A Religious Perspective on the Vaccine: Part 3, Should I Take the Vaccine? [1]

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There is a remarkably recent and consistently recurring phenomenon of scepticism towards new vaccines. This should not be a surprise: it is wise to be cautious of putting things into our bodies that we do not know or understand. The human body is, paradoxically, both extremely resilient and remarkably fragile. On the one hand, a pathogen (which is not a trivial substance) can enter our bodies, which causes a complex cascade of biochemical reactions within the body, taking the victim to the brink of death. But then the body regains the upper hand, restores order, and eventually the patient is able to carry on with life as before again. On the other hand, ingesting only a small amount of the element arsenic (which is trivial in the sense that it is an element, chemically speaking) will always cause death: there is no way for the body to defend and fight back against it. While our bodies can do a great deal to defend, heal and repair itself, it is also our responsibility to stay away from that which could harm it.

Warning

I am not a medical doctor, biologist, biochemist, or a virologist, although I do hold a master's degree in science in another field.
I tried to make sure that whatever I write here is true, even if drastically simplified.
If there is any doubt, please consult with a doctor or a person who specialises in a relevant field, such as biology.

In my previous article [2] I discussed how, when digging a bit deeper into the question of vaccines, we can quickly run into moral dilemmas. Many people have continued to dig and found other reasons for being sceptical of vaccines, and perhaps even being sceptical of science. In this article we dive into some concerns, some regarding the COVID-19 vaccines, bearing in mind that it is impossible to address all the concerns, or even one of them, exhaustively. At the end, again, I present a (Christian) religious perspective on what was said.

Objections to Vaccines

It is not possible for me to name all the objections to vaccines which currently proliferate on the Internet, let alone addressing them. However, I offer whatever insight I can to some objections I have come across.

Playing God

Are vaccines a case of "playing God"? Either in how they prevent "natural" diseases, or in that they sometimes involve the genetic manipulation of viruses?

Ever since the full horrors of World War 2 became publicly known, and the world was gripped by fear of nuclear devastation, people have been cautious that science has "gone too far". It is true that science will always need ethical checks. But some concerns can simply be alarmist.

Regarding the first point, from a purely Christian perspective, I would not actually call diseases natural, but rather unnatural [3]. They are a consequence of the Fall in Genesis 3. They wreak havoc on God's creation, causing suffering and death. From that perspective, working to develop vaccines to protect society from devastating disease is no more unethical than it was for the early Christians to provide care and aid for those suffering from various plagues. Indeed, it is part of our (Christian) duty.

But what about genetically modifying viruses1? Is this to be considered as an ethical means of fighting disease in service of others?

I can clearly recall the hysteria caused by the cloning of Dolly the Sheep in the mid-to-late 90s. It, too, was decried for "playing God". Some people were worried what the implication for the soul of either the person being cloned or the clone would be. But this concern came from a fearful hysteria and was not well thought out. Cloning does not affect the soul (which is immaterial): it merely creates a new organism which is mostly genetically identical to another one. But we are more than simply the sum of our genetics2. Such an organism would no more "share a soul" with its parent than identical twins do. But that is just one example. According to my best knowledge, there is nothing unethical about the way in which viruses are manipulated.

That said, that is not to say that there are not areas of science where we need to be watchful from an ethical standpoint. Two which come to mind are gene editing (CRISPR [4]) and creating chimeras [5], both of which are practices currently happening and may need more ethical and regulatory oversight than they currently have. However, that is the cutting edge of genetics research and, as far as I know, not currently being used in creating new vaccines.

Supposed Harmful Contents

One objection to vaccines is that they contain harmful compounds such as mercury or "anti-freeze" (ethylene glycol)3. Again, this is not my field of study, but I can venture a guess as to why multiple compounds are necessary for a vaccine4. I can offer a *prima facie* response to one of the concerns. For example, if someone objects to one of the compounds containing mercury (which we know to be a harmful element; one vaccine ingredient containing mercury may be thimerosal, $C_9H_9HgNaO_2S$), simple high school chemistry can be used to address the concern.

