

# Responses of Religion and Science to the Threats of the COVID-19 Pandemic in Indonesia

## [Respon Agama dan Sains Terhadap Ancaman Pandemi COVID-19 di Indonesia]

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The COVID-19 pandemic has presented various responses in society. A number of individuals have believed in its existence and conducted health protocols properly, but there are also those who have done the opposite. During a pandemic, belief in science influences actions and responses in society. However, individuals often do not believe in scientific findings, such as the existence of the virus causing the COVID-19 pandemic (SARS-CoV-2). A number of previous studies have often assumed that science is in conflict with religion. But is religion truly the opposite of science? This article aims to look at the role of belief in science in Indonesian society, in responding to the COVID-19 pandemic, and is hoped to be read by various parties such as the general public, scientists, to policymakers. Furthermore, this article may help in understanding the position of science and religion under certain conditions, while also being able to examine the differences in responses that occur. In Indonesia, religion and science have not been at odds in responding to the COVID-19 pandemic. The two each have their respective roles in providing explanations of the problems that have occurred. However, there are groups of religious fundamentalists and their perception in viewing science that require attention in further studies.

*Keywords:* religion, COVID-19, belief in science

Pandemi COVID-19 menghadirkan berbagai respon di masyarakat. Beberapa individu percaya akan keberadaannya dan melakukan protokol kesehatan dengan baik, akan tetapi ada pula yang melakukan hal sebaliknya. Pada masa pandemi, keyakinan terhadap sains (*belief in science*) memberi pengaruh pada tindakan serta tanggapan masyarakat. Akan tetapi, individu kerap tidak percaya dengan temuan ilmiah, seperti halnya tentang keberadaan virus penyebab pandemi COVID-19 (SARS-CoV-2). Sejumlah studi sebelumnya seringkali menganggap bahwa sains bertentangan dengan agama. Namun, apakah agama adalah faktor yang memang berkebalikan dengan sains? Artikel ini bertujuan untuk melihat peran *belief in science* pada masyarakat Indonesia dalam merespon pandemi COVID-19, dan diharapkan dapat dibaca oleh berbagai kalangan seperti masyarakat awam, ilmuwan, hingga pembuat kebijakan. Selain itu, artikel ini dapat membantu memahami posisi sains dan agama dalam kondisi tertentu, serta mampu menelaah perbedaan respon yang terjadi. Di Indonesia, agama dan sains tidak berseberangan dalam merespon kondisi pandemi COVID-19. Kedua hal tersebut memiliki perannya masing-masing dalam memberikan penjelasan atas permasalahan yang terjadi. Walaupun demikian, terdapat kelompok fundamentalisme agama dan persepsinya atas sains yang patut mendapat perhatian dalam studi selanjutnya.

*Kata kunci:* agama, COVID-19, keyakinan terhadap sains

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For a long time, the presence of scientific information within the public sphere has been considered to be crucial. A scientific basis is extremely important in the building or the creation of stable conditions. A number of findings may be credible, and so are able to be translated into effective behavior (Morisseau et al., 2021). Nonetheless, scientific information is not always well accepted, because often there are certain groups which emerge, who reject science itself (Mwangi, 2019). Rutjens et al. (2021) and Rutjens et al. (2022) explained that the spread of viewpoints which reject science (anti-science), conspiracy theories, and a variety of reports containing hoaxes, may threaten the well-being of the individual and of the public, throughout the world.

In the development of the conditions which have occurred during the COVID-19 pandemic, a variety of fake news emerged on social media, which have had the potential to become dangerous threats (Van Bavel et al., 2020). Fake news, according to Grinberg et al. (2019), is news designed to be viewed as accurate, but which is actually misleading. Such news discusses major problems in the fields of politics, public health, and personal lives. For individuals who do not observe too closely, this news may easily be spread, so that is simply accepted (Pennycook & Rand, 2019). One of the results of public disbelief in the responses to the COVID-19 pandemic finally had an impact on desires for vaccination. During the COVID-19 pandemic, there have been groups which conducted anti-vaccination campaigns and refused to believe in the existing facts (Bernard et al., 2021). Erroneous information about science can cause complex problems, whilst science can provide knowledge systematic in assisting individuals and groups to make more accurate decisions (Dietz, 2013). Misunderstanding concerning science is of prime interest, because it may wreck efforts to develop a healthy and productive society (Druckman et al., 2021).

Russel and Sluckin (2016) explained that a society which can accept scientific information may show more effective behavior when responding to various situations. The ability to accept science certainly begins with the belief in

Sudah sejak lama, kehadiran informasi ilmiah di tengah masyarakat dianggap krusial. Landasan berbasis ilmu pengetahuan sangat penting dalam membangun atau menciptakan kondisi yang stabil. Sejumlah temuan dapat dipercaya dan mampu diterjemahkan dalam perilaku yang efektif (Morisseau et al., 2021). Namun demikian, tidak selamanya informasi ilmiah dapat diterima dengan baik, karena seringkali bahkan dapat timbul kelompok tertentu yang menolak ilmu pengetahuan itu sendiri (Mwangi, 2019). Rutjens et al. (2021) dan Rutjens et al. (2022) menjelaskan bahwa penyebaran pandangan yang menolak ilmu pengetahuan (anti-sains), teori konspirasi, dan berbagai berita yang mengandung *hoax* dapat menjadi ancaman bagi kesejahteraan individu dan masyarakat di seluruh dunia.

Dalam perkembangan kondisi yang terjadi selama pandemi COVID-19, berbagai berita palsu bermunculan di media sosial, dengan potensi menjadi sebuah ancaman berbahaya (Van Bavel et al., 2020). Berita palsu, menurut Grinberg et al. (2019), merupakan berita yang dirancang agar terlihat akurat namun sebenarnya menyesatkan. Berita tersebut membahas masalah besar dalam bidang politik, kesehatan masyarakat, dan kehidupan pribadi. Bagi para individu yang tidak melihat secara teliti, berita tersebut dengan mudah disebar hingga dipercaya begitu saja (Pennycook & Rand, 2019). Salah satu akibat dari ketidakpercayaan masyarakat dalam merespon pandemi COVID-19 akhirnya berdampak pada keinginan untuk melakukan vaksinasi. Selama pandemi COVID-19, terdapat kelompok yang melakukan kampanye anti-vaksin dan menolak untuk percaya pada fakta yang ada (Bernard et al., 2021). Informasi yang keliru tentang sains dapat menyebabkan permasalahan rumit, padahal keberadaan sains dapat menyediakan pengetahuan yang sistematis dalam membantu individu atau kelompok dalam pengambilan keputusan yang lebih tepat (Dietz, 2013). Kesalahpahaman tentang sains menjadi perhatian utama, karena dapat merusak upaya pembangunan masyarakat yang sehat dan produktif (Druckman et al., 2021).

Russel dan Sluckin (2016) menjelaskan bahwa masyarakat yang dapat menerima informasi ilmiah dapat memperlihatkan perilaku yang efektif dalam merespon berbagai situasi. Kemampuan dalam menerima sains tentunya dimulai dari keyakinan

science itself. Farias et al. (2013) also explained that a belief in science is the viewpoint of an individual in viewing the world epistemically, expressing this belief in particular methods of comprehending the world. In practice, this may be seen from: (1) the ability to think analytically; (2) the ability to think rationally; and (3) the seeking after evidence, even when that conflicts with intuition.

Brzezinski et al. (2020) explained that belief in science is one of the factors which support the public being prepared to conduct *physical distancing* (maintaining a physical distance from others). Besides *physical distancing*, mask-wearing may also be viewed from how the public accepts scientific information. Stosic et al. (2021), basing their findings upon data from 1,050 study participants, found that those participants who believed in science might be predicted to tend more towards mask-wearing. These participants had a greater trust in the effectiveness of mask-wearing in reducing the spread of the virus causing COVID-19 (SARS-CoV-2), which, in the end supported mask-wearing in public places. When the COVID-19 pandemic occurred, it was said that effective scientific communication was greatly needed (Van Bavel et al., 2020).

