can be limited in scope or restricted by supply. Financial obligations like student loan debt can exacerbate the inability to purchase necessary medications, leading to delayed or skipped medications and worsening health outcomes. Mental health conditions like depression or anxiety can complicate an individual’s approach to managing finances and healthcare decisions, leading to underappreciation of medication adherence.
6. Doctors play a crucial role in helping financially stressed patients manage their medicine needs by recommending more affordable treatment options, connecting patients with discounted or free medications, and adjusting treatment plans to reduce the financial burden on patients while still addressing medical needs. Social networks and online communities can provide valuable advice and emotional support for individuals facing high medication costs during financial difficulties.
7. Financial anxiety can lead individuals to skip doses, halve prescriptions, or extend intervals between taking medications, potentially requiring more extensive and expensive treatment in the future. Peers, family members, and online resources can play a significant role in influencing healthcare decisions of financially stressed individuals by offering advice, emotional support, or suggesting affordable alternatives.

Elaborated Innovation

AI can provide new ideas, based upon the themes which run through the analysis and simulation. For example, after just one iteration dealing with questions and answers, AI emerged with innovative ideas (see Table 5). These innovative products, services, experiences, or policies focus on alleviating the challenges people face when dealing with the various aspects of medications during periods of financial crisis.

Table 5: AI-generated suggestions for products, services, education opportunities, etc. for people suffering regarding issues of affordability of medicines during periods of financial distress.

1. **Decision-Making and Medication Prioritization**
 - A. **Medication Prioritization App:** A mobile app which helps patients to assess and prioritize their medications based on their health conditions. The app could provide AI-driven suggestions to optimize medication usage based on budget, urgency, and medical necessity.
 - B. **Smart Medication Management System:** A tool or platform that tracks medication schedules and financial resources, providing real-time recommendations on which medications are most critical and what affordable alternatives exist.
2. **Emotional and Psychological Burden**
 - A. **Medication Anxiety Counseling Services:** Specialized emotional and psychological support services, either as an app with access to virtual therapists or as a part of a pharmacy service, to address the mental health burden individuals face when they can’t afford their medications.

- B. **Peer Support Hotline for Medication Stress:** A hotline which connects people experiencing medication-related stress with trained volunteers who have gone through similar experiences, offering emotional support and practical advice.
3. **Chronic Illnesses and Long-Term Health Risks**
- A. **Chronic Care Financial Planning Platform:** An online tool that creates long-term financial planning strategies for people living with chronic illnesses. This platform could track medications, plan savings, compare costs, and provide subsidies or connect users with financial aid programs.
- B. **Preventive Care Incentive Programs:** A health insurance product or employer-driven wellness program that rewards patients for prioritized preventive care, offering free or heavily discounted medications for managing chronic diseases, which reduces the risks of later complications.
4. **Cost-Saving and Access Strategies**
- A. **Pharmacy Subscription Models:** Similar to streaming services, a pharmacy could offer a tiered subscription where patients can access a fixed number of medications (including generics) at predictable monthly costs. This could be particularly useful for people with chronic conditions who need recurring prescriptions.
- B. **Dose Optimizing Service:** A data-driven service that works with doctors to optimize medication dosages. It would analyze historical medication efficacy, side effects, and patient feedback, aiming to minimize waste and cost while maintaining treatment effectiveness.
- C. **Medication Co-Op Model:** Community-based co-ops for purchasing medications in bulk directly through suppliers, reducing cost through economies of scale. This could be complemented with a mobile platform for organizing and managing community orders.
5. **Doctor-Patient Communication and Systemic Barriers**
- A. **Financial Continuity Care Coordinator:** Health systems or insurers could offer a designated care coordinator focused on affordability, helping patients understand the interaction of their health needs with financial limitations. The coordinator would streamline access to patient assistance programs, generic alternatives, and discounted meds.
- B. **Transparent Medication Pricing Tool:** An online or mobile tool that allows patients to see comparative prices across pharmacies, including insurance coverage details and alternative medication recommendations to combat high prescription costs.
- C. **Public Healthcare Transportation Service:** For areas with limited or expensive healthcare access, there could be a subsidized shuttle or rideshare service that helps patients travel to affordable pharmacies or medical facilities.
6. **Social Networks and Support Systems**
- A. **Medication Sharing Legislation & Platforms:** While there are regulatory and safety challenges, a carefully structured and legal platform could be created to allow safe medication donations or sharing within communities, helping ensure that people have access to medications they desperately need but cannot afford.

- B. **Advisory Telehealth Groups:** Online telehealth “huddles” where patients discussing their challenges can join virtual meets with healthcare professionals and fellow patients to streamline decision-making and learn about saving strategies, new payment programs, or peer-reviewed alternative therapies.

Discussion and Conclusions

Generative AI and Mind Genomics are emerging technologies that can help healthcare organizations better understand patients’ mentalities and thought processes regarding healthcare costs and affordability. These technologies can make healthcare interactions more human, empathetic, and effective. Generative AI creates realistic and engaging content, allowing healthcare organizations to explore patient concerns, generate possible emotions, and experiment with narratives or dialogues. This artificial comprehension of patient sentiments can provide valuable insight on how to approach emotional conversations about pricing, benefits, or trade-offs with patients.

Mind Genomics, on the other hand, focuses on understanding the thought structures behind people’s decision-making processes. By systematizing information into bite-sized combinations, Mind Genomics allows scientists to understand the factors that drive engagement and decision-making for patients when it comes to medication usage. This allows pharmaceutical companies to adjust communications and marketing strategies to reduce patient anxieties or present alternative payment solutions.

By combining Mind Genomics with Generative AI, physicians, researchers, and pharma companies can engage people in realistic and highly personalized conversations that provide clear and accurate information while catering to patient preferences and concerns. Generative AI can craft new, dynamic content according to patient characteristics, providing situational context and engendering trust in the healthcare system. This approach can help patients make better decisions, not just informed by their current financial situation but also factoring in long-term wellness and mental well-being.

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