Basic chemistry teaches us that the addition of even one proton or neutron to an atom changes its properties; sometimes drastically. For example: lighting a match in a room full of hydrogen (a molecule which has one proton) will cause a huge explosion. On the other hand, lighting a match in a room full of helium (which contains two protons) will prevent the match from igniting at all.

When I cook rice on the stove, I add the compound sodium chloride (table salt) to the rice for flavour. If I were to throw sodium into the pot of boiling water, I am going to cause a small explosion, because sodium on its own reacts violently to water. If I instead added chlorine to the pot, the rice may end up tasting like a swimming pool. Neither adding sodium nor chlorine to rice is desirable, but because the compound sodium chloride (salt) has *completely* different physical properties from its base elements, it is safe and advisable to add it to a pot of rice5.

Similarly, we know that oxygen (O_2; more accurately dioxygen) is in the air that we breathe6, and is necessary for our bodies to work correctly. But its cousin, ozone (O_3; which we know sits high in the atmosphere protects us from some of the sun's harmful radiation), is poisonous to breathe and even harmful to have prolonged contact with one's skin.

This is not mumbo-jumbo meant to confuse anyone: it is high school chemistry and accessible to virtually everyone.

And what it tells us, is that we cannot (at a level of basic understanding) judge a compound based on the properties of the constituting elements.

Those who are interested can read this report on the Pfizer COVID-19 vaccine by the British government [6]. It lists the "ingredients" of the vaccine (look for the sections on "active substance" and "excipients").

Side Effects

Another objection is to potential side effects of vaccines. For the COVID-19 vaccines (which were in the news at the time of writing), the biggest concern was the forming of blood clots [7] by vaccines based on adenoviruses.

It has been estimated that the Johnson & Johnson COVID-19 vaccine causes blood clots in fewer than one in a million cases [8]. That is nearly half as likely as getting five numbers correct in the national lottery. However, put differently, if every person in the world received the vaccine, likely fewer than 8000 people would develop a blood clot. Most people who develop blood clots are successfully treated afterwards.

I am one of those strange people who actually read those little inserts in the bottle or box of medicine whenever I am prescribed new medication. If one is prone to anxiety, I don't recommend doing this. It reveals the striking reality that even taking mundane medicines can have serious effects. Yet, more often than not, we take whatever medicine our doctors prescribe without thinking about it too much.

As an exercise, I grabbed the first box of medicine I could find in my home. It is a (South African) Schedule 2 anti-inflammatory. If taken, there is a non-zero chance of experiencing any of (among others; translated from medicalnese, where necessary):

- vomiting
- insomnia
- jaundice
- skin rash
- hair loss
- high blood pressure
- bloody diarrhoea
- psychotic reactions
- kidney failure
- heart failure

Thankfully, I experienced none of these effects when I needed to take this medicine several months ago. Neither have millions of others, I am sure: otherwise it would not be so readily prescribed by doctors. But some people, sadly, *have* experienced these symptoms. However, when it comes to public medicine, sometimes the well-being of the majority needs to be taken into consideration: many would suffer if this medicine was not available simply because a handful of people experienced heart failure.

Granted, vaccines are orders of magnitude more complex in nature than an anti-inflammatory. But the fact that so few serious side effects have been found so far is exactly a testament to its safety[7].

It should also be noted that these vaccines are not being marketed as being without risk. When my wife (who is a healthcare professional) received her COVID-19 vaccine, she first needed to sign a consent form. The consent form spelled out the risks—including side effects—and explained that the vaccine may not prevent you from contracting COVID-19 in the future. This is because the vaccine is only effective in a certain percentage of the population. But this is true of all vaccines.

One reason why vaccines or medicines have so many varied effects on humans is precisely because

they (and other medical advancements over the past two hundred years) have been effective. For more than a hundred years, modern medicine have allowed more human lives to be saved, leading to increased genetic diversity. We are, in a sense, the victims of our own success. But instead of resigning ourselves to a Darwinian attitude of "survival of the fittest", we continue to try and work to protect *everyone*. Yet we need to be cognisant that the effects which very few people suffer make them outliers, and that in itself does not disqualify something from being beneficial to most people.

