Breaking down Covid-19 topics & myths

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Introduction

The COVID-19 pandemic has become the norm as billions are still impacted by the regulations and protocols in place in countries across the world. There are currently over 99 million across the world with over 2 million deaths.

The numbers continue to climb as new strains of the virus have been unleashed onto the world, South Africa included. This has led to a faster rate of infection with deadlier symptoms. These new strains have caused a second and third wave for several countries.

South Africa is currently in its' second wave. Like other countries such as Spain and Japan, the rate of infection seems to be skewed towards a younger population with symptoms also being more severe.

Daily activities and exceptional circumstances alike have been affected as the virus continues to spread at alarming rates. Last rites have changed as families are unable to say their final goodbyes to loved ones who have succumbed to the pandemic. Cling-wrapped coffins, empty public spaces, and a sea of masks have become the new normal.

Vaccines offer an end to this as companies such as Pfizer, Moderna, and Astra Zeneca have begun the rollout of their vaccines to the world for distribution. Despite the respite these vaccines bring, there are still challenges.

Vaccine hesitancy has increased as people are wary of taking the vaccine due to false news and miseducation around the potential side-effects vaccines may pose. This hesitancy then has a negative impact on the possibility of herd immunity, a strategy the South African

National Department of Health believes is a possible solution to preventing the rate of spread amongst its' population.

Myths have also run rampant and have fuelled hesitancy to taking the vaccine. This paper looks at providing awareness to the current face of the COVID-19 virus. It also looks at exploring the issues of vaccine hesitancy and herd immunity as well as shedding light on some of the myths that are prevalent in South Africa.

Understanding the new strain

The genetics of a virus has been known to mutate and change as a mechanism of survival. These mutations are usually minor in nature and often do not lead to drastic changes to the genetic material of a virus (Breakthroughs at the intersections of health and science, 2020).

The surface proteins of a virus change as there are errors that occur as a result of the replication process viruses go through. These "copying errors" often lead to the genetic mutations within the virus-cell that was replicated (Breakthroughs at the intersections of health and science, 2020).

Therefore, while it is still part of the same genus of the virus and often still causes the same symptoms, the slight genetic error then makes the replicated virus-cell a new strain of the virus which can have minor implications (Breakthroughs at the intersections of health and science, 2020).

While other viruses that can genetically mutate such as the influenza virus experience genetic mutations within cells at a rapid rate, the mutations within the COVID-19 virus-cell occur at a significantly slower rate (Breakthroughs at the intersections of health and science, 2020).

This then means that the impact this has on the subsequent viral effects of the COVID-19 cell is minimal and the effects of the new strain have yet to be scientifically quantified. The slower rate of mutation also means that there is no or little impact on the effectiveness the vaccines available have in providing protection against being infected (Breakthroughs at the intersections of health and science, 2020).

Current research efforts are aimed at understanding if the new strain impacts the rate at which the virus is being spread and whether it has an impact on the severity of symptoms that are experienced by any given individual. Scientists also hope to understand whether it is detectable by current tests and will respond to current medications being used in the treatment of COVID-19 (The United States of America Government Centre for Disease Control, 2021).

While the new strain has been identified in South Africa and is widely thought to be the catalyst of the second wave that is occurring, the new strain has also been found in other countries. These countries include the likes of Britain and an entirely different strain being found in Brazil.

The symptoms of COVID-19 so far

There has been a large variation in the symptoms being experienced by people all over the world. There are no significant symptoms that can be inherently linked to the COVID-19

virus. These symptoms often present themselves as a flu-like illness that can often lead to more serious implications.

There is a list of symptoms that have been experienced by a significant number of people who have tested positive for the COVID-19 virus. A high fever, dry cough within the chest, and a feeling of consistent fatigue are seen as the most common symptoms of the COVID-19 virus (World Health Organization, 2020).

Less common symptoms often accompany the virus and can also be severe. These symptoms include sensory issues such as loss of taste and smell as well as blurry vision in some cases. Issues with muscle and joint pain have been known to occur as well as severe headaches and varying types of skin rashes (World Health Organization, 2020).

Digestive issues such as vomiting and nausea have also been reported as well as diarrhoea and dizzy or fainting spells. More severe symptoms that often require hospitalization and emergency treatment include shortness of breath and persistent pressure in the chest with a risk of blood clots causing pulmonary embolisms has also been found to occur (World Health Organization, 2020).

The COVID-19 virus also has an impact on the mental wellness of an individual who tests positive. Psychological issues such as depression, anxiety, and confusion have been diagnosed in positive cases as well as sleep disorders and reduced consciousness. More severe neurological illnesses have also been reported such as strokes, brain inflammation, and nerve damage (World Health Organization, 2020).

What are vaccines doing to decrease the rate of spread?

Vaccines have been an integral part of medical history. With rudimentary vaccines being created in the 19th century to the present, they have ensured the prevention of many different diseases and have saved tens of millions of lives globally since their inception (Iwasaki, 2020).