The results of a survey from *Charta Politika Indonesia* also indicated that 43.3% of the public had a tendency not to accept or trust data related to the COVID-19 pandemic. This survey involved 1,200 respondents, coming from a variety of places in Indonesia (Charta Politika, 2021). The data indicated a low level of trust from the Indonesian public in receiving existing scientific information.

There were several matters which produced misperceptions of the COVID-19 pandemic, and caused both individuals and groups to reject or distrust a number of the scientific findings. Druckman et al. (2021) explained that misperceptions may be influenced by the roles of race, religion, and politics. Minority groups were amongst those more likely to experience misperceptions regarding the COVID-19 pandemic. Besides this, in the findings of the study, it was also revealed that, although a large portion of the

terhadap sains (*belief in science*) itu sendiri. Farias et al. (2013) juga menjelaskan bahwa keyakinan terhadap sains merupakan pandangan individu dalam melihat dunia secara epistemik, yang mengekspresikan kepercayaan tersebut pada metode khusus untuk memahami dunia. Dalam praktiknya, hal itu dapat terlihat dari: (1) kemampuan berpikir analitis; (2) kemampuan berpikir rasional; dan (3) pencarian bukti bahkan saat bertentangan dengan intuisi.

Brzezinski et al. (2020) menjelaskan bahwa keyakinan terhadap sains menjadi salah satu faktor pendukung yang mendorong masyarakat melakukan *physical distancing* (menjaga jarak fisik dengan orang lain). Selain *physical distancing*, penggunaan masker juga dapat dilihat dari bagaimana masyarakat menerima informasi ilmiah. Stosic et al. (2021), berdasarkan data dari 1.050 partisipan studinya, menemukan bahwa partisipan yang percaya terhadap sains diprediksi untuk cenderung lebih mungkin menggunakan masker. Para partisipan tersebut memiliki kepercayaan yang lebih besar terhadap efektivitas penggunaan masker dalam mengurangi penularan virus penyebab COVID-19 (SARS-CoV-2), yang pada akhirnya mendorong penggunaan masker di tempat umum. Saat pandemi COVID-19 terjadi, dikatakan bahwa komunikasi sains atau ilmu pengetahuan yang efektif sangat dibutuhkan (Van Bavel et al., 2020).

Hasil survei dari Charta Politika Indonesia juga menunjukkan bahwa 43,3% masyarakat memiliki kecenderungan untuk tidak menerima atau percaya terhadap data terkait pandemi COVID-19. Survei tersebut melibatkan 1.200 responden yang berasal dari berbagai tempat di Indonesia. (Charta Politika, 2021). Data tersebut memperlihatkan rendahnya tingkat kepercayaan masyarakat Indonesia dalam menerima informasi ilmiah yang ada.

Terdapat beberapa hal yang menghasilkan mispersepsi terhadap pandemi COVID-19 dan menyebabkan individu maupun kelompok menolak atau tidak percaya terhadap sejumlah temuan ilmiah. Druckman et al. (2021) menjelaskan bahwa mispersepsi dapat dipengaruhi dari peran ras, agama, dan politik. Kelompok minoritas tergolong lebih banyak mengalami mispersepsi tentang pandemi COVID-19. Selain itu, pada temuan studi tersebut juga ditemukan bahwa meskipun sebagian besar partisipan memahami informasi tentang

participants really did understand the information concerning the COVID-19 pandemic, misperceptions originating from religious leaders and partisan social identity were able to cause dangerous behavior when facing the pandemic. Rutjens, Heine, Sutton, and van Harreveld (2018), as well as Rutjens, Sutton, and van der Lee (2018), explained that political and religious ideology may be one of the factors encouraging an individual to reject science, although this is also dependent upon the problems being considered. The findings of other studies have stated that religiosity is one of the important factors in the rejection of various scientific theories and discoveries; examples of which are: the Theory of Evolution (Ecklund et al., 2017), the Climate Crisis Agenda (Morrison et al., 2015), and vaccination (Pelčić et al., 2016).

This article is aimed at various groups, such as the general public, scientists, and policymakers. It is hoped that general readers are able to understand the positions of science and religion in certain situations, as well as able to analyze thoroughly the differences in the responses made. A number of studies related to the development of science in the public are also required, in order to be able to create a better scientific ecosystem. Besides this, the article can become material for the formulation of accurate strategies for viewing the tendencies in public responses to science. Looking at the difficult challenges to the acceptance of science, policymakers can examine the strategies used in providing accurate and effective scientific communication. In the Indonesian context, religion has its own role in responding to the COVID-19 pandemic. Despite there being a number of religious groups which are distrustful of news related to the COVID-19 pandemic, there is also a number of other religious groups which have become partners with the government in efforts to overcome the pandemic-related problems. Thus, the general question which may be formulated in this article is: "What is the role of the belief in science amongst the Indonesian public in responding to the COVID-19 pandemic?"

## The Role of Belief in Science

The belief in science is one of the interesting beliefs to be discussed when examining human behavior. Beliefs, in certain individuals, may give

pandemi COVID-19 dengan benar, kesalahan persepsi yang bersumber dari pimpinan agama dan *partisan social identity* dapat membahayakan perilaku dalam menghadapi pandemi. Rutjens, Heine, Sutton, dan van Harreveld (2018), serta Rutjens, Sutton, dan van der Lee (2018), menjelaskan bahwa ideologi politik dan agama dapat menjadi salah satu faktor bagi individu dalam menolak ilmu pengetahuan, walaupun sistem tersebut juga tergantung pada masalah yang dipertimbangkan. Temuan studi lain menjelaskan bahwa religiusitas menjadi salah satu faktor penting dalam menolak berbagai teori dan temuan dalam sains; sebagai contoh adalah: Teori Evolusi (Ecklund et al., 2017), Agenda Krisis Iklim (Morrison et al., 2015), dan vaksinasi (Pelčić et al., 2016).

Artikel ini ditujukan pada berbagai kalangan, seperti masyarakat awam, ilmuwan, hingga pembuat kebijakan. Pembaca awam diharapkan dapat memahami posisi sains dan agama dalam kondisi tertentu, serta mampu menelaah perbedaan respon yang terjadi. Sejumlah studi terkait perkembangan sains di masyarakat juga masih sangat dibutuhkan agar dapat menciptakan ekosistem ilmiah yang lebih baik. Selain itu, artikel ini dapat menjadi bahan dalam merumuskan strategi yang tepat untuk melihat kecenderungan masyarakat dalam merespon sains. Melihat tantangan penerimaan sains yang tidak mudah, pembuat kebijakan dapat menelaah strategi yang digunakan dalam menyediakan komunikasi sains yang tepat dan efektif. Dalam konteks Indonesia sendiri, agama memiliki peran tersendiri dalam merespon pandemi COVID-19. Meski terdapat sejumlah kelompok agama yang tidak percaya dengan berita terkait pandemi COVID-19, ada juga sejumlah kelompok agama lain yang menjadi mitra pemerintah dalam mengatasi masalah sehubungan pandemi COVID-19. Dengan demikian, pertanyaan umum yang dapat dirumuskan pada artikel ini adalah: "Bagaimana peran keyakinan terhadap sains pada masyarakat Indonesia dalam merespon pandemi COVID-19?"

## Peran Keyakinan Terhadap Sains

Keyakinan terhadap sains adalah salah satu keyakinan yang menarik untuk dibahas dalam melihat perilaku manusia. Keyakinan, pada



rise to connotations which will be of influence in their lives (Heine et al., 2006). One of the beliefs held by individuals is the belief in science. Farias et al. (2013) explained that belief in science is an individual viewpoint in seeing the world epistemically, the which belief is expressed by particular methods of understanding the world. In practice, this may be seen through: (1) the ability to think analytically; (2) the ability to think rationally; and (3) the seeking after evidence, even when that conflicts with intuition.

