

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

Episode 1: Science and Religion: How Can We Know Anything at All?

Dr. Aasim Padela:

Assalamu alaikum and peace be unto you, dear listeners around the world. Welcome to our podcast series titled *Big Questions About the Human Being: Bioscience and Islam in Dialogue*. On behalf of the entire team that contributed to this series, let me say we are thrilled that you have tuned in.

Thank you. I'm Dr. Aasim Padela, and I'm honored to be your host for this series. We will explore connections between philosophy, science, and theology to address some of the most fundamental questions about the nature of reality and about ourselves.

We will investigate topics at the heart of what it means to be a human, from evolution to artificial intelligence, human consciousness, transhumanism, free will, and even extraterrestrial intelligent life. We will ask who or what are we? How did we come to be? What do we imagine the future of humankind may look like? And to what extent can we, as individuals, shape our own future? We will be bringing you experts from around the world who are leading the current thought on these topics.

You'll be hearing from voices from our small blue planet, from Cambridge and Oxford to Malaysia, Turkey, and Oman, not to mention spanning the east and the west coast of the U.S., with a fair few of us in the Midwest. That is certainly a lot of ground to cover, pun intended, but it's exciting stuff, wouldn't you agree? Hold on, don't answer that rhetorical question. Please do let me assure you that we've assembled a team of intrepid guides to help us navigate this terrain together. That said, before we undertake our journey of discovery, let me introduce myself a bit more fully, share a little bit about the origin story of this podcast series, and give you a sneak preview of this episode along with the rest of the series. According to ChatGPT, I'm a leading American emergency medicine physician and bioethicist with expertise in public health, ethics, and religious studies.

That's mostly true and rather flattering, but like much AI-generated text, it's a bit thin on nuance. So here's the 100% human-authored version. My life's work, both personal and professional, has been to bridge the worlds of bioscience and Islam. I was trained in bioengineering, medicine, and health research. I've also studied classical Arabic, Islamic theology, and law. And for the past two decades, I've been asking, how do religious beliefs shape our health experiences? And how might Islamic ethics speak to the moral challenges of modern medicine? This podcast actually grew out of one such project, a research and education initiative supported by the John Templeton Foundation. We noticed a striking gap in medical education.

Across the globe, the default bioscientific concept of medical treatment is that the human being is a biological machine. Medical training tends to skip over deeper

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

questions about human nature, purpose, and meaning. And what about religious perspectives? Well, if they show up at all, they're far too often represented as being in conflict with science. So I brought together a team of scientists, theologians, and educators to design a seminar-based curriculum for Muslim students preparing for medicine. We explored five big questions about the human being: Where do we come from? What are we made of? Are we free? Can we be changed? And are we unique? Our aim was to examine those questions from both bioscientific and Islamic lenses, and to do so using a framework that respects the different ways of knowing what these traditions offer.

We piloted the resulting curriculum in the United States and in Malaysia, and it's now being shared and taught in several countries. If you're curious, you can find more resources and details on our website, medicineandislam.org. This podcast series is one way that we're taking the work to the broader public, inviting you into the conversation, and hopefully planting some seeds of curiosity, inspiring you to explore these questions further.

Now that you've got the backstory, let's look ahead. This series unfolds over six episodes. Each one will tackle a specific question at the intersection of bioscience and religion. We'll begin with a real-world case scenario to ground the discussion. Then we'll hear from scientists and philosophers who will walk us through the relevant up-to-the-minute scientific theories and discoveries. Our Muslim theologians and thinkers will then explore what the Islamic tradition has to say on the topic. Finally, I'll wrap up with a few reflections connecting the dots between the case and all the insights we've gathered. Make sense? Well, I hope it does.

Buckle up, our journey starts now.

This first episode is titled, "Science and Religion: How Can We Know Anything at All?" It lays the groundwork for the rest of the series by introducing ways in which scientists, philosophers, and theologians have attempted to answer this question. We'll investigate and evaluate different sources of knowledge and modes of inquiry. And we'll hear about how both religious knowledge and science fit within a rational epistemological framework. And in each episode, we'll offer a case study for you and our experts to consider. Here's today's, read by my colleague, Dr. Raudah Yunus.

Dr. Raudah Yunus:

Imagine yourself to be a clinician scientist. By that, I mean your professional life consists of taking care of patients in the clinic, but also spending time leading a research lab. You have spent your career working at a prestigious cancer hospital and in the clinic. You often encounter patients fighting cancer with all their will, as well as patients meeting their imminent death with grace. Many of these patients engage in God talk and draw

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

upon the strength of their faith. Yet when you enter the lab to conduct research, you leave God at the door, as you have been taught that you have to adopt an extremely objective scientific mindset, only believing in what your senses convey and what your mind deduces from the data. But as someone with a religious background, you begin to wonder, how can I believe in the unseen while at the same time adopt a radically different lens in the lab? Must I leave my religion at the door when I enter the lab?

Dr. Aasim Padela:

At the end of the episode, we will return to this case and we'll try to answer these questions, so keep them in the back of your minds. For now, let's zoom out to a broader view and consider, how can we know anything at all? This question sets up the rest of our podcast series, where we'll be focusing on addressing big questions about the human being.

Tackling this question will be philosophers, theologians, scientists, and educators as discussants. For this episode only, contributions from our Islamic scholars and thinkers are interwoven throughout the whole conversation. To start us off, we have physicist [Paul Davies](#), who is Regents Professor at Arizona State University. The fact that we are even here together, pondering what and how we can know prompts some questions for him, which go deeper than scientific investigation, even investigations into the workings of the universe.

Professor Paul Davies:

I take seriously how the universe is put together, but my real interest is in, is there an ultimate explanation for the universe? Is it ever possible for us to explain existence, including our own existence and the universe that we perceive? The theologian Paul Tillich referred to the ground of being. And so I like to say, well, what is the rational ground in which the laws of physics are rooted? Is that something we can grasp? Do we live in a universe in which there is a sort of moral dimension? Is it something built in at the fundamental level, or is it just something that humans invent along the way? Do humans invent mathematics? Well, we do, but then we find it has application to the natural world as well. So is it out there all along?