Pathogens are bacteria, parasite, a viral or fungal cell that is able to cause harm or disease within the body. Each of these pathogens has different parts that they are made of, the part of a virus cell that causes antibodies to form within the body is called an antigen (World Health Organization, 2020).

Antigens are the components that elicit an immune response from the body. This immune response is specific to the antigen component found within that particular pathogen. Once the body formulates an immune response, it also creates memory cells to ensure that the same immune response is produced when the pathogen enters the body again (World Health Organization, 2020).

A vaccine is a sub-component of a virus that has been deactivated or is a very weakened form of the virus. It is injected into an individual in order for the body to create an immune response without causing illness (World Health Organization, 2020).

Newer forms of a vaccine contain the blueprint for creating a specific antigen rather than the actual antigen component itself. Illness as a result of being injected with a vaccine is extremely rare (World Health Organization, 2020).

Certain vaccines offer lifelong immunity from certain illnesses as the immune cells are able to retain memory cells for these illnesses over the lifetime of an individual. Examples of this are yellow fever and smallpox vaccine shots that are usually given to infants. Other vaccines need to be taken periodically for the body to create an immune response, examples of this are the influenza vaccine (World Health Organization, 2020).

Hopes for herd immunity

A number of different topics within mass vaccination and protection of the population from the pandemic have come into the spotlight. One such issue is herd immunity. Several different countries have done extensive research into its viability and are looking into it as a potential solution for the pandemic, with one such country being South Africa.

The issue with herd immunity is a lack of understanding on the part of the general population and as such, this has caused concern within society. Herd immunity however has been used previously and has been seen as an effective method to ensuring the protection of the overall population.

Herd immunity is the occurrence of overall protection for a population as a result of a significant percentage of the population becoming immune to a specific disease or illness (D'Souza & Dowdy, 2020).

This occurs when a significant percentage of the population has been vaccinated against a specific illness and as a result, the likelihood of infection decreases significantly amongst the portion of the population who did not receive the vaccine for the specific illness (D'Souza & Dowdy, 2020).

Should herd immunity be established and sufficiently maintained for an extended period, it will in all likelihood lead to the total eradication of that illness within a population. The eradication of an illness ensures the preservation against the illnesses and eliminates all known effects caused by the illness including the threat to mortality and general well-being of the population (D'Souza & Dowdy, 2020).

Successful examples of the eradication of illness as a result of herd immunity are abundant throughout history. One such example is smallpox and measles in the 1920s and 1930s wherein herd immunity was observed as a naturally occurring phenomenon by medical scientists as a result of a significant portion of children had taken the vaccine for these illnesses and in turn passed this immunity onto their peers who had not been vaccinated (Topley &Wilson, 1923).

Understanding vaccine hesitancy

One issue has emerged as a matter of urgency and concern as the availability of the vaccine increases. Vaccine hesitancy is on the rise on a global scale. The reasons for this are varied particularly within an African context.

Vaccine hesitancy can be defined as the reluctance to accept the vaccination services available or refusal to use these services once they become available (MacDonald, 2015). It has been prevalent throughout medical history and has been found to be influenced by factors such as complacency, convenience, and confidence in the vaccine available (MacDonald, 2015).

There is a difference between being vaccine-hesitant and anti-vaccine, vaccine hesitancy presents the possibility of eventual usage of a specific vaccine while individuals in the anti-vaccination category will not consider taking the vaccine or consider the possible benefits presented by taking a specific vaccine and often advocate against the use of vaccines (Shen & Dubey, 2019).

The reasons for the hesitancy of taking a COVID-19 vaccine once it becomes available have become a particularly pertinent topic. This is due to the large number of individuals who have expressed non-compliance in receiving the vaccine which could adversely impact the attempts of numerous countries in achieving herd immunity (Elfein, 2021).

Concerns around possible side effects and a lack of trust in government are often cited as the reasons for hesitancy. In South Africa, there has been an increasing number of health workers who have expressed concern over taking a vaccine once it becomes available. This is concerning as health workers are most vulnerable to COVID-19 infection due to the nature of their work and can also act as super-spreaders amongst vulnerable populations (Seale, 2021).

For these concerns to be assuaged, the initial factors of hesitancy need to be taken into account when strategizing communication efforts amongst these populations. All issues need to be addressed around the vaccine and the issues of safety and effectiveness need to be holistically addressed to ensure that there is no room for doubt or the possibility of misinformation (Seale, 2019).

Addressing some of the myths in South Africa

One of the myths that have been most prominent is that contracting COVID-19 is an instant death sentence and will cause serious illness or death in the individual who has tested positive. This is not true as an estimated 80% of individuals who test positive for the virus often only experience mild symptoms with no long term side effects (Spotlight, 2020). The current death rate for the COVID-19 pandemic is lower than that of other pandemics such as the SARS and MERS pandemics.