The concept of a belief in science was first assembled by Farias et al. (2013), and has since been further developed. As a part of belief, these matters will be very important for the individual in discovering meaning, and to belonging to a specific group (Farias et al., 2013). However, basically, belief in science emphasizes the ability to look at evidence based upon objective facts (Dagnall et al., 2019).

Farias et al. (2013) developed a scale to measure belief in science, that being the Belief in Science Scale (BISS), which is a unidimensional scale of ten items. The Belief in Science Scale (BISS) is self-report form, with examples of items such as: “*We can believe rationally only in that which may be proven scientifically*”, with responses using a Likert scale (“Agree - Disagree”). With individuals who have a high level of agreement (demonstrated by achieving a high score on the Belief in Science Scale [BISS]) regarding their belief in science, one finds a number of characteristics emerging, such as: (1) the ability to think analytically; (2) the ability to think rationally; and (3) the tendency to prioritize evidence scientifically (Farias et al., 2013).

During the COVID-19 pandemic period, individuals with high degrees of belief in science have tended to choose to wear masks. These individuals believe that taking this step may increase the possibility of the prevention of the transmission of the virus (Stosic et al., 2021). Besides this, belief in science can also predict an attitude regarding vaccination and *physical distancing*, as could be seen from the behavior of individuals and of groups, during the pandemic (Bernard et al., 2021; Brzenzinski, 2020).

individu tertentu, dapat menimbulkan makna yang akan memberi pengaruh dalam kehidupannya (Heine et al., 2006). Salah satu keyakinan yang ada pada individu adalah keyakinan terhadap sains. Farias et al. (2013) menjelaskan bahwa keyakinan terhadap sains merupakan pandangan individu dalam melihat dunia secara epistemik, yang mengekspresikan kepercayaan tersebut pada metode khusus untuk memahami dunia. Dalam praktiknya, hal itu dapat terlihat dari: (1) kemampuan berpikir analitis; (2) kemampuan berpikir rasional; dan (3) pencarian bukti bahkan saat bertentangan dengan intuisi.

Konsep atas keyakinan terhadap sains pertama kali disusun oleh Farias et al. (2013) dan terus dikembangkan hingga saat ini. Sebagai bagian dari keyakinan, hal tersebut akan sangat penting bagi individu dalam menemukan makna dan berada dalam kelompok tertentu (Farias et al., 2013). Namun, pada dasarnya, keyakinan terhadap sains menekankan pada kemampuan dalam melihat bukti yang berbasis fakta objektif (Dagnall et al., 2019).

Farias et al. (2013) mengembangkan skala untuk mengukur keyakinan terhadap sains, yaitu *Belief in Science Scale (BISS)* yang merupakan skala unidimensional dengan sepuluh butir. *Belief in Science Scale (BISS)* merupakan *self-report* dengan contoh butir seperti: “*Kami hanya dapat secara rasional percaya pada apa yang dapat dibuktikan secara ilmiah*” dengan respon jawaban menggunakan skala Likert (“*Setuju*” - “*Tidak Setuju*”). Pada individu yang memiliki persetujuan yang tinggi (dengan mendapatkan skor tinggi pada *Belief in Science Scale [BISS]*) pada keyakinan terhadap sains, terdapat sejumlah karakter yang tampak seperti: (1) kemampuan berpikir analitis; (2) kemampuan berpikir rasional; dan (3) kecenderungan untuk memprioritaskan bukti secara sains (Farias et al, 2013).

Di masa pandemi COVID-19, individu dengan keyakinan terhadap sains yang tinggi, cenderung memilih untuk mengenakan masker. Individu tersebut percaya bahwa tindakan tersebut dapat meningkatkan kemungkinan pencegahan terjadinya penularan virus (Stosic et al., 2021). Selain itu, keyakinan terhadap sains juga dapat memprediksi sikap terhadap vaksinasi dan *physical distancing*, yang terlihat dari perilaku individu atau kelompok selama pandemi (Bernard et al., 2021; Brzenzinski, 2020).

Therefore, with the existence of belief in science, it was possible to develop a series of studies or interventions in response to the present situation. The acceptance of science by the public may be an important issue, because the public tend to be provoked easily by a variety of news items, the sources of which are unclear, or by false information, which eventually will muddy the situation. By an increase in the understanding or the acceptance of science, the public may be encouraged to accept the results of a process of analytical and systematic thinking, to see the truth.

### **When Religion and Science are in Opposition**

On the basis of history, the relationship between religion and science has frequently given rise to debate, in a number of circles. Indeed, even in the modern era, the relationship between the two still engenders controversy. At this time, there has emerged a number of religious groups with anti-science convictions, which have strongly reject scientific findings (Rutjens, Heine, Sutton, & van Harreveld (2018); Rutjens, Sutton, & van der Lee (2018); Rutjens et al., 2021; Rutjens et al., 2022). Preston and Epley (2009) showed that science and religion were automatically at loggerheads, to the extent that strong clarification in one domain lowers its positive evaluation of the explanations in the other, and that this conflict will always occur. Rutjens, Heine, Sutton, and van Harreveld (2018), together with Rutjens, Sutton, and van der Lee (2018), explained that, basically, people will think intuitively and simply, so that it is difficult for them to accept the results or findings of science. This is also reinforced by the tendency for scientific findings frequently to be in conflict with the beliefs of ordinary people.

In viewing the process of the acceptance of scientific information by the public, religion plays an important role, although this role has rarely been studied empirically (Rutjens, Heine, Sutton, & van Harreveld, 2018; Rutjens, Sutton, & van der Lee, 2018). A number of studies have explained that religion may have an impact on a number of matters related to the acceptance of science, such as: (1) style of thinking (Pennycook et al., 2015); (2) the motivated processing (Taber et al., 2009);

Maka dari itu, dengan adanya keyakinan terhadap sains, dapat dikembangkan sejumlah studi atau intervensi untuk merespon kondisi yang ada saat ini. Penerimaan sains di masyarakat dapat menjadi isu yang penting, karena masyarakat cenderung mudah terprovokasi dengan berbagai berita yang tidak jelas sumbernya atau informasi palsu, yang pada akhirnya memperkeruh suasana. Dengan meningkatkan pemahaman atau penerimaan sains, masyarakat diajak untuk menerima sebuah proses dari hasil berpikir yang analisis dan sistematis untuk melihat suatu kebenaran.

### **Ketika Agama dan Sains Berseberangan**

Berdasarkan sejarah, hubungan antara agama dan sains kerap menimbulkan perdebatan di berbagai kalangan. Bahkan di masa modern sekali pun, hubungan antara keduanya masih menimbulkan kontroversi. Saat ini, muncul sejumlah kelompok agama berkeyakinan anti-sains yang secara tegas menolak temuan sains (Rutjens, Heine, Sutton, & van Harreveld (2018); Rutjens, Sutton, & van der Lee (2018); Rutjens et al., 2021; Rutjens et al., 2022). Preston dan Epley (2009) menunjukkan bahwa sains dan agama secara otomatis bertentangan, sehingga paparan penjelasan yang kuat di satu domain mengurangi evaluasi positif dari penjelasan di domain lainnya; dan pertentangan tersebut akan selalu terjadi. Rutjens, Heine, Sutton, dan van Harreveld (2018), serta Rutjens, Sutton, dan van der Lee (2018), menjelaskan bahwa pada dasarnya, manusia akan berpikir secara intuitif dan sederhana, sehingga sulit bagi manusia untuk menerima hasil atau temuan sains. Hal ini juga didukung dengan kecenderungan temuan sains untuk kerap bertentangan dengan hal yang dipercaya oleh orang awam.