Whether you, personally, will be safe, cannot be said. That is something which you will need to decide for yourself. The best indicator is to look at how your closest blood relatives reacted to the vaccine: as they are genetically the most similar to you, it is a good indicator. Ultimately, this is something which you will need to decide for yourself. But you must also keep in mind that the goal is not only immunisation, but to reach herd immunity. Herd immunity protects those who are not able to get the vaccine, usually for specific medical reasons. To reach herd immunity, a certain percentage of the population need to be immunised [9] (or develop natural immunity). However, the goal should not be to merely reach the target number, but to exceed it. In that sense, ideally *everyone* who does not have a *good reason* (usually identified by medical specialists) to be immunised, should take the vaccine: it is, in a sense, not just about you, but protecting others as well.

A last thing that needs to be said about perceived side-effects of the COVID-19 vaccines is that we be careful not to confuse correlation with causation [10]. The first group of people in the general population to be given the vaccines were the elderly (usually those aged sixty or above). Normally, if we were to hear stories of sexagenarians, septuagenarians, or octogenarians having strokes or heart attacks, we would not think twice about it. They are old, we may tell ourselves, and these kinds of things are to be expected in the elderly. But if the elderly have strokes or heart attacks not long after receiving a COVID-19 vaccine, many people would rather assume that the vaccines are at fault, rather than the normal assumption of it merely being aged related. Instead of jumping to conclusions, one must be patient and ask the correct questions:

1. Have subsequent medical or post mortem examinations determined a causal link between the vaccine and the incident, or where there other underlying causes (e.g. previously undiagnosed hypertension)?
2. Are the elderly who have been vaccinated suffering a disproportionate amount of strokes, heart attacks, etc., or is this a case of confirmation bias [11]?
3. If the data does not support my assumption, am I willing to change me point of view?

Weakening the Immune System

The argument goes that, because vaccinations are "artificial", people get sick less frequently, which means that the body needs to "fight less". Does this lead to a weaker immune system overall? Not according to a study [12]8. In fact, given how we explained the immune system previously [13], this should not entirely be surprising. Just because you do not get sick, does not mean that your immune system is not working. During the course of a winter, you may well be exposed multiple times to (for example) influenza viruses. But if you have been sick with that strain of influenza before (or had a vaccine), then the body knows how to detect and eliminate the threat immediately. So the immune system is regularly active, even if you do not feel sick. And because you do not get sick, you are able to be active more, potentially exposing you to more infection incidents.

The Speed of Development, Testing and Trialling

For the COVID-19 vaccines, many people object to the speed at which the vaccines were developed. This is, perhaps, the strongest argument against the vaccines, or at least the one I can object to the least. However, while more could have been done by governments to educate people about the vaccine, three things need to be kept in mind:

1. the vaccines were not developed in isolation (scientists collaborated at a stunning scale

[14]),
2. the vaccines were not developed from scratch, but were based on previous research for vaccines for other diseases which were being developed for years already, and that
3. the regulators are not malicious or in some sort of conspiracy.

The simple fact that there are *different* vaccines which all accomplish the same thing should be a reassurance. If any of them were developed with malicious intent, it would become apparent when the results are compared against the other vaccines.

That said, healthcare professionals were prioritised to receive the COVID-19 vaccines, however many objected to being “guinea pigs” for a vaccine which had not undergone thorough enough trials before. This only happened because there is such a global urgency to get the general public vaccinated. While I believe that the initial trials were promising, I also cannot, in good conscience, object to their concerns. However, the COVID-19 pandemic has demonstrated that the medical profession, rather than being glamorous, as it has been made out to be in the past decades, is one of immense risk and self-sacrifice (especially required in a time of international crisis); something many people were not prepared for when they decided to join the profession. All I can say is that, to date, millions of people have received these “poorly tested” vaccines (and every day hundreds of thousands more receive it), and thus far the negative effects have been limited.

The vaccines were also not developed starting with nothing. For example, one of the first COVID-19 vaccines, the Oxford-AstraZeneca vaccine, was developed using existing research on a new malaria vaccine [15]. This malaria vaccine has already been in development for years.

