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Rampant pork products are flooding Indonesia, how can the cleric council explain?: A medical quantum review

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Abstract--Rampant pork products are flooding Indonesia. Product needs that are considered urgent: vaccines, insulin, gelatin, and materials needed for accessories in the form of various beauty products. The daily necessities; toothbrush, toothpaste, bag, shoes, etc. All these needs can now be made from pork. In fact, according to Islamic jurisprudence pork is forbidden. How does the Indonesian Cleric Council explain this prohibition scientifically? This article reveals the logic of modern science through a medical quantum review. The Scientific's references, showing the medical sciences grown up from Newton's paradigm that physical and non-physical are absolutely different. Since the discovery of DNA by Crick-Watson, the medical paradigm uses Einstein's paradigm relativism. It relates to the formula of $E \approx mc^2$, physical and non-physical are equivalent. In medical terms, non-physical denote personality. Based on the induction of law of Energy, an object can induce another. Related to pig, induction occurs from pig to human causes humans have the personality that resembles a pig that are easy to stress, greedy, lazy, living in dirt environment, eating a dirt food, and live carelessly. Hence, it is reasonable that Islam forbids humans to consume pigs.

Keywords---pig is forbidden, non-physical aspect, personality, induction.

Introduction

Scattered information circulating on social media, that rampant pork products are flooding Indonesia. Product needs that are considered urgent: vaccines, insulin, gelatin, and materials needed for accessories in the form of various beauty products. The daily necessities; toothbrush, toothpaste, bag, shoes, etc. All these needs can now be made from pork. In fact, according to Islamic jurisprudence pork is forbidden. How does the Indonesian Cleric Council explain this prohibition scientifically?

The reference follows this format: Author, Title (*italic*), Place, Publisher, Date. E.g.: (1) Footnote: John R. Bowen, *Muslims through Discourse: Religion and Ritual in Gayo Society* (Princeton: Princeton University Press, 1993), p. 25. (2) Bibliography: Bowen, John R. *Muslims through Discourse: Religion and Ritual in Gayo Society*. Princeton: Princeton University Press, 1993. This article reveals the logic of modern science through a medical quantum review. The Scientific's references, showing the medical sciences grown up from Newton's paradigm that physical and non-physical are absolutely different. Since the discovery of DNA by Crick-Watson, the medical paradigm uses Einstein's paradigm relativism. It relates to the formula of $E \approx mc^2$, physical and non-physical are equivalent. In medical terms, non-physical denote personality. Based on the induction of law of Energy, an object can induce another. Related to pig, induction occurs from pig to human causes humans have the personality that resembles a pig that are easy to stress, greedy, lazy, living in dirt environment, eating a dirt food, and live carelessly. Hence, it is reasonable that Islam forbids humans to consume pigs.

Pig is banned from Muslims. Meanwhile, the reason for forbidding something just only viewed from the physical aspect. Just a few studies correlated with the non-physical aspect, including the ban on pigs. Pork as forbidden consumed food to Muslims has unclear explanation from the non-physical reasoning. This study investigated the non-physical side of the pig banning following rule on Islam. Newton's paradigm says that physical and non-physical are absolutely different. Since the discovery of DNA by Crick-Watson, the medical paradigm shifted into the fittest paradigm refer to Einstein's paradigm, $E \approx mc^2$, which is physical and non-physical are equivalent. In the medical world, non-physical matter denotes personality. As this new paradigm on the medical world, the pig forbidding needs to be stated to non-physical also, not only the physical aspect. Explaining that non-physical means $E = \text{energy}$ in Einstein's formulas. Energy has a different law than physical things. Laws that are valid for energy are reflection, interference, resonance, deviation, absorption, and induction. From the induction side, it is recognized that one object with another object induces one another. In the case of living things, induction occurs between one personality with another. In the case of pigs, induction is derived from the personality of pigs to humans.