Dalam memandang proses penerimaan informasi ilmiah yang ada di masyarakat, agama memberikan peran penting, walaupun peran tersebut masih jarang dikaji secara empiris (Rutjens, Heine, Sutton, & van Harreveld, 2018; Rutjens, Sutton, & van der Lee, 2018). Sejumlah studi menjelaskan bahwa agama dapat memberi dampak pada beberapa hal yang berkaitan dengan penerimaan sains, seperti: (1) gaya berpikir (Pennycook et al., 2015); (2) *the motivated processing* (Taber et al.,

and (3) the low level of the knowledge of science (Allum et al., 2008). Besides this, within certain religious groups, the individual style of thinking may also play a role in the inability to accept science (Druckman et al., 2021). As an example, individuals who more easily accept nonsense information (pseudo-profound [irrational statements, made in a disordered fashion]), are individuals who are less analytical in their thinking, and are more likely to believe in the effectiveness of alternative medicine, without empirical and objective evidence (Pennycook et al., 2015).

The style of thinking can have a role in responses to scientific information, with the analytical thinking style as an example. Previous studies have found that individuals who think logically, more analytically, may possibly have a greater tendency to support the Theory of Evolution (Gervais, 2015). In religious groups, religiosity may have an important role in predicting the acceptance of, or the rejection of, science (Rutjens, Heine, Sutton, & van Harreveld, 2018; Rutjens, Sutton, & van der Lee, 2018). The reasoning supporting this possibility was explained by Evans (2011), this being that religion has offered its own routes towards a form of knowledge, so that, for a “person of faith”, what is offered by science is possibly not too attractive.

Besides this, embracing religion can become the motivated processing for an individual (Taber et al., 2009). Religion is a source of ideology, with a causal role in the formation of beliefs related to science. As a result of this, a religious person is perhaps motivated to reject the Theory of Evolution, based upon theological teachings. McPhetres and Zuckerman (2018) explained that religiosity makes an individual less interested in science, to the extent of not considering science to be important, and an attitude such as this is linked to a lower level of scientific literacy, as well as a great reduction in trust in the existing sources of scientific information. This may have an impact on the reduced level of knowledge of the individual (Allum et al., 2008), which may explain why an individual who rejects, or fails to accept, science, actually does so because of an inadequacy of basic information.

In a number of individuals having high scores regarding religious matters and dogma, there is a

2009); dan (3) kurangnya pengetahuan sains (Allum et al., 2008). Selain itu, pada kelompok agama tertentu, gaya berpikir individu juga dapat berperan dalam ketidakmampuan menerima sains (Druckman et al., 2021). Sebagai contoh, individu yang lebih mudah menerima informasi kosong (*pseudo-profound* [pernyataan tidak masuk akal yang dibuat secara acak]), merupakan individu yang kurang analitis dan lebih mungkin percaya pada kemanjuran obat alternatif tanpa basis bukti empiris dan objektif (Pennycook et al., 2015).

Gaya berpikir dapat berperan dalam merespon informasi sains, dengan gaya berpikir analitis sebagai contoh. Studi sebelumnya telah menemukan bahwa individu yang bernalar lebih analitis memiliki kemungkinan untuk cenderung mendukung Teori Evolusi (Gervais, 2015). Pada kelompok agama, religiusitas dapat berperan penting dalam memprediksi penerimaan dan penolakan sains (Rutjens, Heine, Sutton, & van Harreveld, 2018; Rutjens, Sutton, & van der Lee, 2018). Alasan atas kemungkinan tersebut dijelaskan oleh Evans (2011), bahwa agama telah menawarkan rutenya sendiri menuju suatu bentuk pengetahuan, sehingga bagi “individu beriman”, apa yang disediakan oleh sains mungkin tidak terlalu menarik.

Selain itu, memeluk agama dapat menjadi *the motivated processing* pada individu (Taber et al., 2009). Agama merupakan sumber ideologi dengan peran kausal untuk pembentukan keyakinan yang berhubungan dengan sains. Sebagai akibatnya, individu beragama mungkin termotivasi untuk menolak Teori Evolusi, berdasarkan ajaran teologis. McPhetres dan Zuckerman (2018) menjelaskan bahwa religiusitas membuat individu menjadi kurang tertarik dengan sains, sehingga menganggap sains tidak penting, dan sikap seperti itu terkait dengan tingkat literasi sains yang lebih rendah serta kurangnya kepercayaan pada sumber informasi ilmiah yang ada. Hal tersebut dapat berdampak pada kurangnya pengetahuan yang dimiliki (Allum et al., 2008), yang dapat menjelaskan bahwa individu yang menolak atau gagal menerima sains sebenarnya diakibatkan oleh kurangnya informasi dasar atas pengetahuan yang dimiliki.

Pada sejumlah individu dengan skor tinggi pada hal religiusitas dan dogma, ada kecenderungan

higher tendency to believe fake news, as compared to real news (Pennycook & Rand, 2019). In religious groups, it has been found that the level of error in understanding the COVID-19 pandemic is classified as being quite high, although the mechanism of what occurs cannot as yet be explained in detail (Druckman et al., 2021). This may be an opportunity for further studies in understanding the science in the related environment. Besides this, policymakers can pay attention to what tendencies appear, so as to provide, or to plan for, programs to control the severity of the effects caused by the development of fake news in the public sphere.

### **Can Religion and Science Coexist?**

Amidst the flare-up of statements that science and religion are on opposite sides, there is a differing opinion about this matter, that being the findings that each justifies the existence of the other (Blancke et al., 2012; Sager, 2008). Science and religion can provide answers to a number of different conditions, and fill in shortcomings of the other (Johnson, 2006). Science can show natural conditions based upon existing facts, whereas religion concerns human values and meanings, i.e., subjects which may be explained by science, but which have never been satisfactorily concluded (Gould, 2011).

Basically, both science and religion have their own explanations. Science is considered more precise or appropriate in explaining matters of the mechanisms of the human body, such as headaches or changes in body temperature (Gottlieb & Lombrozo, 2018). Science and religion also offer answers to existential questions, such as what occurs after death, or how the universe was created (Davoodi & Lombrozo, 2021). Religion explains spiritual matters, mysteries, and as-yet unanswered questions, such as: "Why is there God?" or "Why is there Hell?". The mysteries in a number of these questions may be more acceptable to a religious approach, compared with a scientific approach (Liquin et al., 2020).

In academic circles, conflict between religion and science tends not to be a substantial problem. In studies performed in academic circles, only

untuk percaya pada berita palsu, dibandingkan dengan berita yang sebenarnya (Pennycook & Rand, 2019). Pada kelompok religius, ditemukan bahwa tingkat kesalahan dalam memahami pandemi COVID-19 tergolong cukup tinggi, meski mekanisme yang terjadi belum dapat dijelaskan dengan detail (Druckman et al., 2021). Hal ini dapat menjadi peluang untuk studi lanjutan dalam memahami sains di lingkungan terkait. Selain itu, pihak pembuat kebijakan dapat memperhatikan kecenderungan yang terjadi, untuk dapat mempersiapkan atau merancang program untuk menanggulangi parahnya efek yang ditimbulkan dari berkembangnya berita palsu di masyarakat.

### **Apakah Agama dan Sains Dapat Berjalan Bersama?**

Di tengah maraknya pernyataan bahwa sains dan agama saling berseberangan, terdapat pendapat berbeda akan hal tersebut, yaitu temuan yang saling mencocokkan keberadaan agama dengan sains (Blancke et al., 2012; Sager, 2008). Sains dan agama dapat memberikan jawaban pada sejumlah kondisi yang berbeda dan saling mengisi satu sama lain (Johnson, 2006). Sains dapat memperlihatkan kondisi alam berdasarkan fakta yang ada, sedangkan agama mencakup nilai serta makna dari manusia, yaitu subjek yang dapat dijelaskan sains namun tidak pernah terselesaikan (Gould, 2011).