Dr. Aasim Padela:

With these truly big questions setting the scene, we next hear from [Professor Shoaib Ahmed Malik](#), Lecturer on Science and Religion at Edinburgh University, and a member of the team behind the project this podcast stems from. Along with Professor Davies, he places the question of ultimate purpose at the heart of knowledge seeking.

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

Professor Shoaib Malik:

I think the central aim of acquiring knowledge is to be able to know your purpose. At least that's the way it's viewed in Islam, in that you have praiseworthy knowledge, and you have blameworthy knowledge. And then there's knowledge that is neither of the two, it's just neutral. So since the very purpose within Islam is to worship God, it really is to worship God, that is the most praiseworthy knowledge that you can obtain.

Hence why, you know, theology was treated very seriously, philosophy was treated very seriously, and anything that worked towards those goals was always thought as a means to a higher intention. That's why you have like a hierarchy of knowledge, you have a hierarchy of disciplines as well, with metaphysics at the very, very top. So I would say that, you know, at least from a classical lens, contemporary setup of knowledge is very fragmented.

And missing here really is that hierarchy of knowledge that was so embedded in traditional learning centers. And I'm speaking across all the traditional classical modes of learning, be it in Judaism, Christianity, and Islam, you always had an understanding that every single discipline that you're learning is part of a whole, it's part of a system. And that hierarchy of knowledge forming a holistic system is an important concept we'll return to later in more detail.

Dr Aasim Padela:

[Usama Mirza](#), another member of our project team, joins us from the University of Cambridge, where he is a doctoral researcher and Gates Cambridge Scholar. He also echoes the importance of purpose.

Usama Mirza:

I think central is this idea that for a Muslim, science should be an act of worship. In fact, all knowledge seeking should be an act of worship, because the Qur'an and the Sunnah are very explicit that you should go out of your way to seek knowledge that is beneficial to society. So this is lost in us because most of us are doing the study of science for passing our final exams and going up the corporate ladder and getting jobs, as opposed to thinking about this being an act that pleases Allah and that could be a benefit to larger society.

Qur'anic recitation

فَتَعَالَى اللَّهُ الْمَلِكُ الْحَقُّ وَلَا تَعْجَلْ بِالْقُرْآنِ مِنْ قَبْلِ أَنْ يُقْضَىٰ إِلَيْكَ وَحْيُهُ وَقُلْ رَبِّ زِدْنِي عِلْمًا

Exalted is Allah, the True King! O Prophet, do not rush to recite before the revelation is fully complete, but say, Lord, increase me in knowledge (Q 20:114).

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

Dr. Aasim Padela:

Now that we've heard about the importance of ultimate purpose in knowledge seeking, can we actually say what knowledge is? We started by asking [Professor Jennifer Nagel](#), who teaches philosophy at the University of Toronto, to boil down for us the most basic essentials of how she would define knowledge and its relationship to truth.

Professor Jennifer Nagel:

Knowledge is cognitive mastery of something, of the environment, of reality. Knowledge is a state of mind of the type you can have only to truths. Truth is something very foundational. It's not something that can be broken down and analyzed in terms of simpler constituents. When we talk about knowledge, we're talking about cognitive success. We're talking about not just happening to hit the truth, but getting it in the right way, getting it in a way that's robust and repeatable.

Dr. Aasim Padela:

From an Islamic perspective, there is a rich body of thought to draw on as part of our investigation into what constitutes knowledge and where it resides. [Dr. Omar Qureshi](#), another member of our core project team, who is currently Director of Integrated Curriculum at Yaqeen Institute, and has training in the Islamic Sciences, as well as a doctorate in education. He shares a nuanced understanding of the nature of knowledge that can be drawn upon from an Islamic epistemic framework.

Dr. Omar Qureshi:

In the Islamic tradition, the understanding of knowledge is such that the scholars or theologians address it within a specific discipline. For example, like in Kalām theology, which is the Islamic tradition of systematic or rational theology. Many theologians held that you can't define knowledge, it's so obvious. However, at least in the Kalām theological tradition, the description of knowledge that's provided centers around this idea that knowledge is an attribute of a person's soul. And that attribute provides to the person in their soul an image of the object of knowledge. And they would say that knowledge of the object is accompanied by a level of certainty such that they have not made a mistake or an error in perceiving that particular object. One component is of the object itself, but also it's accompanied by a certain type of certainty that no error has been made.

Dr. Aasim Padela:

The definitions of knowledge we've heard so far set the bar pretty high. Using terms like cognitive mastery and certainty. We'll take a closer look at certainty in more details a little later. But first, let's get some clarity about the types of knowledge and how we go about seeking them. Professor Nagel shares.

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

Professor Jennifer Nagel:

We could break knowledge into different scientific disciplines. There's a more sort of foundational division between types of cognitive mastery. And there's a set of divisions that you find even marked in different languages around the world. And these tend to split knowledge into at most about four categories.

So we have perceptual knowledge, knowledge gained by the senses. We have testimonial knowledge transmitted to us from others. We have inferential knowledge, knowledge secured on the basis of reasoning from premises. And the last category might be introspective knowledge or awareness of your own phenomenal states, the kind of knowledge that you might have of the fact that you're dizzy or the fact that you're hungry. Those are sort of foundational divides in ways of knowing.

Dr. Aasim Padela:

It's interesting to notice the large amount of common ground shared by these types of knowledge that Professor Nagel just enumerated and the three primary categories of knowledge in an Islamic epistemic framework, which Dr. Malik will share next.

Professor Shoaib Malik:

The first mode of knowledge is through pure reason. So we have the ability without having any empirical input to be able to make certain inferences. So I know that if I put two objects together, it must mean that one plus one is equal to two. Right. So that's one mode. The second mode is to do with what we can know empirically. So this is based on our experimentation and things that we can do to make meaningful inferences from the world around us. And this parallels things like regularities, laws of nature, and the very function of science is to be able to determine what are the laws of nature, things that are observable with our bare eyes. So when I drop something, we can infer that there's something that's pulling this down. And then there's a third kind, which is to do with revelation. And revelation, at least in Islamic thought, is sent via prophets.

Dr. Aasim Padela:

Now, in addition to these three primary categories, Dr. Qureshi introduces us to several other sources of knowledge.