It also seems unlikely that all of the world’s medical regulators are being malicious or negligent in reviewing the data around the vaccines. If the regulators approve a vaccine, why are they so mistrusted, even if we trust these same regulators for all our other medicine?

The objection that the vaccines have not yet been thoroughly tested is a matter of conscience and, as I have said, not one I can object against. However, if you are going to invoke this objection, then you also need to be able to say *when* the vaccine will be tried-and-tested enough. If this objection is used, it must be used correctly, and not to justify a pre-existing bias against vaccines. And as hundreds of thousands of people all over the world get vaccinated every day, the excuse that these vaccines are untested is running out of rope.

5G and Microchips

The COVID-19 vaccines sparked numerous conspiracy theories, of which one should always be weary.

Two are that 5G technology causes COVID-19, and that the vaccines contain some sort of microchip for governments to track you.

5G is a telecommunications technology, and is part of the electromagnetic spectrum. The electromagnetic spectrum is also used for wifi, radio signals, and other decades' old technologies. It cannot cause COVID-19 any more than your wireless Internet router, TV satellite dish, or car radio causes COVID-19. COVID-19 is caused by a virus, SARS-CoV-2. 5G was a convenient (if badly misjudged) scapegoat, because the roll out of 5G technology in many countries coincided with the COVID-19 pandemic. However, some countries already had 5G networks before the pandemic started. This is a classic case of mistaking correlation for causation [16].

At the time of writing, we do not have the technology to create useful robots (nanites) which can be injected into people. We may in the future, but currently we don’t. However, having little bits of metal injected into you would probably cause lethal heart failure within minutes, or other complications. Governments, and private companies, can already track people exceedingly effectively using “smart” devices and facial recognition technology.

Vaccines Cause Autism

Last but not least, the old tale that vaccines cause autism. This claim is false [17]. It was originally based on a flawed study, which has since been rescinded and the author of the study discredited due to fraud [18].

While much of autism is still not understood, there is probably more of a genetic component than an environmental component (e.g. what goes into the body from outside). Autism results from a person's brain developing in a slightly different way than most other people. This starts while someone has not yet been born, long before any vaccines have been administered.

Our understanding of autism continues to grow, as well as how such people can successfully be integrated—and become active, valued participants in—society. So, even if vaccines did cause autism *which they don't*, why are we so deathly afraid of that happening? Is a person with autism worth any less than one without?

The Religious Perspective on the Vaccine

The phrase "I have done my research" sends many scientists and doctors into despair and frustration. Whichever way you cut it, the Internet is as much full of misinformation as good information. But reading through a few websites (even if they are academic ones) is not a substitute for earning an advanced degree at a reputable university. That is not to say one cannot become incredibly learned, nor that accredited scientists cannot be wrong. However, on a whole, we need to err on the side of trusting those who have done the formal studies over our own efforts.

If one is confronted with an objection over vaccines which seems plausible, it is necessary to investigate such concerns with due diligence. However, if credible people and organisations repeatedly state that vaccines are safe, but you continue to believe that they are all wrong or, worse, deliberately deceiving everyone, then the problem might be with you, not everyone else. Global conspiracy theories are not tenable. There is not some world wide coordinated effort to control or infect people. The more people are involved in a conspiracy theory, the less likely it is to remain a secret and succeed. For there to be a conspiracy around vaccines, it would need to involve, at least, tens of thousands of academics in every university and laboratory around the world. That is simply not feasible.

Instead, the problem may be a rebellious spirit: one's own pride [19]. It may be that someone is more comfortable believing lies and misinformation. It may be that one is primarily anti-authority rather than anti-vaccine due to a perceived loss of freedom of choice, even if it comes at the cost of others' well-being.

It is good to be vigilant, but if one finds oneself resisting every piece of evidence and every answer to one's objections, then that is a problem. One must be aware that there is a point where reasonable scepticism becomes radical scepticism. This is the point where, despite claims to the contrary, one will actually no longer be convinced by evidence. This is where one crosses over from being rational into fundamentalism.