Pig is forbidden to Muslims

Nutrition for humans primarily comes from what they consume. Islam as the second-largest religion in the world has struggled with the prominence of the acceptability of the food to be consumed. There is a priory rule on all properties, including food, divided as permissibility (being *halal*) and purity (*taharah*), unless there is proof in the Qur'an and Sunnah that forbids them. The legal proverb for this boundary is *al-aslfi al-ashya'al-ibahah ma lam yarid dalil al-tahrim*, upon which the common of scholars coincide. Referring to the 'legal proverb' before, that means nothing is unlawful unless specifically prohibited by Qur'an or the folklore (*hadith*) over a clear script (*nass*).

Starting from this universal rule, food as a primary nutrition source for humans is considered to be permissible (*halal*) unless they are specified, or their ban is clearly elucidated in Qur'an. There is a commandment called *shari'ah* (a path to be followed) in Islam. The meaning of *shari'ah* shows that Islam has to protect humans from not only spiritual things but also physical. *Shari'ah* bearing rules and command such as prayer (*shalah*), poor-due (*zakah*), fasting (*sawm*), pilgrimage (*hajj*), ritual cleanliness, sex and work habits, the organization of environment and foods and drinks, can be viewed as a form of preventive medicine. The allowed things on Islam based on goodness (*tayyib*) as Allah (s.w.t) says:

- "O you who believe! forbid not (yourselves) the good things which Allah hath made lawful for you and transgress not. Surely Allah loved not the transgressors."
- "O you who believe! Eat of the good things wherewith We have supplied you, and render thanks to Allah if you are (indeed) His worshippers."

He again declares:

"Say: Who hath forbidden the beautiful (gifts) of Allah, which He hath produced for His servants, and the things, clean and pure (which He has provided) for sustenance? say they are, in the life of this world, for those who believe, (and) purely for them on the Day of judgment. Thus, do We explain the Signs in detail for those who understand." "Say: The things that my Lord has indeed forbidden are: Shameful deeds, whether open or secret; sins and trespasses against truth or reason; assigning of partners to Allah for which He has given no authority; and saying things about Allah of which you have no knowledge."

In *Al-tayyibat*, a word that derived from *taba*, means good, pleasant, delightful, delicious, sweet, pure and clean, Allah (s.w.t) commands His prophet Muhammad (s.a.w) that: "Say: I do not find in what is revealed to me, anything forbidden to one who eats of it unless it be dead meat, or blood poured forth or the flesh of swine, -for it is impious, (meat) on which a name has been invoked, other than Allah's." But (even so), if a person is forced by necessity, without wilful disobedience, nor transgressing due limits, -Thy Lord is forgiving, Most Merciful. He has forbidden you only to eat dead meat, and blood, and the flesh of swine, and that on which any other name hath been invoked besides that of Allah. The effects of consuming the prohibited foods and drinks are not only being injurious

- An individual wild pig's mood or momentary temperament can generally be determined by their physical posture or gait at any particular time

Other research has been found the natural behaviour (activity and feeding) of pigs:

- Activity pattern: Pigs are frequently seen to use trees for rubbing and wallows for rolling in. These behaviors keep the skin in good condition and help to remove parasites. Wallowing also serves to cool the animals during hot temperatures. Pigs lack sweat glands, apart from on the disc of their snout. Intensively kept pigs sometimes have to resort to wallowing in their own dung and urine when they need to cool down. Pigs like to keep in physical contact with each other. During sleep and rest, they are frequently all seen lying together. This huddling serves to reduce heat loss. During periods of activity, most of the time is spent looking for food.
- Feeding: Pigs are omnivorous opportunists and will eat almost anything. The food they eat is usually highly varied, high in fibre, and takes a long time to find and consume. Most foraging is directed to objects at ground level which is investigated by sniffing, rooting, and chewing before finally being eaten. Pigs also eat a large range of vertebrates including frogs, snakes, turtles, the young and eggs of ground-nesting birds, and have been known to prey on small rodents

Newton's paradigm to Medical Quantum: Shifting Paradigm

Science has great and rapid grown since the first philosophers Thales (624-546 BC), Anaximander (610-540 BC), Heraklitos (540-480 BC), Parmenides (515-440 BC), and Pythagoras (580-500 BC). In the beginning, right before the philosophers, science term used as knowledge from public figures (e.g. village chief, tribal chief, religious leader, and philosopher itself). Science was proposed as scripture. Nicolaus Copernicus (1473 – 1543) has proposed displacement of earth from the center of the universe regarding previous scripture that was born in Rome, the '*geocentric*' - '*earth as the center of the solar system*'. His proposal was followed by Johannes Kepler (1571-1630) with his theory of '*equal area*' and Galileo Galilei (1564-1642) with his '*heliocentric*' theory.