Dr. Omar Qureshi:

There's this knowledge called *wijdān*, which is the inner sense, which is a person's self-knowledge, simply when a person's qualities, such as when they feel joy, sadness, hunger, satiation, these are all objects of knowledge that a human being has. Also what they would call immediate or primitive knowledge, like knowledge of first principles. And these are knowledge that's innate, and they're always with a person.

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

They extend it also to other sources of knowledge, such as what's called *hadas* or intuition. And this is also a source of knowledge that a person has. They also look at things like dream visions that a person may have, what they would call *ilhām* or inspiration. And these are cognitions that occur to a person, which is a faculty in the Islamic tradition called the heart or the *qalb*. And usually they talk about it as inspiration is a conviction which God creates in the heart of a person during the state of wakefulness. But then other sources of knowledge too, which are similar to this, which is, they would say, revelation, you know, which also occurs to the heart.

Dr. Aasim Padela:

While Dr. Qureshi mentions myriad sources of knowledge, when we turn to our final panelist for this episode, [Professor Tara Shears](#), a particle physicist at Liverpool University in the United Kingdom, and asked her, how can we know anything at all? She metaphorically skipped the line of the banquet buffet and went straight to her favourite dessert, not the velvet cake. Sorry, Professor, we have to drop our metaphor here now. One particular mode of knowledge-seeking.

Professor Tara Shears:

There are different ways in which we can approach getting knowledge. But the key is knowing when we have that knowledge and when to believe that we have a really good understanding. And for me, the best approach is through science and the scientific method.

Dr. Aasim Padela:

As Professor Shears just alluded to, whichever types of knowledge we seek, we also need ways to assess the reliability of that knowledge. Professor Nagel points out that for each category of a way of knowing, there is corresponding evidence available to support the knowledge that that way of knowing yields.

Professor Jennifer Nagel:

So if you have perceptual knowledge, there's evidence out there in the world that's accessible to you and accessible to others who possess the same senses as you do. Testimonial knowledge is knowledge from other people. So if you describe knowledge of a fact that's relayed to you from a third party, you'd be marking it as testimonial. Inferential knowledge involves some kind of combination of evidence from various sources and processes of reasoning within you. And then introspective knowledge really locates the source just within you. You have privileged access to your own phenomenal states, states like pain or pleasure or hunger, and other people don't have that kind of access to it. So you can think of knowledge as really broken into these

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

four main streams depending on the location of the evidence that's supporting your claim.

Dr. Aasim Padela:

So now that we've heard about different ways of knowing and types of evidence, what kinds of systems can be used to assess the certainty of knowledge? In this series, our primary focus is on epistemic frameworks developed within scientific and Islamic contexts. Dr. Malik gives us an example of how one particular type of knowledge, testimonial knowledge, is verified within an Islamic framework.

Professor Shoaib Malik:

There's a whole discourse within Islamic epistemology on how you understand, how you validate, and how you verify testimony, reports. So there are false reports, there are true reports, and there are mechanisms and methods whereby you can obtain useful information through those reports. So I'm assuming, just for the sake of the argument, that listeners who may be hearing this, none of us may have ever gone to Antarctica. But we all know what Antarctica is. We have full knowledge of it because we've come to that information via so many independent channels that to think this is a lie would be to think that you're living in a massive conspiracy.

Dr. Aasim Padela:

And the interactive way in which we not only acquire and transmit knowledge, but also evaluate it, is a uniquely human activity according to Professor Nagel.

Professor Jennifer Nagel:

We can scrutinize things using our senses, we can mull over things in reasoning, construct mental models, we can introspect and try to become more aware of our inner feelings. But I think one of the most important forms of knowledge pursuit that we have is interactive. So we are uniquely positioned among animals on this earth to use each other to improve our own epistemic position. We've got natural language, which enables us to talk about virtually anything. So we've evolved alongside language some epistemic control systems that enable us to selectively seek out and attend to people who are epistemically well positioned. So a big part of knowledge pursuit for us is questioning.

Dr. Aasim Padela:

You may have started your day by tuning into the news, or perhaps by double checking with a family member on the dinner plans that you had agreed to. Every day, interactive inquiry like this is so pervasive that we take it for granted. And Professor Nagel has also pointed us towards a higher level of assessment, in her mention of selectivity and

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

epistemic positioning. You are engaged in selecting and evaluating right now by attending to the views of our experts and weighing them up for yourself. In order to do so, you might go on to debate a topic you heard in this episode with a close friend at your favorite coffee shop, or peruse scholarly works to check out what you've heard. If you decide to do your own research, as an academic whose job it is to critically assess the reliability of sources, I feel compelled to issue a friendly caution.

The internet and chat GPT should not be considered to be a reliable guide, let alone a repository of scholarly works. Your local librarian or a leader in your community like a scholar or Imam, on the other hand, could be helpful in pointing you towards reliable sources of information. This mode of inquiry that we use in our daily lives also exists at greater levels of scale and sophistication in the form of a myriad of thought traditions throughout history and across cultures.

So now, let's turn our focus to a particular systematic method of approaching knowledge. You heard me mention this at the beginning of the episode, the Islamic epistemic framework. And Drs. Malik and Qureshi have already shared some pieces of this framework on how knowledge can be accorded with any certainty. We heard about the certainty accorded to different sources of knowledge, where divinely revealed knowledge has the highest level of certainty. And we heard about particular methods for probing veracity in the case of how transmitted or testimonial knowledge is assessed. Let's listen in as Dr. Qureshi introduces us to how the Islamic epistemic framework applies critical evaluation in the case of uncertainty.

Dr. Omar Qureshi:

Depending on the different degrees of certainty and depending on the different sources, there's a spectrum of knowledge. One can have what's called presumptive knowledge, one can be in a state of doubt, one can be in the state of just holding something to be true but it's unlikely that it's actually true, and one can be certain also that what one has knowledge of in this case is actually false, meaning it doesn't correspond to reality as well. Muslim theologians, when they talk about this, they have this definition, but then they also understand that human experience of what they know is on a spectrum.

Dr. Aasim Padela:

So it's interesting to have this idea of a spectrum of certainty, rather than a kind of binary black-or-white categorization of knowledge as simply true or false. It's interesting to consider that knowledge assigned a high level of improbability is not simply discarded. This strikes me as a useful approach. If we think about it, we can readily call to mind examples of ideas that were scornfully rejected in their time, but later on became widely accepted in the light of new information. We'll hear an example of this in our next episode, which discusses evolutionary theory. I'm not saying that

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

classical Darwinian formulation is absolutely correct, simply that we will evaluate it in the next episode.