But it would be disingenuous of me to say people who resist the vaccine do so only from a rebellious spirit. Some, if not most, do it from fear: fear for the well-being of themselves, their families and other loved ones. This fear springs up from a myriad of confusing and contradicting information with which they are bombarded. This can lead to people being "on the fence", so to speak. People cannot be faulted for desiring the well-being of their loved ones. I know that nothing that I can say or write can take anyone's fear away. Only God can do that. And so what I would say to people wrestling with fear over this matter is to take it to God until you have peace one way or the other. Whatever you believe about vaccines, whichever way you choose, at the end of that journey can lie either life or death. While we primarily fear what can destroy the body more than Who can destroy the soul, we are going to be in torment. Peace in life is only possible once we have peace in eternity.

God is a God of truth. Everyone claims that *they* have the truth. So where do we find the truth? First, examine your own heart for fears and biases: why would it be terrible to change your mind? Second, consider whether you make unreasonable demands of, or make unreasonable accusations against, those who say differently (e.g. that all scientists are in on some grand conspiracy)? If so, you are not seeking truth honestly, but setting up strawmen [20] against those with whom you disagree, and thereby negating reason. This is not kind to do, and not godly. Third, do not only read what people who agree with you write, but read on both sides.

May God grant you wisdom and lead you to truth, and may you have peace in it.

- 1. Interestingly, there is no universally accepted scientific definition of what “life” is. As far as I understand it, the most widely accepted candidate for a definition of “life” would exclude viruses. This may be correct, however unintuitive it is, but that would make the manipulation of a virus less devious than the genetic manipulation of, say, wheat (which I do not hold to be devious; humans have been manipulating crop and livestock genetics for thousands of years using selective breeding).
- 2. The first cat to be cloned (named CC, “Copy Cat”) looked, contrary to what may be expected, different from its mother. This was due to genetic processes which take place during fertilisation. These processes can affect traits of the new organism: in the case of CC, this was most clearly seen in how the cat looked. Even though an organism is genetically identical to another one, it does not mean that the two organisms are _identical_.
- 3. Ethylene glycol is not actually used in vaccines; instead polyethylene glycol is sometimes used. Although the names of these chemical compounds are similar, as I describe in the following paragraphs, slight differences in molecules usually mean that substances have drastically different properties.
- 4. I suppose there would be some kind of fluid for delivery, for preservation, perhaps nutrition, perhaps something to counteract a possible reaction between some of these compounds, and others. Basically, I would expect a vaccine to be a cocktail of several different components. Simply see the list of ingredients on whatever manufactured food you have in your kitchen to see how many chemicals are necessarily just for the food we eat.
- 5. Of course, you need to make sure that whatever compound you are going to ingest is not going to be broken down into its base elements by the body. This does not happen to salt: the body does not break it down into sodium and chlorine. Some compounds are broken down into its base elements: when our bodies require iron, we don’t chew on a metal rod to gain the iron: our body extracts the iron from the food which we eat. However, no regulatory body would approve a mercury compound which studies have shown would be broken down into its base components by the body.
- 6. Oxygen is not, contrary to what some may think, the main ingredient of the air we breathe. Oxygen only comprises ≈21% of air. The majority (≈78%) is actually nitrogen (the rest being other gasses).
- 7. I want to share an anecdote: when my father-in-law was battling COVID-19 last year, he was prescribed aspirin by a well-meaning doctor. My father-in-law is allergic to aspirin, however, and taking the aspirin (which millions of people take every day without any worry or concern) was almost more life-threatening to him than the COVID-19 (although he did physically suffer from COVID-19 and had low blood oxygen saturation levels).
- 8. Admittedly, citing a single study is not good form. Scientific can contradict, and that is somewhat expected. Meta-studies (which evaluate the results of several independent studies) are more reliable. I add this disclaimer for the sake of truthful transparency, as well as to pre-empt anyone who may produce a study (or pseudoscientific “study”) perhaps stating the contrary.

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Links
[1] https://siyach.org/node/1233
[2] https://siyach.org/node/1232
[3] https://siyach.org/node/1177
[4] https://edition.cnn.com/2020/10/07/health/what-is-crispr-explainer-scn-trnd/index.html
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