These empirical things in their evolutions create a great conflict with religions. Francis Bacon (1561 – 1626) then separate between them; church apart from the science; science is empirical' religion can deliberate metaphysically. Promote to a new era, the church become acknowledging '*dogma*' as the statement that should be acknowledged even if opposed to science. Mathematical approach used by René Descartes (1596- 1650) to endorse deterministic mindset; as the causative agent clearly known, we can predict everything undoubtedly. Physical and non-physical are diverse, from Newton's paradigm. Sir Isaac Newton (1643 – 1727) formulated as $E \neq m$, giving paradigm of absolutism. Entering another era, Max Karl Ernst Planck (1858-1947) uncover quantum theory. Following and elaborating last discovery of Schrödinger in around 1940, Crick and Watson discovers deoxyribonucleicacid (DNA), then the medical paradigm now more adapt to Einstein's paradigm, $E \approx mc^2$ (anti-matter \approx matter).

Pig behavior as ‘personality’

As described before, a pig is determined as *haram* consumed animal caused by the nature characteristic of the pig itself (*rijs*). Expanding the terminology of medical quantum on the pig as a consumed animal, the pig’s behavior become connected with non-physical morphology called ‘personality’. Personality differs from physical things, even for this case, the pig was cooked with a proper cooking method like boiling or frying up to 100°C, maybe it just terminates the microorganism yet not the personality that was carried by the pig before termination. On his book, Dossey said, there always be *non-local* experience separated from local experience. All these experiences strongly alleged as personality. The Pig has great variation on behavior. Lead from the effect of environmental, social play, housing, drinker position, substrate provision, spatial hole board, agnostic interaction, emotional, feed restriction, straw application, hiding wall’, tail and ear, aggression, food motivation, and diurnal rhythm. By the Einstein’s paradigm, those effect caused by behavior or personality, could be transmitted to human by the effect of induction, causing great changes in human by consuming pigs as food.

Induction personality from pigs to humans

Personality is one’s characteristic ways of thinking, feeling, and behaving. Personality can affect both positive and negative affect. Positive influence is characterized by well-being, social potency, achievement; and negative affect is characterized by reactions to stress, alienation, aggression, and anger. Pigs have much negatives behavior as explained before. Those behavior create great negative changes in personality. From the Schrödinger paradox; *The increase of order inside an organism is more than paid for by an increase in disorder outside this organism by the loss of heat into the environment.* -Schrödinger, E. 1926. This shows that changes in personality have become the meaning. The great changes in pigs can be inducted into humans. As long as this paper was written, the evidence of nonphysical morphology by consuming pigs are unknown. Back then to the medical quantum theory, the personality that reflected from the pig’s behavior. These personalities are clearly known as *non-local* experiences as the evidence written by Dossey in his book. **Error! Bookmark not defined.** Now become clearer the way why pigs are forbidden, *haram*, in Islam. Not only the physical things that carry bad things but also non-physical things carrying a bad personality that can be transmitted into human life as a bad personality.

Concluding Remarks

- Law in Islam adheres to relativism. In Western (science), it is more in line with the ideology followed by Einstein than Newton's absolutism. Absolutism understands material only from a physical point of view so, regarding the law against pigs, the physical weakness of pigs can be avoided by utilizing the development of modern science and technology. Cooking pork uses a very high temperature so that it can kill parasites, tapeworms and their eggs.