The category that Dr. Qureshi mentions, of things we really doubt but nevertheless decide to entertain, puts in mind so-called thought experiments. These are a technique used in the discipline of philosophy to test a particular idea to the limit. And in Episode 3, we hear some fun thought experiments which invite us to imagine being a bat or even a zombie. Don't worry, I'm giving you some previews here. This will all make sense in time. But back to the main point here.

For people of faith, it's important to know how to live up to the teachings of that faith. Even religious truths, that are accorded the highest degree of certainty, leave space for us as fallible human beings to do our best to discern their meaning and how we can apply them in our lives. It's in this space of discernment that doctrinal disputes arise. But while we're waiting for a definitive answer to emerge on a disputed theological point, we still need to be able to live our lives in accordance with our faith. Dr. Qureshi continues.

Dr. Omar Qureshi:

One can have just a presumptive level of knowledge in order for a doctrine to be followed. And there's a famous principle that Muslim theologians hold, which is that my opinion or my position, I believe to be correct with the possibility of it being wrong. Whereas your position of the opponent, I hold to be wrong with the possibility of it being right. So this possibility being acknowledged, that it's a possibility that I've committed an error, this allows for continual inquiry and it allows for discussion and debate, a very lively debate as well.

Dr. Aasim Padela:

The application that Dr. Qureshi has described of the spectrum of certainty to challenges we face in our everyday life evokes some facets of the culture of thought in the Islamic world. There is a pragmatic approach, enabling believers to follow a doctrine which might not be absolutely certain, but can be followed on the basis of presumptive knowledge. It's like adopting a working assumption, if you will, so that you can carry on at the practical level.

There's humility, meaning: I believe my position is correct, but I'm open to the possibility that it is incorrect. There's respect for diversity of thought, meaning: I believe that my opponent's position is wrong, but I hold the possibility that my opponent is actually correct. And finally, there is a spirit of continual questing for knowledge, not clinging on to fixed positions. And it's kind of paradoxical. As adherents of faith, we seek truth. As scientists, we seek increasingly certain evidentiary support for our theories.

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

But at lower levels of certainty that Dr. Qureshi is talking about, there is nevertheless a tolerance for ambiguity within the Islamic epistemic framework. This tolerance creates fertile ground for deliberation. And this deliberation, in turn, helps us to keep refining and extending our knowledge. And while divine revelation carries the highest level of certainty, we've also heard about testimony. Its level of certainty depends on the strength of its corroboration. And for some, parts of divine revelation are carried upon testimonial knowledge. So back to our Antarctica example.

A Sir David Attenborough documentary might weigh significantly into your level of certainty that Antarctica exists, as may the penguin photos a close friend showed you from their recent Antarctic cruise. When it comes to scientific inquiry, empirical evidence comes together with our rational assessment related to the strength of that data stream. In other words, the corroborating evidence that lends its strength, or to the inductive or deductive processes that help us posit what reality that data stream, or in other words, the empirical evidence, speaks to. Professor Nagel reflects on the processes of rational inquiry embedded in the scientific pursuit of knowledge.

Professor Jennifer Nagel:

I think something that lies really at the heart of science is the idea that we can not only question each other but we can in a sense question nature. We can develop hypotheses that we can test according to whether their predictions are or are not upheld in our observation. So I think controlled experimentation and observation of reality is a really vital source of knowledge for us.

Dr. Aasim Padela:

Let's pause for a moment to entangle a few threads. Back at the beginning of this episode we heard about different sources of knowledge. These are closely related to modes of knowing. The easiest example might be that sense perception is a source of knowledge and its corresponding mode of knowing is observation. In order to make meaning and assess the validity of knowledge gained from observation you may need to bring in further sources of knowledge and modes of seeking to bear. So, for example, axiomatic knowledge and reasoning. So we have developed various methods to do this. One of these methods is the idea of controlled experimentation that Professor Nagel just mentioned. And the process of testing empirical knowledge through controlled experimentation has been codified into one particular method of inquiry that has come to be known as the Scientific Method. Professor Shears spells out how scientists use it in practice.

Professor Tara Shears:

It's a circle. There's no one starting point. You either start with a hypothesis or you start with a measurement. If you start with a measurement you need to understand it.

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

So you need to think of an explanation, a hypothesis. If you do that and it matches that explanation, that's great. You have an explanation that works within the context of what you've been able to measure. But is it really the truth? To know that you have to go back to that hypothesis and think, well if this is true, this means that something else must happen. And you take that something else, that next prediction, and you test that experimentally. And if that works you've moved your understanding a bit more. You go around the circle again, you make another hypothesis, you test it again, you do it again and again and again and again and again and again and again. And in this whole industry you expand your knowledge outwards and outwards and outwards. You could also start with a hypothesis that you want to test, test it and then see if it works and if it does, think of what a corollary might be that you can then test.

Dr. Aasim Padela:

I really like how Professor Shears describes this method as a cyclical process that involves multiple cognitive moves from measurement or observation to theory, to verification and assessment. It is not a straight line and each step along the way is subject to critique and reconsideration.

Let's take a tangent for a moment to consider the historical in quotes "teaching" about the scientific method. It tends to be represented as a direct product of the European scientific revolution. Yet in fact, the method has deep historical and cross-cultural roots and the clue to the problem with monolithic representations of the scientific method is in the name. It's a method. It's a method for seeking answers about the natural world. It is not an answer in itself about the nature of reality. Hence, it can't answer every question. Let's consider the concept of falsifiability widely considered to be the cornerstone of the scientific method. Professor Shears summarizes this principle.

Professor Tara Shears:

Falsification is an approach that we use in science when we're testing a hypothesis that we want to see if it fits the data or not. And if we have a hypothesis that makes a prediction that we can either verify or make a measurement that shows it's untrue, then we have a method for testing whether our hypothesis is on the right track, is true or not. So this notion of falsification, which is really proving that your explanation is rubbish and not the right answer, is one of the approaches that moves our scientific knowledge onwards.