Baik agama maupun sains pada dasarnya memiliki penjelasan masing-masing. Sains dianggap lebih tepat untuk menjelaskan hal mekanisme dalam tubuh manusia, seperti sakit kepala atau perubahan suhu tubuh (Gottlieb & Lombrozo, 2018). Sains dan agama juga menawarkan jawaban atas pertanyaan eksistensial, seperti apa yang terjadi setelah kematian atau bagaimana alam semesta tercipta (Davoodi & Lombrozo, 2021). Agama menjelaskan hal spiritual, misteri, dan pertanyaan yang belum terpecahkan, seperti: "*Mengapa Tuhan ada?*" atau "*Mengapa ada Neraka?*". Misteri yang ada dalam sejumlah pertanyaan tersebut dapat lebih diterima dengan pendekatan agama dibanding dengan pendekatan sains (Liquin et al., 2020).

Di kalangan akademis, konflik antara agama dan sains cenderung tidak menjadi masalah yang substansial. Dalam studi yang dilakukan di



around 36% of the total participants considered spiritual matters to be something of importance (Ecklund & Park, 2009). This was because of secular attitudes in academic circles, which tend to be more evident than in the general population. These studies were conducted in 21 research units of elite universities in the United States of America, with a participant number of 1,646 individuals (Ecklund & Park, 2009). Despite this, this fact does not preclude the possibility of an academic or a researcher being a religious figure. Scientists often experience impasses in understanding their findings, and this provides room to believe in spiritual or religious matters (Collins, 2006).

Individuals can accept science and religion in succession. This is influenced by the cultural assimilation received in childhood. In more heterogeneous cultures, particularly, individuals tend to be able to accept existing differences (Legare et al., 2012). Besides this, such cognitive flexibility as is possessed also has an important role. An individual may see death, illness, and the origin of the species from a scientific viewpoint. However, the same individual may also see this as a spiritual thing, such as by believing that the spirit remains alive, and exists after death (Legare et al., 2012). More than that, the ability of individuals to view something outside of logic often develops along with age (Evans, 2000; Legare et al., 2012). These thinking processes are also influenced by factors of personality and local culture (D'Andrade, 2008).

Other studies have explained that, within religious groups, the roles of leaders may have strong influences on their religious adherents. Religious leaders may come forward and take active roles in disseminating accurate information (Barua et al., 2000). Recalling this, religious traditions should be able to be reformulated, in line with current scientific developments (Fitria & Giffari, 2021). In the Indonesian context, it is important to look at a variety of matters which may assist the understanding of the space between science and religion.

In Indonesia, the role of religion in responses to the COVID-19 pandemic is worthy of receiving close attention. As a country, the majority of whose

lingkungan akademik, hanya sekitar 36% dari total partisipan yang menganggap hal spiritual sebagai sesuatu yang penting (Ecklund & Park, 2009). Hal tersebut disebabkan oleh sikap sekuler dari lingkungan akademis yang cenderung lebih tinggi dibandingkan dengan populasi orang awam. Studi tersebut dilakukan pada 21 unit riset universitas elit di Amerika Serikat, dengan total partisipan sebanyak 1.646 individu (Ecklund & Park, 2009). Walaupun demikian, hal tersebut tidak menutup kemungkinan bahwa seorang akademisi ataupun peneliti dapat menjadi sosok yang religius. Para ilmuwan sering mengalami kebuntuan dalam memahami temuannya, dan hal ini memberi ruang untuk percaya pada ruang spiritual hingga religius (Collins, 2006).

Individu dapat menerima sains dan agama secara beriringan. Hal tersebut dipengaruhi oleh asimilasi budaya yang diterima saat kanak-kanak. Pada budaya yang lebih heterogen, secara khusus, individu cenderung dapat menerima perbedaan yang ada (Legare et al., 2012). Selain itu, fleksibilitas kognitif yang dimiliki juga berperan penting. Individu dapat melihat kematian, penyakit, dan asal-usul spesies dari sudut pandang ilmiah. Namun, individu tersebut juga dapat melihatnya secara spiritual, seperti mempercayai bahwa jiwa tetap hidup dan tetap ada setelah kematian (Legare et al., 2012). Lebih dari itu, kemampuan individu dalam melihat sesuatu hal dengan aspek di luar nalar kerap berkembang seiring bertambahnya usia (Evans, 2000; Legare et al., 2012). Proses berpikir tersebut juga dipengaruhi oleh faktor kepribadian dan budaya setempat (D'Andrade, 2008).

Studi lain menjelaskan bahwa dalam kelompok agama, peran pemimpin dapat memberikan pengaruh yang kuat pada pemeluk agama tersebut. Pemimpin agama dapat maju dan berperan aktif dalam menyebarkan informasi yang tepat (Barua et al., 2020). Mengingat hal tersebut, maka tradisi keagamaan sudah semestinya dapat dirumuskan kembali dalam perkembangan ilmu pengetahuan saat ini (Fitria & Giffari, 2021). Dalam konteks Indonesia, penting untuk melihat berbagai hal yang dapat membantu pemahaman ruang antara sains dan agama.

Di Indonesia, peran agama dalam merespon pandemi COVID-19 patut mendapat perhatian penting. Sebagai negara dengan mayoritas

population is Muslim, the role of religion certainly has an influence in responses to various situations, including that of experiencing a pandemic. Susanty (2020) proposed the idea that the religious understandings of the Indonesian society have frequently caused opposition to prevention protocols, during the time of the COVID-19 pandemic. The role of religion during the pandemic has influenced certain behaviors in the public. Buana (2020) explained that a portion of Indonesian society tends to believe that prayer may save them from the COVID-19 pandemic, and that the SARS-CoV-2 virus was accepted as one of the creations of God, so there was no need for fear. As seen from these two matters, the role of religion obviously has quite a strong influence in Indonesia.

Religion and science are frequently considered as two complementary things (Brooke, 2018). Strassberg (2015) explained that religion and science are two matters may exist side-by-side, as parts of the components of the culture in society. Science and religion offer answers to existential questions, and each has explanations; however in science more answers are needed, whilst religion tends to be more accepting of the mysteries behind everything (Liquin et al., 2020).

In the Indonesian context, Hudiyan et al. (2019) has explained that scientific thinking is not opposed to religion, but is opposed to religious fundamentalism. This finding may be related to the explanations of Falade (2019), who found that, in the development of science, the authoritarian effects of religion and politics are often obstacles. In other words, embracing religion does not encourage a person to become anti-science; however fundamentalism and the authoritarian effects of religion are factors in this tendency. Therefore, the generalization, or assumption, that religion makes a person become anti-science, may be dropped.

The views about fundamentalism and the authoritarian effects of religion may assist the understanding of the situation, when a number of religious groups in Indonesia have engaged in activities which contravened health protocols. An example of this is the religious group which engaged in activities in Gowa, South Sulawesi, and religious agendas in Ruteng, East Nusa Tenggara. These two

penduduk beragama Islam, peran agama tentu memiliki pengaruh dalam merespon berbagai situasi, termasuk ketika masa pandemi. Susanty (2020) mengemukakan bahwa pemahaman agama di masyarakat Indonesia kerap berlawanan dengan protokol pencegahan saat pandemi COVID-19. Peran agama dalam masa pandemi mempengaruhi perilaku tertentu dalam masyarakat. Buana (2020) menjelaskan bahwa sebagian masyarakat Indonesia cenderung percaya bahwa doa dapat menyelamatkan diri dari pandemi COVID-19 dan virus SARS-CoV-2 dianggap bagian dari ciptaan Tuhan sehingga tidak perlu ditakuti. Ditinjau dari dua hal tersebut, peran agama tampak memberi pengaruh yang cukup kuat di Indonesia.