- Einstein's understanding of relativism states that the physical is non-physical and vice versa according to the formula $E \approx mC^2$. According to this understanding, matter also means energy. Energy in everyday life is character. Energy has different laws from physical or matter. Energy follows the law of waves, namely: reflection, resonance, interference, deviation and induction. In terms of physical induction one can induce another physical. Regarding pork, apart from the haram law which is interpreted as physically haram, physically forbidden because it contains a lot of tapeworms, pork is also prohibited because it can induce character to those who consume it. This understanding will have an impact on the answers to all problems related to pigs, for example whether the nails, the fur, the fat or the meat is haram. Through this new understanding the answer becomes easy. Because every part of the pork contains pork (bad) character, then every part of the pork is forbidden to be consumed because each part has the potential to induce those who eat it to have a pig character, which is bad.
- This understanding becomes the basis of validity for determining the legal basis for other animals or other types of food that have the potential to have traits or characters that will bring destruction to humans. For example, wild horses, or other wild animals. Why? Because wild animals have the potential to induce, bringing anyone who consumes them tends to be wild, not easy to manage. This character is contrary to the mission of the Prophet Muhammad was sent only to perfect the nobility of morality. Noble morality is the ability of humans to imitate God's morality in accordance with the capabilities of creatures. This knowledge of God is what in Ibn Abbas commentary is known as the purpose for which man was created. And I did not create jinn and humans except to worship Me, in the interpretation of Ibn Abbas only to know Me.
- Thus, consuming pork is an effort to distance oneself from the purpose of human creation, to reduce noble character through the induction of pork character for those who consume it.
- So the novelty of this article is, the legal basis for determining haram for anything consumed by Muslims, in this case pork, is not only based on physical reasons but based on character induction reasons.
- This understanding has never been used as the main reason for all the reasons for the prohibition in the legal basis of Islamic fiqh in Indonesia and throughout the world.

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Bibliography

- Abdurachman, Latief and Netty Herawati, 'THE ROLE OF PSYCHOLOGICAL WELL-BEING IN BOOSTING IMMUNE RESPONSE: AN OPTIMAL EFFORT FOR TACKLING INFECTION', *African Journal of Infectious Diseases*, vol. 12, no. 1 Suppl, 2018, pp. 54–61 [https://doi.org/10.2101/Ajid.12v1S.7].
- alkitab.com-Your Source for Arabic Books: Ashbah wa-al-Naza'ir fi Qawa'id wa-Furu' Fiqh al-Shafi'iyah* رِئَاطِلُ مَا بَدَأَ بِهِ اللَّهُ عَزَّ وَجَلَّ مِنْ أَمْرٍ أَوْ نَهْيٍ <https://www.alkitab.com/60305.html>, accessed 27 Jul 2018.
- Allwin, Boon and Ranjni Swaminathan, 'The Wild Pig (*Sus scrofa*) Behavior – A Retrospective Study', *Journal of Veterinary Science & Technology*, vol. 7, no. 4, 2016 [https://doi.org/10.4172/2157-7579.1000333].
- Arey, Dale Simon, Phil Brooke, and Compassion in World Farming (Organization), *Animal welfare aspects of good agricultural practice: pig production*, Petersfield, Hampshire: Compassion in World Farming Trust, 2006.
- Backus, Brittany L. and John J. McGlone, 'Evaluating environmental enrichment as a method to alleviate pain after castration and tail docking in pigs', *Applied Animal Behaviour Science*, vol. 204, 2018, pp. 37–42 [https://doi.org/10.1016/j.applanim.2018.04.009].
- Brown, Jonathan A.C., 'Even If It's Not True It's True: Using Unreliable Ḥadīths in Sunni Islam', *Islamic Law and Society*, vol. 18, no. 1, 2011, pp. 1–52.
- Bulens, Anneleen et al., 'Straw applications in growing pigs: Effects on behavior, straw use and growth', *Applied Animal Behaviour Science*, vol. 169, 2015, pp. 26–32 [https://doi.org/10.1016/j.applanim.2015.04.011].
- , 'Long-term effects of straw blocks in pens with finishing pigs and the interaction with boar type', *Applied Animal Behaviour Science*, vol. 176, 2016, pp. 6–11 [https://doi.org/10.1016/j.applanim.2016.01.008].
- , 'Hiding walls for fattening pigs: Do they affect behavior and performance?', *Applied Animal Behaviour Science*, vol. 195, 2017, pp. 32–7 [https://doi.org/10.1016/j.applanim.2017.06.009].
- Bünger, Beate et al., 'Agonistic behaviour, skin lesions and activity pattern of entire male, female and castrated male finishing pigs', *Applied Animal Behaviour Science*, vol. 171, 2015, pp. 64–8 [https://doi.org/10.1016/j.applanim.2015.08.024].
- Camerlink, Irene et al., 'Emotions after victory or defeat assessed through qualitative behavioural assessment, skin lesions and blood parameters in pigs', *Applied Animal Behaviour Science*, vol. 183, 2016, pp. 28–34 [https://doi.org/10.1016/j.applanim.2016.07.007].
- Carcò, Giuseppe et al., 'Influence of mild feed restriction and mild reduction in dietary amino acid content on feeding behaviour of group-housed growing pigs', *Applied Animal Behaviour Science*, vol. 198, 2018, pp. 27–35 [https://doi.org/10.1016/j.applanim.2017.09.020].
- Carreras, Ricard et al., 'Housing conditions do not alter cognitive bias but affect serum cortisol, qualitative behaviour assessment and wounds on the carcass in pigs', *Applied Animal Behaviour Science*, vol. 185, 2016, pp. 39–44 [https://doi.org/10.1016/j.applanim.2016.09.006].
- Definition of SWINE*, <https://www.merriam-webster.com/dictionary/swine>, accessed 27 Jul 2018.
- DeNeve, K.M. and H. Cooper, 'The happy personality: a meta-analysis of 137 personality traits and subjective well-being', *Psychological Bulletin*, vol. 124, no. 2, 1998, pp. 197–229.