Dr. Aasim Padela:

So that might sound like a ringing endorsement for falsification but Professor Shears is careful to add a nuanced assessment of just how far the principle can get us along the path towards knowledge.

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

Professor Tara Shears:

Although I have to say it's a little bit more subtle than that. And I've come to realize in my branch of science—particularly my branch of science, where we have a theory that seems to survive all the experimental tests that we throw at it. It is a falsifiable theory in that sense but it occupies this grey area where we think it's not a true understanding yet because we haven't been able to test it all the way around the edges and we don't believe it's going to supply a fundamental explanation. So falsifiability is a key component of moving forward with understanding but it's not the only ingredient in understanding whether you're going to get to the truth.

Dr. Aasim Padela:

The principle of falsification is far from unknown to the Islamic epistemic framework. Remember we heard Dr. Qureshi expound on the importance of holding the possibility that our positions may prove to be incorrect? So we hold uncertain knowledge presumptively rather than conclusively and he joins Professor Shears in reflecting on the limits of falsification. His critique is specifically framed in the light of an Islamic epistemic framework.

Dr. Omar Qureshi:

So when it comes to the scientific method, the way Muslim theologians will look at this is they will say this is a type of inductive reasoning and what it can do is that it can tell you perhaps what's false, which theories or hypotheses are false and have to be rejected. Then it can say the remaining hypotheses are possibilities. Can it tell you which hypothesis is actually true? Right, it can't really do that. And the second thing is that they would say that this type of reasoning doesn't lead to the certainty that informs and forms part of the conception of knowledge that we talked about earlier.

Dr. Aasim Padela:

As Professor Davies relates, these limits are perhaps most evident on the outer reaches of scientific investigation.

Professor Paul Davies:

There's a rough and ready consensus of how we go about testing things and making hypotheses and so on. But during my career I have to say that an awful lot of theoretical work, I'm a theoretical physicist, a lot of that work has gone off into what some people feel is Never Never Land. They often cite String theory for example, as incredibly mathematically elegant, almost impossible to test and occupying the resources of a large fraction of the theoretical physics community. I would say at the end of the day something has to be testable, there has to be some connection to observation or

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

experiment, but exploring the outer reaches of theory can often be very entertaining and stimulating and can lead to other ideas in other branches of the science.

Professor Tara Shears:

I was wondering when String theory was going to come up! So String theory is a really good example of a theory that aims to provide a unified understanding of our universe and the laws of physics, a really deep fundamental understanding. And yet, perhaps because it is so hard mathematically, it has not yet matured to a point where it's experimentally testable. And I have no idea whether it's true or not simply because there are no predictions that I can test in my experiment. There are mathematical features of the theory that you can test in analogous situations elsewhere but that's not the same thing as testing it directly. So String theory is out there on the periphery of potential understandings of what the truth of the universe is, where we haven't yet reached the technological maturity to be able to pin it down and really see whether it is or not yet.

Dr. Aasim Padela:

Professor Nagel expands on the point that we just heard from Professor Shears to consider whether the scientific method is, in fact, applicable to the whole of what we call the sciences.

Professor Jennifer Nagel:

I'm not sure that there is something that deserves to be called *the* scientific method because I think there are multiple methods used within science. There are some sciences that don't require experimentation, astronomy for example, and some sciences where experimentation plays a vital part. I do think it's characteristic of science that empirical observation ends up playing a crucial role, except that I also want to classify, for example mathematics broadly speaking, as a science. It's a very it's a disciplined investigation. It's not an empirical science. At the same time mathematics is crucial in structuring the modeling that's performed across great variety of different sciences.

So I think our understanding of science and scientific methods is actually quite complex and it continues to evolve as we develop new techniques over time. I think we're always looking for ways of thinking that are robust and ways of thinking that can be counted on to deliver the truth, to reduce uncertainty, to reduce ambiguity. But I wouldn't want to jump in and say we can quickly define what *the* scientific method is now and always will be because I think we're continuing to come up with new ways to tackle the problem of the nature of reality, recently including innovations even in artificial intelligence. So we're perhaps starting to come up with ways of using tools that have cognitive capacities of their own, in some ways outstripping ours.

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

Dr. Aasim Padela:

Professor Nagel mentions an intriguing possibility here. As a species we have built instruments to extend our empirical reach for example by extending our sense of sight through microscopy and telescopes. However, tools that may potentially extend our cognitive reach could prove to be revolutionary by comparison. We will touch upon this while exploring questions related to AI and human consciousness in Episode 3. But for now let's go back to the scientific method and one of its foundational philosophical underpinnings, naturalism. Naturalism is the idea that only physical objects, by which I mean matter that takes up space and volume and is subject to time, exists. And that only forces that operate upon these physical objects are natural laws, for example gravity.

Hence naturalism is closely aligned with the ideas of physicalism, materialism, and it is by its nature reductionistic. This idea is a philosophical one that makes claims about the nature of reality and scholars separate philosophical naturalism – also termed as metaphysical or ontological naturalism – from methodological naturalism.

Methodological naturalism arguably separates tools of inquiry into physical objects and into those natural laws, from the truth claim that all that exists is physical and all that exists that is physical is also subject to those natural laws.

To those of you that are listening who come from a religious background you would likely not agree that all that exists is physical in nature and not everything is subject to the laws of physics. This would preclude the existence of angels, the occurrence of miracles and other things like this. However, you may concede that the adoption of methodological naturalism is indeed a viable means to ascertain knowledge about reality. And that is the point. As critical assessors of knowledge you must be vigilant in detecting the philosophical views that can be smuggled in with methodologies of scientific inquiry. Usama Mirza cautions us against an ideological mechanistic reductionism that can creep into biomedical settings and in some cases, can be distorted to support unethical uses of biomedicine.

Usama Mirza:

Now to the point about reductionism specifically, this idea that you can reduce man to being a machine, that human beings are made up of subatomic particles and particles. and they all obey quantum mechanical equations or Newton's equations. Thank you to quantum mechanics, because now we know that there is an inherent level of uncertainty that you cannot determine things in that way. But this idea has seeped in that free will is an illusion and hence moral actions are inherently relative. There is no need to hypothesize a soul.