Agama dan sains kerap dianggap sebagai dua hal yang saling melengkapi (Brooke, 2018). Strassberg (2015) menjelaskan bahwa keberadaan agama dan sains sebagai sesuatu yang dapat hidup berdampingan sebagai bagian dari komponen budaya di masyarakat. Sains dan agama menawarkan jawaban atas pertanyaan eksistensial, dan masing-masing memiliki penjelasan; namun pada sains dibutuhkan lebih banyak jawaban sedangkan agama lebih menerima misteri di balik semuanya (Liquin et al., 2020).

Dalam konteks Indonesia, Hudiyan et al. (2019) menjelaskan bahwa pemikiran secara sains tidak berseberangan dengan agama, namun berseberangan dengan fundamentalisme agama. Temuan tersebut dapat dikaitkan dengan penjelasan Falade (2019) yang menemukan bahwa dalam perkembangan sains, efek otoritas agama dan politik kerap menjadi penghambat. Dengan kata lain, memeluk agama tidak mendorong seseorang menjadi anti-sains; namun fundamentalisme dan efek otoritas agama adalah faktor dengan kecenderungan tersebut. Maka dari itu, generalisasi atau asumsi bahwa agama membuat seseorang menjadi anti-sains dapat ditanggalkan.

Pandangan tentang fundamentalisme dan efek otoritas agama dapat membantu pemahaman situasi ketika sejumlah kelompok agama di Indonesia melakukan kegiatan yang melanggar protokol kesehatan. Sebagai contoh adalah kelompok agama yang melangsungkan kegiatan di Gowa, Sulawesi Selatan dan acara keagamaan di Ruteng, Nusa Tenggara Timur (NTT). Kedua kegiatan tersebut

activities took place in March, 2020. The activity committee in Gowa chose to continue to conduct its activity, although advice against gathering together in large numbers had been given, and the participants who attended numbered thousands, coming from various places. Whilst in Ruteng, the religious activities were attended by a congregation of around 1,000 (British Broadcasting Corporation [BBC] News Indonesia, 2020). The authors are hopeful that, through this article, behaviors which contravene health protocols are not understood to mean that “it is religion which encourages people to ignore the rules or be ignorant”.

For the members of fundamentalist religious groups, information coming from important people in their groups will quickly be accepted, without any effort at analysis, nor at analytical thinking (Buana, 2020). This is particularly when the information given by those leaders is different to what should have been conveyed. A number of findings have proven that information from religious leaders may have a greater influence (Barua et al., 2020; Washburn & Skitka, 2018). Lowicki et al. (2022) explained that religion is not actually in conflict with science and scientific explanations regarding extraordinary matters, such as the pandemic, however in groups with a high level of religious fundamentalism and dogmatism, individuals may more easily believe in conspiracy theories, and display poor conduct throughout the pandemic. This may occur at both the individual and the group levels.

Despite this being the case, the handling of the pandemic in Indonesia has created the opportunity to provide room for religious activists to become involved in carrying out more planned pandemic mitigation activities. In Indonesia, there are what are known as *organisasi masyarakat (ormas; societal organizations)* which are regulated under the constitution and the legal system, particularly in *Pasal 28 Undang-Undang Dasar 1945* (Article 28 of the 1945 Constitution; Herdiansah, 2016). In the religious field, there are several societal organizations widely known in Indonesia, such as the *Nahdlatul Ulama (NU)* and *Muhammadiyah*. These societal organizations have a role in providing influence to raise the level of knowledge in their groups, regarding the situation, in the midst of a pandemic (Muhtada, 2020).

berlangsung pada Maret 2020. Panitia kegiatan di Gowa memilih untuk tetap melanjutkan kegiatan meski anjuran untuk tidak berkumpul dalam jumlah besar telah disampaikan, dan peserta yang hadir mencapai ribuan jamaah yang berasal dari berbagai tempat. Sedangkan di Ruteng, kegiatan keagamaan tersebut dihadiri oleh sekitar 1.000 jemaat (British Broadcasting Corporation [BBC] News Indonesia, 2020). Melalui artikel ini, penulis berharap bahwa perilaku yang melanggar protokol kesehatan tidak dimaknai sebagai “agamalah yang mendorong orang untuk abai”.

Bagi kelompok fundamentalis agama, informasi dari pihak penting di kelompoknya akan diterima dengan cepat, tanpa usaha untuk menelaah dan berpikir secara analitis terhadap informasi yang ada (Buana, 2020). Terlebih lagi apabila pemimpin kelompok tersebut memberikan pandangan yang berbeda dari semestinya. Sejumlah temuan membuktikan bahwa pesan dari pemimpin agama akan berpengaruh lebih kuat (Barua et al., 2020; Washburn & Skitka, 2018). Lowicki et al. (2022) menjelaskan bahwa agama sebenarnya tidak bertentangan dengan sains dan penjelasan ilmiah tentang peristiwa luar biasa seperti pandemi, namun pada kelompok dengan tingkat fundamentalisme dan dogmatisme agama yang tinggi, individu dapat lebih percaya pada teori konspirasi dan melakukan perilaku buruk selama pandemi. Hal tersebut dapat terjadi dalam tingkat individu maupun kelompok.

Walaupun demikian, penanganan pandemi di Indonesia berpeluang untuk memberi ruang bagi pelaku agama untuk ikut terlibat melakukan mitigasi pandemi yang lebih terencana. Di Indonesia, ada dikenal konsep organisasi masyarakat (*ormas*) yang diatur dalam konstitusi dan sistem perundang-undangan, khususnya melalui Pasal 28 Undang-Undang Dasar 1945 (Herdiansah, 2016). Di bidang keagamaan, terdapat sejumlah organisasi masyarakat (*ormas*) yang dikenal luas di Indonesia, seperti *Nahdlatul Ulama (NU)* dan *Muhammadiyah*. Organisasi masyarakat (*ormas*) tersebut memiliki peran dalam memberikan pengaruh guna meningkatkan pengetahuan kelompoknya terhadap situasi di tengah pandemi (Muhtada, 2020).

Aside from the strength of religious societal organizations, the role of *ulama* (Islamic religious scholars) can be to support the dissemination of more accurate and trusted information. Zahratunnisa (2020) explained that the *ulama* can make a positive contribution to disrupting the chain of the COVID-19 pandemic in Indonesia. This finding was supported by another study (Barua et al., 2020), which found that the role of religious leaders can have important influence on the public. Leaders may provide guiding recommendations and become exemplars for their followers. However, it should be understood that a number of fundamentalist groups should become the subjects of attention, because, according to a previous study (Łowicki et al., 2022), it has been made clear that fundamentalist religious groups may have the opportunity to recommend the flouting of health protocols. Related to the handling of fundamentalist religious groups, further study is required, in order to be able to make significant changes.

Religion and science are not completely in opposite corners in responding to the situation which is occurring during the COVID-19 pandemic in Indonesia, and each of them has its own place in explaining the problems which have occurred. Jackson et al. (2021) found that religion does not always hinder people in accepting the existing science. Nonetheless, a number of non-religious people often have that preconception. In the end, religion and science will continue to experience changes under each other's influence, with the social and cultural factors which have developed together, throughout the history of the journey of mankind towards democratization (Strassberg, 2005).

## Conclusions and Implications

Religion and science have important roles in confronting the COVID-19 pandemic in Indonesia. The belief of the public in religion may be one of the factors in the supporting of the control of the COVID-19 pandemic, particularly if related to scientific findings. The role of science has been to give new possibilities for the civilization of mankind to develop further, in various eras. The acceptance by the public of science provides the opportunity for the creation of a far better life, and the ability to avoid negative occurrences, which may be predicted before they occur. Unfortunately,

Selain kekuatan organisasi masyarakat (ormas) agama, peran ulama juga dapat mendukung penyebaran informasi yang lebih akurat dan terpercaya. Zahratunnisa (2020) menjelaskan bahwa ulama memiliki kontribusi positif dalam memutus rantai pandemi COVID-19 di Indonesia. Temuan tersebut didukung studi (Barua et al., 2020), bahwa peran pemimpin agama dapat memberikan pengaruh penting terhadap masyarakat. Pemimpin dapat memberikan anjuran yang mengarahkan dan menjadi teladan bagi pengikutnya. Akan tetapi, perlu dipahami bahwa sejumlah kelompok fundamentalis agama juga patut mendapat perhatian, karena berdasarkan studi sebelumnya (Łowicki et al., 2022), dijelaskan bahwa kelompok fundamentalis agama memiliki peluang dalam mengabaikan berbagai protokol kesehatan. Terkait penanganan kelompok fundamentalis agama, dibutuhkan studi lebih lanjut agar dapat secara signifikan memberi perubahan.