- Dossey, Larry, *The extraordinary healing power of ordinary things: fourteen natural steps to health and happiness*, New York: Three Rivers Press, 2006.
- Douglas, Catherine et al., 'Environmental enrichment induces optimistic cognitive biases in pigs', *Applied Animal Behaviour Science*, vol. 139, nos. 1–2, 2012, pp. 65–73 [<https://doi.org/10.1016/j.applanim.2012.02.018>].
- van Eck, L.M. et al., 'Testing post-weaning food motivation in low and normal birth weight pigs in a runway and operant conditioning task', *Applied Animal Behaviour Science*, vol. 181, 2016, pp. 83–90 [<https://doi.org/10.1016/j.applanim.2016.05.010>].
- El-Menouar, Yasemin, 'The Five Dimensions of Muslim Religiosity. Results of an Empirical Study', *methods, data, analyses, Vol 8, No 1 (2014)*, 2014 [<https://doi.org/10.12758/mda.2014.003>].
- Friedman, Howard S. and Miriam W. Schustack, *Personality: classic theories and modern research*, Sixth edition edition, Boston: Pearson, 2016.
- Gieling, Elise T. et al., 'Lack of mirror use by pigs to locate food', *Applied Animal Behaviour Science*, vol. 154, 2014, pp. 22–9 [<https://doi.org/10.1016/j.applanim.2014.02.016>].
- Giere, Ronald N. (ed.), *Cognitive models of science*, Minneapolis: University of Minnesota Press, 1992.
- Guo, Yuguang, Xinming Lian, and Peishi Yan, 'Diurnal rhythms, locations and behavioural sequences associated with eliminative behaviours in fattening pigs', *Applied Animal Behaviour Science*, vol. 168, 2015, pp. 18–23 [<https://doi.org/10.1016/j.applanim.2015.01.011>].
- Guy, Jonathan H. et al., 'The effect of combining different environmental enrichment materials on enrichment use by growing pigs', *Applied Animal Behaviour Science*, vol. 144, nos. 3–4, 2013, pp. 102–7 [<https://doi.org/10.1016/j.applanim.2013.01.006>].
- Ison, S.H. et al., 'Housing, ease of handling and minimising inter-pig aggression at mixing for nursery to finishing pigs as reported in a survey of North American pork producers', *Applied Animal Behaviour Science*, vol. 205, 2018, pp. 159–66 [<https://doi.org/10.1016/j.applanim.2018.05.004>].
- King, James E. and Virginia I. Landau, 'Can chimpanzee (*Pan troglodytes*) happiness be estimated by human raters?', *Journal of Research in Personality*, vol. 37, no. 1, 2003, pp. 1–15 [[https://doi.org/10.1016/S0092-6566\(02\)00527-5](https://doi.org/10.1016/S0092-6566(02)00527-5)].
- Lahrman, Helle Pelant et al., 'Tail posture predicts tail biting outbreaks at pen level in weaner pigs', *Applied Animal Behaviour Science*, vol. 200, 2018, pp. 29–35 [<https://doi.org/10.1016/j.applanim.2017.12.006>].
- Letzring, Tera D. and Lacey A. Adamcik, 'Personality traits and affective states: Relationships with and without affect induction', *Personality and Individual Differences*, vol. 75, 2015, pp. 114–20 [<https://doi.org/10.1016/j.paid.2014.11.011>].
- Li, Yuzhi and Lihua Wang, 'Effects of previous housing system on agonistic behaviors of growing pigs at mixing', *Applied Animal Behaviour Science*, vol. 132, nos. 1–2, 2011, pp. 20–6 [<https://doi.org/10.1016/j.applanim.2011.03.009>].
- Lucas, Richard E. and Frank Fujita, 'Factors influencing the relation between extraversion and pleasant affect.', *Journal of Personality and Social Psychology*, vol. 79, no. 6, 2000, pp. 1039–56 [<https://doi.org/10.1037//0022-3514.79.6.1039>].