Another myth is that Africa has not experienced a high rate of infection as a result of the hot and humid climate that is prevalent in most African countries. This is simply not true as the rate of spread is not affected by climate conditions and the prevalence of the disease within a population is affected by several different factors, these factors include the density of a population in a given area, the spread of infection through vulnerable populations and the safety measures taken within public spaces (WHO, 2020).

A very common myth circulating in South Africa is that the COVID-19 pandemic is a myth and that it is actually 5G technologies that are the root cause of illness in individuals. This is grossly untrue and this spread of false information has resulted in physical damage to existing towers and has created false perceptions around the pandemic thereby endangering the general public. This myth has no grounding and undermines the seriousness of the current dangers being posed by the pandemic.

Another myth that exists is that should you have a mask on, then you will not get COVID-19. There several additional precautionary steps that need to be taken into account on top of mask use that needs to occur to ensure that the possibility of infection is minimized as far as possible. Wearing a mask correctly over both the nose and mouth is the first step followed by minimal touching of the face in public spaces and consistent hand sanitization (Spotlight, 2020). Accompanying this is social distancing measures in public and avoidance of physical contact with others.

Another myth amongst the South African public is that the South African government is currently withholding or hiding the actual number of cases being experienced by South Africa. This is simply not true as reporting of cases is based on the number of figures that have been collated from health facilities across the country (Spotlight, 2020).

These figures are compiled on a provincial level and then presented to the National Department of Health to collate and present a national picture (Spotlight, 2020). Cases across the globe have been going undiagnosed and as such have had an impact on reporting, as such figures across the world have a strong possibility of underestimation, however current methods being employed by epidemiologists through modelling and collation of figures are able to provide a reliable estimate of where the numbers stand nationally (Spotlight, 2020).

Currently, there is a significant amount of controversy around the drug Ivermectin, a treatment used for the treatment of parasites. Originally approved for use in animals, it is currently being touted as a miracle cure for the virus. It is also being alleged governments are withholding distribution of the drug to the general public as it impacts profits made from vaccine distribution (Dupuy, 2020).

There are several untruths in this. Firstly Ivermectin was originally approved for animal use only due to the extremely high number of side effects that presented in humans during the clinical trial phase. Given the current interest, governments cannot approve Ivermectin without significant scientific evidence that supports the claims around Ivermectins impact on the virus (Dubuy, 2020).

This evidence is provided through a systematic and rigorous clinical trial and review of the available material. Once this has been done, then only are governments and regulatory boards able to make an informed decision on approving Ivermectin as a potential treatment for COVID-19.

Secondly, governments across the world are distributing the vaccine at no cost to its population; there has been no privatization of vaccine distribution which then means government entities do not make a profit from vaccine distribution (Dubuy, 2020).

Myths on the safety and efficacy of the vaccine have surfaced and there is the current belief that the vaccine is not safe due to its rapid turnaround times. This is false. Pharmaceutical companies have invested a considerable amount of resources into expediting the vaccine process for regulatory approval (May Clinic Health System, 2020).

Efficacy rates of these vaccines have shown that these vaccines are both safe and effective in ensuring the prevention of the virus. These vaccines have also still undergone the phases which form part of a clinical trial and as such have been determined as safe for human use (May Clinic Health System, 2020).

Another myth suggests that there are serious side effects of taking a COVID-19 vaccine. This has been spread through misinformation and false news as there has been no scientific evidence to support these claims. As with most medical technologies, side effects are a possibility, however, these have been minimized as far as possible and all allergic reactions to the vaccines available have been closely monitored and accommodated accordingly (May Clinic Health System, 2020).

There is also a common belief that masks will not be required immediately after the vaccine has been received. This is not the case as there is a period before the vaccine takes effect within the body. The amount of time required for the vaccine to activate is still being determined and as such it is recommended that masks still be worn after the vaccine is received as an extra safety measure (May Clinic Health System, 2020).

Conclusion

The COVID-19 pandemic has provided parameters for scientific research that had not existed previously. As such, this has provided insight into several topics that have been overlooked. Issues around vaccine hesitancy have become more important than ever as the rate of hesitancy has a direct impact on the possibility of herd immunity.

Vaccine hesitancy also means a large portion of the population remaining unvaccinated and as such means that the virus will not be eradicated from the general population. Without the virus being entirely eradicated, daily functions of normal life also cease to exist.

This then causes financial devastation as local businesses continue to suffer financially and economic loss grows. The indulgence of myths without proper research and due diligence also contributes to these issues and further impacts on the confusion and misinformation that exists currently.

It is therefore the responsibility of all citizens to ensure that due diligence is done around the information that is being received and disseminated. Communication and educational strategies, now, more than ever play a significant role in combatting these issues.

It is ultimately on the onus of the individual to ensure that they are properly informed, are not spreading false information, and serve their fellow man by being vaccinated when the time arises. It is only by working together and taking individual responsibility that the pandemic becomes a thing of the past.

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