These sort of ideas have now seeped into the public consciousness within increasingly secularized societies. They're not necessarily critically unpacked and they are related to

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

this idea that you can reduce a human being to just biology. And beyond biology to mathematics and physics, that there is nothing subjective beyond that and so when you remove that sense of sacred, when you remove that sense of things that are beyond our comprehension, what has also then happened is that it has created space for things like eugenics, that okay, this is a machine – we can improve the machine by over time interbreeding the machine to create a better machine, however we understand a better machine to be.

Dr. Aasim Padela:

Dr. Malik seems to agree with Usama Mirza. But he suggests that a methodology of naturalism isn't the exclusive preserve of the modern west or especially of neo-Darwinian atheist ideologues who I sometimes suspect want to put a special claim to it. Dr. Malik continues he offers a vision in which naturalistic science can be in conversation with, rather than precluding, religion.

Professor Shoaib Malik:

For a Muslim whose metaphysics, you know, whose worldview is not just couched in naturalism, they of course appreciate what science is able to deliver, but the world is larger, the fabric of the cosmos is much much wider than that. And so they don't have a problem necessarily by saying, yes I can accept what science has to tell me, but I also believe that there are deeper realities behind science, right. The very fact that the universe has intelligible laws science can never explain that, but theology can, you know, metaphysics can, and I think that's where you can kind of see hopeful spaces where you can have dialogue and discussion, where people can hopefully see the utility of how science can work within a religious framework.

Dr. Aasim Padela:

Lest you're beginning to get the impression that only religious people see uncritical recruitment of naturalism to ideological ends as a problem, Professor Davies jumps into the fray. He points out reductionistic thinking, pitting the mechanistic model against the ideas of agency present in many religions, can limit our understanding and may even blind us to new ways of conceptualizing the universe.

Professor Paul Davies:

That's the difficulty we come up against, I think. And we hit it obviously for people who would like to have some transcendent explanation for the world, that really there have been only two types of causation discussed in the history of human thought and particularly in the history of science. The first of these is mechanism that earth goes around the sun and there are eclipses and so on, that's a mechanism and we have some mathematical predictability. And the other is agency, something happens because a

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

person or a conscious being or might be something more abstract that brings it about for a purpose. And then agency got sort of pushed out of most of our explanation of the world in favor of mechanism, and it got to the point where in contemporary science some people want to revert this and explain agency in terms of mechanism. There are no agents, you know, even human beings are some sort of very elaborate automata that just operate according to mechanism. So we've seen the two extreme views that everything is agency, everything is mechanism. But I've always felt this sort of very impoverished way of you know fighting that for the one or the other. Why can't there be other concepts which we haven't yet come up with, which would replace both agency and mechanism? Agency and mechanism might be the effective way of explaining things under certain circumstances, but there may be a deeper explanation in terms of some new type of conceptual structure that goes beyond those two traditional ones. So I'm very open to that idea, that we could come to understand more about the world by approaching it through some novel conceptual superstructure which we haven't yet put together.

Dr. Aasim Padela:

We've heard a lot so far and as your host I'm going to try to synthesize that into a metaphor. The idea that we might come up with a new conceptual superstructure is really exciting. But how do we even start to get there? At this point I hope it's becoming evident that disclosing the nature of reality, and of our beings, requires bringing together various sources of knowledge into conversation. To me it's like putting together a puzzle. You must recognize that there are many puzzle pieces and that only when we put together the puzzle pieces correctly will we see the picture that someone else wants us to see. Each puzzle piece must be assessed as to where it fits in relationship to the other puzzle pieces. And at times we have to also assess whether the puzzle piece belongs to this puzzle at all, or perhaps it's left over from your colleague who's working on a different puzzle.

To extend the metaphor, the puzzle pieces represent different domains, or different sources of knowledge, which some of our discussants related to modes of knowing. Considering whether the puzzle pieces fit to the puzzle at hand and how they come together, represents assessing the certainty around the data streams coming from a specific domain of knowledge and making interpretive judgments about that evidence. If we are lucky enough to piece together different data streams and they all have similar epistemic weight you might be able to see part of the picture come into view. And we've just heard you must be alert to seeing part for the whole. In other words, holding the view that one puzzle piece represents the entire picture, or that there are no other puzzle pieces to be had. We also must recognize that we do not have a templated picture to refer to at the beginning of our inquiry. We cannot check ourselves against a blueprint. Isn't it frustrating when you lose a box the puzzle came

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

in? There indeed is no blueprint. This process is pure discovery. Accordingly, this process requires wisdom and a healthy dose of intellectual humility, which I think is implicit in Professor Davies's reflection here. Dr. Qureshi also speaks to this in his discussion about certainty.

Dr. Omar Qureshi:

For me, it's one of the very attractive features of the Islamic civilization as a whole, is that they are able to identify what doctrines and what practices are to be held with this level of certainty. But then they understand that many things we know, how we interpret scripture and even certain theological doctrines or legal doctrines, are not at that level of certainty. And hence what that does is to say that we hold certain things in a presumptive manner. What this allows for then is a recognition that there is a possibility of error. And hence if somebody differs with us they're able to get along. It doesn't cause communal strife and they understand that there's a difference of opinion that is all within the Islamic community. One is not excommunicated from the Islamic community by holding a difference of opinion on certain issues, because these are all presumptively held, these particular positions. And so this idea of epistemological humility and epistemological tolerance is introduced.

Dr. Aasim Padela:

And this humility enables the epistemological framework to be applied in an even-handed manner, regardless of the domain of knowledge. To understand this unified approach to all domains of knowledge, it's important to understand the centrality of knowledge in the Islamic faith and the idea of oneness of knowledge that flows from this.

Dr. Omar Qureshi:

In the Islamic tradition, the conception of faith is that you must believe in God and the claims of the Prophet Muhammad based on knowledge. You can't be forced to believe something, it has to be based on knowledge. Hence the centrality of knowledge, right in the Islamic tradition. And what they mean here by knowledge is all types of knowledge, so knowledge is considered one. As some of the famous theologians and philosophers have said, that truth cannot contradict truth. And so the way to believe in God and to understand his revelation, both. They consider the revelation of the book and then the revelation of the world, so the natural world is considered a type of revelation of God as well. He's revealing himself through His creation as well. To understand both, and they're both coming from the same source which is God, knowledge is a necessary condition.