- Machado, Simone Pereira et al., 'Behavior of Pigs Reared in Enriched Environment: Alternatives to Extend Pigs Attention', *PLOS ONE*, vol. 12, no. 1, 2017, p. e0168427 [<https://doi.org/10.1371/journal.pone.0168427>].
- Marcet Rius, Miriam et al., 'Selection of putative indicators of positive emotions triggered by object and social play in mini-pigs', *Applied Animal Behaviour Science*, vol. 202, 2018, pp. 13–9 [<https://doi.org/10.1016/j.applanim.2018.02.002>].
- , 'Tail and ear movements as possible indicators of emotions in pigs', *Applied Animal Behaviour Science*, vol. 205, 2018, pp. 14–8 [<https://doi.org/10.1016/j.applanim.2018.05.012>].
- Martin, R., D. Watson, and C.K. Wan, 'A three-factor model of trait anger: dimensions of affect, behavior, and cognition', *Journal of Personality*, vol. 68, no. 5, 2000, pp. 869–97.
- Nasirahmadi, Abozar et al., 'Using automated image analysis in pig behavioural research: Assessment of the influence of enrichment substrate provision on lying behaviour', *Applied Animal Behaviour Science*, vol. 196, 2017, pp. 30–5 [<https://doi.org/10.1016/j.applanim.2017.06.015>].
- Nurdeng, D., 'Lawful and unlawful foods in Islamic law focus on Islamic medical and ethical aspects', *International Food Research Journal*, vol. 16, 2009, pp. 469–478.
- Ocepek, Marko et al., 'Drinker position influences the cleanness of the lying area of pigs in a welfare-friendly housing facility', *Applied Animal Behaviour Science*, vol. 198, 2018, pp. 44–51 [<https://doi.org/10.1016/j.applanim.2017.09.015>].
- Peden, Rachel S.E. et al., 'The translation of animal welfare research into practice: The case of mixing aggression between pigs', *Applied Animal Behaviour Science*, vol. 204, 2018, pp. 1–9 [<https://doi.org/10.1016/j.applanim.2018.03.003>].
- Pedersen, Lene J. et al., 'How much is enough? The amount of straw necessary to satisfy pigs' need to perform exploratory behaviour', *Applied Animal Behaviour Science*, vol. 160, 2014, pp. 46–55 [<https://doi.org/10.1016/j.applanim.2014.08.008>].
- PubMed entry*, <http://www.ncbi.nlm.nih.gov/pubmed/29619431>, accessed 6 May 2018.
- Records, The Daily, 'Top 10 Largest Religions in The World', *The Daily Records*, 27 Mar 2018, <http://www.thedailyrecords.com/2018-2019-2020-2021/world-famous-top-10-list/world/largest-religion-in-the-world-fastest-growing/20404/>, accessed 27 Jul 2018.
- Reimert, Inonge et al., 'Emotional states and emotional contagion in pigs after exposure to a positive and negative treatment', *Applied Animal Behaviour Science*, vol. 193, 2017, pp. 37–42 [<https://doi.org/10.1016/j.applanim.2017.03.009>].
- Roelofs, Sanne, Rebecca E. Nordquist, and Franz Josef van der Staay, 'Female and male pigs' performance in a spatial holeboard and judgment bias task', *Applied Animal Behaviour Science*, vol. 191, 2017, pp. 5–16 [<https://doi.org/10.1016/j.applanim.2017.01.016>].
- Scheffler, K. et al., 'Relationship between behavioural tests and agonistic interactions at different age levels in pigs', *Applied Animal Behaviour Science*, vol. 177, 2016, pp. 19–24 [<https://doi.org/10.1016/j.applanim.2016.01.013>].
- Schrodinger, Erwin; Penrose, Roger, *What Is Life? South Asian Edition: With Mind and Matter and Autobiographical Sketches.*, Cambridge University Press, 2013.