Agama dan sains tidak berseberangan dalam merespon situasi yang terjadi selama pandemi COVID-19 di Indonesia, dan keduanya memiliki porsi masing-masing dalam memberikan penjelasan atas permasalahan yang terjadi. Jackson et al. (2021) menemukan bahwa agama tidak selamanya menghambat individu dalam menerima sains yang ada. Namun, sejumlah individu yang non-religius kerap memiliki prasangka tersebut. Pada akhirnya, agama dan sains akan terus mengalami perubahan di bawah pengaruh satu sama lain, dengan faktor sosial dan budaya yang berkembang bersama keduanya sepanjang sejarah umat manusia ke arah demokratisasi (Strassberg, 2005).

## Simpulan dan Implikasi

Agama dan sains memiliki peran penting dalam menghadapi pandemi COVID-19 di Indonesia. Kepercayaan masyarakat terhadap agama dapat menjadi salah satu faktor dalam mendukung penanggulangan pandemi COVID-19, terlebih lagi jika dihubungkan dengan temuan sains. Peran sains atau ilmu pengetahuan memberikan kemungkinan baru bagi peradaban manusia untuk menjadi lebih berkembang di berbagai masa. Penerimaan masyarakat terhadap sains berpeluang menciptakan kehidupan yang jauh lebih baik dan kemampuan untuk menghindar dari hal buruk yang sebelumnya



a number of findings have shown that rejection of scientific findings frequently occurs. The role of the religion of individuals may become an interesting study in the future, for further research and comprehension.

In Indonesia itself, a number of problems, such as the pandemic and the climate crisis, may have a catastrophic ending, if scientific findings are ignored. Ideal conditions will be difficult to be realized, if a belief in science cannot be developed in society. Policymakers might also pay more attention to the role of religion in solving problems. In the future, the problem of belief in science will be very important to an increase in the more serious understanding of such situations. The authors are hopeful that this article may become creator of awareness regarding the importance of belief in science. Therefore, it is hoped that policies supporting belief in science may be formulated, and studies related to belief in science may increasingly be developed.

In this article, a number of findings refer to studies conducted outside of Indonesia, so there is the possibility that cultural bias is apparent. McPhetres et al. (2021) suggested that the belief in religion in the United States of America appears to be in conflict with science, but that was not valid in other countries. Therefore, it seems that future studies are important, to know a number of factors related to the acceptance or rejection of science, such as the culture of political ideology (McCright & Dunlap, 2011), personality (D'Andrade, 2008), and way of thinking (Druckman et al., 2021). In Indonesia, political ideology may be measured using the *Skala Ideologi Politik Indonesia* (Indonesian Political Ideology Scale; Muluk et al., 2019).

The implications from this article are not limited merely to the COVID-19 pandemic, but also touch on a number of other crucial problems, such as climate change (Kahan et al., 2012), evolution ((Rutjens, Heine, Sutton, & van Harreveld, 2018; Rutjens, Sutton, & van der Lee, 2018), and vaccination (Joslyn & Sylvester, 2019). Besides these, the component of political ideology also needs examination in its response to the existence of science. As an example, Guess et al. (2019) explained that members of conservative circles (conservative political ideology), particularly those

dapat diprediksi. Sayangnya, sejumlah temuan memperlihatkan bahwa penolakan atas temuan dari sains masih kerap terjadi. Peran agama yang dimiliki dapat menjadi kajian menarik di masa depan untuk diteliti dan dipahami lebih lanjut.

Di Indonesia sendiri, sejumlah masalah seperti pandemi hingga krisis iklim dapat berujung malapetaka saat temuan ilmiah diabaikan. Kondisi ideal akan sulit terwujud saat keyakinan terhadap sains tidak dapat dikembangkan di tengah masyarakat. Pembuat kebijakan juga dapat memberikan perhatian lebih terhadap peran agama dalam memutuskan perkara. Di masa depan, masalah keyakinan terhadap sains akan menjadi sangat penting untuk meningkatkan pemahaman atas kondisi tersebut secara lebih serius. Penulis berharap artikel ini menjadi pembuka kesadaran akan pentingnya keyakinan terhadap sains. Maka dari itu, diharapkan bahwa kebijakan yang mendorong keyakinan terhadap sains dapat dirumuskan dan studi terkait keyakinan terhadap sains dapat semakin berkembang.

Dalam artikel ini, sejumlah temuan merujuk pada studi di luar Indonesia, sehingga kemungkinan bias budaya dapat tampak secara nyata. McPhetres et al. (2021) mengemukakan bahwa keyakinan agama di Amerika Serikat tampak bertentangan dengan sains, namun hal itu tidak berlaku di negara lain. Maka dari itu, studi di masa depan adalah penting, agar dapat mengetahui sejumlah faktor terkait penerimaan atau penolakan sains, seperti budaya atas ideologi politik (McCright & Dunlap, 2011), kepribadian (D'Andrade, 2008), dan gaya berpikir (Druckman et al., 2021). Di Indonesia, ideologi politik dapat diukur dengan menggunakan Skala Ideologi Politik Indonesia (Muluk et al., 2019).

Implikasi tulisan ini tidak hanya terbatas pada pandemi COVID-19, namun juga menyentuh sejumlah masalah krusial lainnya seperti perubahan iklim (Kahan et al., 2012), evolusi (Rutjens, Heine, Sutton, & van Harreveld, 2018; Rutjens, Sutton, & van der Lee, 2018), dan vaksinasi (Joslyn & Sylvester, 2019). Selain itu, komponen ideologi politik juga perlu ditinjau dalam merespon keberadaan sains. Sebagai contoh, Guess et al. (2019) menjelaskan bahwa kalangan konservatif (ideologi politik konservatif) lebih mudah menerima informasi palsu, khususnya bagi yang

aged over 65 years, more easily accept false information, as compared to those in liberal circles. In the future, there is a great possibility that Indonesia will face various issues outside of the issue of a pandemic. It is important that a response to a situation which requires a scientific viewpoint is put forward, even though obstacles to such matters are sometimes ignored, so that the information requiring to be conveyed is eventually obfuscated by the false information circulating.

By looking at the various factors in support of, or in repudiation of, science, beneficial scientific findings may be developed and studied in depth, in order to form policies based upon science. Actualizing these matters in Indonesia can certainly provide hope of seeing a better situation in the future. As to the three recommendations which the authors can make, these are related to: (1) the general public; (2) the scientists (researchers); and (3) the policymakers in the religious sector and in the educational sector.

Firstly, the general public need to realize that there are many ways for religion and science to be able to synergize with one another, and that it is paramount. The differences that arise are not to be disputed. These differences need to be addressed wisely in order to gain a better and complete understanding.

Secondly, the scientists (researchers) can disseminate scientific information using the various media available. Examples of these are social media or webpages containing easily digestible scientific writings, so that the public may read and become aware of developments in science. A simple poster is presented in the Appendix as an example. When the public is familiar with scientific information, this will produce more sensitivity in responses from the public, related to the acceptance of science.