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

Dr. Aasim Padela:

And keep in mind this beautiful exposition of the oneness of knowledge while Dr. Qureshi walks us through how this epistemic framework is applied in cases where scientific claims may appear to clash with theological principles.

Dr. Omar Qureshi:

Both scientific inquiry and theological inquiry, they both have their foundations in rational principles: specifically the principle of non-contradiction. Now, this principle informs both theological inquiry but also scientific inquiry. And so there is a common ground. The second assumption is that in the Sunni Kalām framework all empirical, here we mean scientific propositions, we can classify them as rationally possible. That's also the case with transmitted revealed propositions, they're both considered to be rationally possible. And as a consequence of these two assumptions, there can be no genuine conflict between a transmitted revealed proof and a rational—here science, empirical scientific, proof. Another assumption that they hold is that empirical scientific propositions, they fall on a range of epistemological strengths. Some of them are known with certainty while others are presumptively known to varying degrees. And same thing with transmitted or revealed propositions, you know, religious knowledge. That also falls on a range of epistemological strengths. Again, some are known with certainty and while others are only presumptively known.

And the final assumption is that in no scenario should the proofs of each scholarly community be entirely discarded, right. They have to engage each other. And hence, anything that's known with certainty, absolute certainty in the area of science, and anything that's known with absolute certainty in the area of theological knowledge, there can be no genuine conflict. At all. And so what this allows for now, is that the theologian should look at the best and the most reliable accounts of scientific knowledge when trying to understand how these truths should be engaged and should be understood as well. So I think it really allows for both communities to speak to each other and to build a genuine relationship with each other to understand the type of knowledge that's delivered by each discipline.

Dr. Aasim Padela:

I hope you were listening intently there and caught the moment where Dr. Qureshi just upended the whole trope of religion versus science. He has skilfully set out nothing less than a rational epistemological framework which acknowledges that the domain of religion can be incorporated with insights from science. Moreover, that framework does so in a way that does not require us to ignore knowledge from either domain. Dr. Qureshi has just given us a comprehensive and compelling case for the impossibility of true conflict between religious and scientific knowledge. We may perceive conflict but

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

that doesn't necessarily mean there is an actual conflict about the nature of reality. Back to my metaphor, it could be that we have two pieces of the puzzle that are too far apart to put together. Or that one piece is too blurry to be able to understand how it connects to the other one in our hand.

There is no need to get dogmatic about what we think we know, based on scattered pieces of evidence. Instead, the Islamic epistemic framework consistently reminds us to remain humble and to use wisdom in our conversations, in the hope that together we may build a more complete picture. With that elusive yet compelling bigger picture in mind, we circled back to re-ask the first question we put to Professor Shears. How is it that we can understand anything at all? And, we added, just how is it that the universe can be understood in theories that we can formulate?

Professor Tara Shears:

I don't believe anybody has an answer to this. It's just a remarkable observation that using the very simplified approach based on mathematics, looking for patterns and behavior, building up laws of behavior and physical laws of the universe from those observations, simplifying, abstracting, generalizing, making the most succinct description that you can. That approach has worked for us since the times of the Greeks in gaining a deeper and deeper understanding as to what everything around us is ultimately composed of, what the interior mechanisms of the universe are. Why that approach has worked for us in extending our understanding, I don't know. I don't know if it's because the universe is fundamentally like that, we're attuned to think like that, whether we've stumbled across a way of describing it that it has nothing to do with the actual nature of the universe but just describes the bubble that we live in. It could be any of these. I really, really don't know. But the actual observation that we have observed so much and understood so much is still a source of real wonder to me.

Dr. Aasim Padela:

It is particularly notable that Professor Shears uses words like simplifying and wonder there. Usama Mirza strikes a similar tone while adding the words of elegance and unity.

Usama Mirza:

I argue that it would be nice if, for example, we found this harmony that whether you are someone who is of no faith or you are someone of any faith, we can appreciate that there is a certain beauty in the world around us and that there are certain concepts that as scientists we seem to intrinsically seek. For example, harmony and symmetry. Talk to any theoretical physicist and they will tell you we are pursuing symmetry. Paul Dirac, a very famous theoretical physicist here at the University of Cambridge, he was just playing around with some equations and he was putting all these messy equations on the board and he's like, I want to make it beautiful because he believed that truth must

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

be elegant. He rearranged them in a new form and from that he predicted the existence of antimatter. So this is something that within the Islamic science tradition is also manifested. There is this sense that we should find unity in the world around us. Everything should reflect that there is a creator. So Al-Kindi, for example, a famous Muslim chemist tried to assemble a whole encyclopedia of chemicals to try to find unity amongst them, like a precursor to the periodic table, if you will. So this idea of unity has always been an overarching impetus and driving theme. And historically, not only within the Muslim world, but subjects have never compartmentalized. So for example, if you go to a mosque within Andalus, you will see, and in many other parts of the world, you will see an obsession with geometric symmetry.

The amount of mathematical precision, the kind of sophisticated mathematics that went into that, you can see that they were trying to bring art and mathematics and architecture together. Again, as an act of worship, because ultimately everything was reminding you of the ultimate unity that is, that there is a single creator. So I feel like the search for beauty, the search for elegance, the search for simplicity, the search for harmony, the search for peace, these are things that are intrinsic to our human nature. I would argue that we can find a lot of unity amongst people of faith and no faith, and we should have more conversations about that.

Dr. Aasim Padela:

And the idea of the commonality of that human search resonates with what many knowledge-seekers have understood throughout history and across many thought traditions, as the unity and universality of knowledge. Before I share my reflections on the case that opened this episode, let's listen in on what the Islamic theology discussants thought. I'll just remind you. We asked: when a cancer research scientist enters the lab, should he or she leave religion at the door? Dr. Malik reflected on his own experience of changing his field from engineering to theology when considering this question.

Professor Shoaib Malik:

I changed careers into theology, so I don't do engineering anymore. And I really wished that had I done philosophy and theology prior to engineering, I probably would have been a better scientist. Because that allowed me to tease out things, you know, more carefully in a more refined way that I think I would not have been able to had I not had them. What is existence? You know, what is the nature of morality? Those questions you don't really entertain in an engineering degree. And so what theology did for me was, it gave me a map on how to view all knowledge structures. Your metaphysics explains things like reality, existence, the very fact that laws of nature are there, right? So it undergirds those possibilities. And then science comes into play and allows you to do this amazing thing that we call science.