- Sharma, Nity and Yashwant Kumar Nagle, 'Development of Pictorial Situational Judgement Test of Affect', *Psychology*, vol. 06, no. 04, 2015, pp. 400–8 [<https://doi.org/10.4236/psych.2015.64037>].
- van der Staay, F. Josef et al., 'Effects of environmental enrichment on decision-making behavior in pigs', *Applied Animal Behaviour Science*, vol. 194, 2017, pp. 14–23 [<https://doi.org/10.1016/j.applanim.2017.05.006>].
- 'swine | Definition of swine in English by Oxford Dictionaries', *Oxford Dictionaries | English*, <https://en.oxforddictionaries.com/definition/swine>, accessed 27 Jul 2018.
- swine Meaning in the Cambridge English Dictionary*, <https://dictionary.cambridge.org/dictionary/english/swine>, accessed 27 Jul 2018.
- 'the definition of english', *www.dictionary.com*, <https://www.dictionary.com/browse/english>, accessed 27 Jul 2018.
- Vermeer, Herman Maarten et al., 'Rooting area and drinker affect dunging behaviour of organic pigs', *Applied Animal Behaviour Science*, vol. 165, 2015, pp. 66–71 [<https://doi.org/10.1016/j.applanim.2015.01.007>].
- Yousif, Imad-ad-Dean Ahmad, Marcia Hermansen, Mehmet Asutay, Haifaa Jawad, Ahmad, *AMERICAN JOURNAL OF ISLAMIC SOCIAL SCIENCES 27:1*, International Institute of Islamic Thought (IIIT), 2010.
- PDF, قوسما بئفلا قنولا قنكلا - قناشلا حؤن حنو دغور ني رئاظلو مابشلا
<http://waqfeya.com/book.php?bid=9770>, accessed 27 Jul 2018.
- Gede Budasi, I. & Wayan Suryasa, I. (2021). The cultural view of North Bali community towards Ngidih marriage reflected from its lexicons. *Journal of Language and Linguistic Studies*, 17(3), 1484–1497
- Dwijayanti, N., Mufdlilah, M., & Suryaningsih, E. K. (2022). The role of midwives in the application of classroom services for pregnant women during the COVID-19 pandemic period. *International Journal of Health & Medical Sciences*, 5(3), 228-239. <https://doi.org/10.21744/ijhms.v5n3.1918>