Thirdly, the policymakers in the educational sector need to increase the level of understanding related to science, in circles from schools through to universities, by supporting an increase of interest in research, and by bringing scientific culture to the fore. This may become an important part of an increase in the understanding of science by the public. The policymakers in the religious sector

berusia di atas 65 tahun, dibandingkan kalangan liberal. Di masa mendatang, besar kemungkinan bahwa Indonesia akan menghadapi berbagai isu di luar isu pandemi. Respon terhadap situasi yang membutuhkan pandangan sains penting untuk dikedepankan, walaupun tantangan akan hal tersebut terkadang diabaikan, sehingga informasi yang semestinya tersampaikan pada akhirnya tertutupi dengan informasi palsu yang beredar.

Dengan melihat berbagai faktor dalam dukungan atau penolakan sains yang ada, temuan ilmiah yang bermanfaat dapat dikembangkan dan dipelajari secara mendalam, agar berwujud pada kebijakan berbasis sains. Mewujudkan hal tersebut di Indonesia tentu dapat memberikan harapan untuk melihat situasi yang lebih baik di masa depan. Adapun tiga rekomendasi yang dapat penulis berikan, yaitu sehubungan dengan: (1) masyarakat awam; (2) para ilmuwan (peneliti); dan (3) pembuat kebijakan di sektor pendidikan dan sektor agama.

Pertama, masyarakat awam perlu menyadari bahwa ada banyak cara agar agama dan sains dapat saling bersinergi, dan bahwa hal tersebut merupakan hal yang penting. Perbedaan yang muncul tidak perlu dipermasalahkan. Perbedaan itu perlu disikapi dengan bijak demi memperoleh pemahaman yang lebih baik dan utuh.

Kedua, para ilmuwan (peneliti) dapat menyebarkan informasi sains dengan menggunakan berbagai medium yang tersedia saat ini. Sebagai contoh adalah dengan media sosial atau laman *web* yang memuat tulisan ilmiah yang mudah dicerna, sehingga masyarakat dapat membaca dan mengetahui perkembangan sains yang ada. Sebuah poster sederhana disajikan pada Lampiran sebagai contoh. Saat masyarakat terbiasa dengan informasi ilmiah, hal ini akan menghasilkan kepekaan yang lebih pada respon masyarakat terhadap penerimaan sains.

Ketiga, pembuat kebijakan di sektor pendidikan perlu meningkatkan pemahaman terkait sains di lingkungan sekolah hingga universitas, dengan mendorong peningkatan minat terhadap riset dan mengedepankan budaya ilmiah. Hal ini dapat menjadi bagian penting untuk meningkatkan pemahaman atas peran sains di masyarakat. Pembuat kebijakan di sektor agama perlu

need to deliver explanatory understanding related to the connectedness of science and religion. A number of sensitive matters can be avoided, by there being communication related to the explanation of scientific findings delivered by religious leaders or other trusted related parties.

Lastly, this article alludes to very important but also sensitive issues, because of its relationship to the division between religion and science. Therefore, the article carries the possibility of causing offence, or not being acceptable to certain groups. The authors wish to stress that the article is not directed at the marginalization of religion, or of certain religious groups, or of supporting secularism. The authors have striven only to explain the way religion and science can synergize with one another, and that religion may not be generalized as a supportive factor for anti-science sentiments.

memberikan pemahaman yang menjelaskan terkait dengan keterhubungan antara agama dan sains. Sejumlah hal sensitif dapat dihindarkan dengan adanya komunikasi atas penjelasan temuan ilmiah yang dijabarkan oleh pimpinan agama atau pihak terkait yang dipercaya.

Terakhir, artikel ini menyinggung isu yang sangat penting namun juga sensitif karena berkaitan dengan perpotongan antara agama dan sains. Maka dari itu, artikel ini memiliki kemungkinan menyinggung atau tidak dapat diterima oleh kelompok tertentu. Penulis ingin menegaskan bahwa artikel ini tidak ditujukan untuk mengesampingkan agama atau kelompok agama tertentu, atau mendorong sekularisme. Penulis hanya berupaya menjelaskan cara agama dan sains dapat saling bersinergi dan bahwa agama tidak dapat digeneralisasikan sebagai faktor pendorong sentimen anti-sains.

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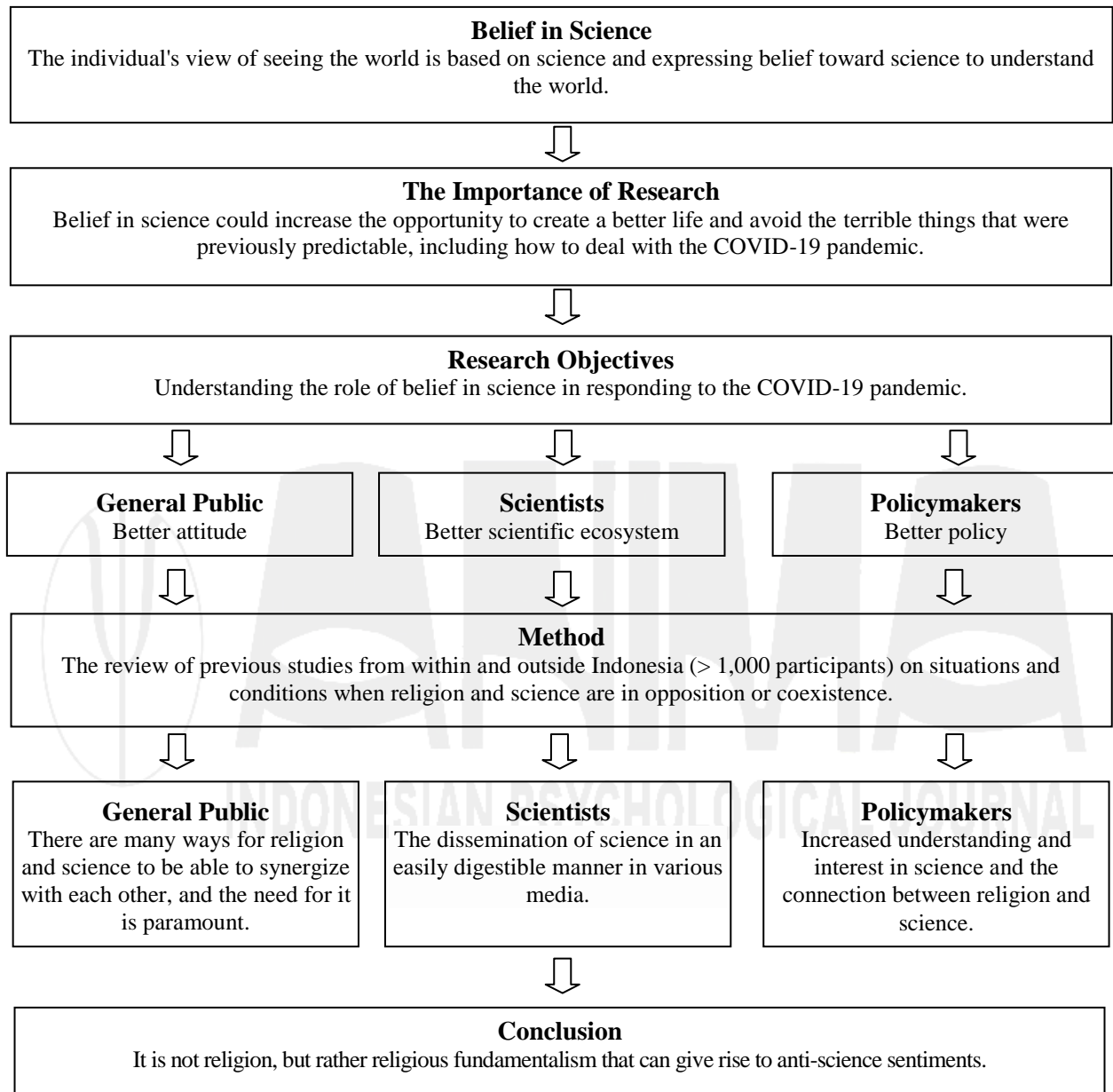
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## Appendix

### Example of Scientific Poster





## Lampiran

### Contoh Poster Ilmiah