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

Dr. Aasim Padela:

It sounds like with the benefit of hindsight, Dr. Malik would not like to have left religion at the door of his chemistry and engineering labs and in the classroom. Next, we hear from Usama Mirza.

Usama Mirza:

I believe that all knowledge is from Allah. And so any knowledge I gain when I'm doing science in a lab is by the mercy of Allah. And the truth is from Allah entirely. And that discernment is a gift that Allah gives me in order to sift out the truth from the falsehood. For me, then every act in my existence is an act of worship. I make no distinction between praying, or between eating or breathing, or doing research in a cancer lab. So I mean, I would think really critically if I'm in this cancer lab, am I torturing mice? The research that I'm doing in the lab, where is that funding coming from? Is it causing genocide to my brothers and sisters in Palestine? The other thing I would think about, of course again, is that when I'm researching any living entity, it's not just its physical makeup that I'm interacting with. It has a spiritual component. It has elements that I cannot see. And that is a key part of human healing as well. For me, everything is integrated. There is no concept of leaving my Islam at the door when I enter the science lab. And that applies to all facets of my life.

Dr. Aasim Padela:

I'm sure you were moved by how Usama Mirza takes as a starting point a reflection on how belief in the Creator and understanding one's relationship to the Creator permeates every aspect of his life. It then becomes impossible to separate the conduct of science from ethical and spiritual perspectives. This raises a profound challenge to the business-as-usual way in so much of how our science, technology, and biomedicine functions. Usama Mirza sounds a wake-up call to people of faith and conscience who are involved in any aspect of scientific activity. They must resist sliding into complicity with norms of scientific practice that clash with their beliefs and moral principles. Dr. Qureshi affirms this holistic understanding.

Dr. Omar Qureshi:

I would definitely say that one does not have to leave God at the door once one enters the lab. In looking at the Islamic tradition, it doesn't require one to do so. And Muslim scientists have not done so. They've definitely invoked God in different ways in their investigations, not just solely in seeing their activity as praising God, but also in, I guess if we extend God to what we would call non-natural causes and explaining observed natural phenomena, then they also invoked non-natural causes there. And so they definitely wouldn't expect a Muslim scientist to leave God at the door in order for them to conduct their scientific inquiries. So there'd be no epistemological reason why one

PODCAST SERIES

"Big Questions About the Human Being: Bioscience and Islam in Dialogue"

would have to leave God at the door going into the lab, nor leave the scientific world at the door when trying to understand God's revelation.

Dr. Aasim Padela:

We opened our conversation today with a question of whether a cancer researcher with a religious background should check their faith at the door when entering the lab. And that question resonates deeply with me. As an undergraduate studying biomedical engineering and later in medical school, I spent time in labs working on diagnostic tools to distinguish cancerous from non-cancerous lesions. But before all of that, I studied in an Islamic seminary. And truth be told, the view I inherited during that time was that religious and worldly knowledge belonged in separate domains. Maybe it was because I was a precocious teenager and my instructors felt that I wasn't ready to engage in those questions of integration. Or maybe they were trying to protect me. This was during the era of the so-called clash of civilizations, after all. Whatever the case, I walked away from my training believing that compartmentalizing my identity was a safer and smarter move.

But as my career unfolded, I came to appreciate what our guests today have so eloquently shared: epistemology matters, and with it, intellectual humility. We all come to knowledge from somewhere, and those commitments, religious or otherwise, shape what we are curious about, what we question, and what we think is worth knowing. There is no need to check your faith at the door. In fact, faith can be a powerful catalyst for discovery. Let me give you just two examples. When I was working on a mesh model of the human knee, my mentor, Professor Amy Lerner, pointed out that prosthetic knees often fail earlier in Middle Eastern patients. One likely factor? Muslim prayer movements. Those repeated motions that standard prosthetic models hadn't accounted for. That insight led to better data, better modeling, and ultimately better prosthetics for Muslim patients. And better design for one demographic will certainly result in better design for many.

Years later, I heard a cancer researcher who was also a rabbi describe how his innovations in drug delivery were inspired by reverence for the body's own systems. Why try to outdo nature, he said, when you can try to learn from it? And so, he modeled his technology on the body's innate protein delivery pathways. These examples remind us that science isn't separate from cultural beliefs; it's shaped by them, and sometimes even strengthened because of them. Of course, integration isn't always easy, but it's far more fruitful than keeping our intellectual and spiritual lives in separate silos. My hope is, that this episode has offered a glimpse of what that integration might look like—what it means to think both faithfully and rigorously, to pursue truth with both mind and soul. In our next episode we take up the question: How

PODCAST SERIES

“Big Questions About the Human Being: Bioscience and Islam in Dialogue”

did we come about?—the question of human origin. We'll explore what science says about where we came from, and what Islamic theology adds to that story.

And, there's still time to bring a friend along the journey. Invite someone to listen in. These are big questions, after all, and the more minds pondering them, the better. I'm your host, Aasim Padela, and I look forward to continuing this exploration with you. Until next time, *ma'assalāma*, and peace be unto you.

Big Questions about the Human Being: Bioscience and Islam in Dialogue was presented by me, Dr. Aasim Padela, with Dr. Raudah Yunus. Moez Masoud, Mohamed Darsha, and their team from Acamedia Global and EMC Media LLC, were consultants and dissemination partners. We would like to thank all of the discussants for giving their time and scholarship so generously.

This podcast was supported by the John Templeton Foundation and hosted by the Initiative on Islam and Medicine and the Medical College of Wisconsin. The producers are Kirsten Dwight and Martin Redfern, and this was a Beacon Hill production. For more details about this podcast and about the [project](https://medicineandislam.org) in general, please visit medicineandislam.org.

[2025] [The Initiative on Islam & Medicine]. All rights reserved.

This transcript and all podcast contents are protected by copyright to the Initiative on Islam and Medicine. Feel free to quote or share brief excerpts for educational purposes with appropriate credits and a link back to the show. Please visit medicineandislam.org for more details