Impact of Religiosity on Moral Dumbfounding

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Abstract

New ideas have emerged around moral decision-making, emphasising intuitions rather than reasoning. Research suggests that people often rely on their moral intuitions and then use post-hoc rationalisations to explain themselves (Perkins et al., 1991; Nisbett et al., 1977). This tendency is most clearly seen in the moral dumbfounding effect, where people hold to a moral claim without being able to justify their position (Haidt et al., 2000; McHugh et al., 2020). However, the impact of religion on moral dumbfounding has yet to receive proper attention. Indian and South American cultures (which are more religious than Western secular cultures) tend to place more emphasis on respect and purity, while Western cultures tend to prioritise fairness and harm (Haidt et al., 1993; Miller & Bersoff, 1992; Miller et al., 1990; Miller & Luthar, 1989). This is important, as past moral dumbfounding studies try to account for explanations rooted in justice and harm, making it harder for secular cultures to explain their reasoning. Therefore, moral dumbfounding may not occur in religious cultures as respect and purity explanations are not accounted for in past moral dumbfounding experiments. Therefore, this thesis seeks to determine whether religious cultures are affected by dumbfounding.

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed:

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Introduction

Understanding the psychology behind moral reasoning and judgements has been a long-studied topic. This is because of the potential implications of understanding the mechanics behind our moral decisions. By understanding this area, peoples' moral foundations could be uncovered, potentially allowing us to foster new ways of encouraging good moral behaviour while also finding moral views that are less 'viable'[1].

Two main aspects of moral reasoning need to be understood. The first are the fundamental values; the second are the processes by which these values are processed that allow for a moral decision to be made. The fundamental values focus more on the grounds by which the processes operate. There are two main theories behind these foundational values: the Moral Foundations Theory, developed by Haidt and Joseph (2006) and the Big three model of moral thought developed by Shweder et al. (1997). The Moral Foundations Theory takes a more evolutionary approach, breaking human moral foundations into five main areas. These are loyalty, harm, respect, fairness and disgust (Haidt & Joseph, 2006). Shweder takes a more cultural approach, breaking moral foundations into three main areas. These are ethics of community, ethics of autonomy and ethics of divinity (Shweder 1997). These theories will be discussed in more detail later on, as well as their implications on culture, religion and how they interact with the different moral decision-making models.

The second important aspect is the models that take the foundational values and translate them into decisions. There are three main models of moral decision-making currently used. The first school of thought around moral decision making emphasised reasoning, assuming that people use reasoning to come to their moral decisions. Exactly how an individual learns to do this was their primary focus, the main researchers in this area were Kohlberg and Piaget (Piaget, 1932/1962; Kohlberg, 1963). This first school of thought emphasised reasoning (the slow, conscious, laborious mental process) over intuitions (the quick, unconscious, effortless mental process) to explain moral decision-making (Frankish, 2010). Secondly, the social intuitionist model, popularised by Johnathan Haidt, focuses more on intuitions than reasoning (Haidt et al., 2000). Finally, the dual process model prioritises neither reasoning nor intuitions but contends that

[1] In this instance, the word viable means liveable, as in, what are the moral foundations of people that allow for a flourishing of life?

both hold equal weight when making moral decisions (Paxton & Greene, 2010). This background will go through each one of these models.

Big Three Codes of Moral Thought

Firstly, it is necessary to explore Shweder's Big Three Codes of Moral Thought as the Moral Foundations Theory builds off of its ideas (Shweder et al., 1997). The Big Three Codes of Moral Thought provide a basis on how different cultures approach morality. Shweder created these three codes by compiling 39 incidents and got residents from the city of Bhubaneswar, Orissa, India to justify why these incidents were morally unacceptable (Shewder et al., 1987). An example of one of these indicants is "A man had a married son and a married daughter. After his death his son claimed most of the property. His daughter got a little." (Shweder et al., 1997, p.132). From the responses, 16 moral themes were identified[2], which was further reduced to three themes by using cluster and step-wise discrimination analysis. These three themes are the ethics of autonomy, community and divinity.

The ethics of autonomy, prioritises the individual's autonomy and control. The individual is seen as the main locus by which society and culture are constructed, as such greater attention is given to individual choices and opinions rather than that of the group (Shweder et al., 1997). This type of ethics relies on the concepts of harm, rights and fairness. This is most clearly seen in Western ideas of morality. These Western ideas of autonomy and harm have stretched themselves to their absolute limits. Westerners wish to be protected from all kinds of harm, and many limits of freedom are seen as violations of innate human rights. An example of where these ethics have pushed others to the side is through the current discourse around gender. An individual's self-perception/identification of their gender is placed above traditional expectations. Western societies have also greatly reduced the emphasis on disgust with previous taboos around pre-martial sex and homosexuality being mostly abolished. None of this is to say this is a bad occurrence; the actual ethical standing of such decisions will not be analysed in this background.

The second is the ethics of community, which focuses on the individual's role in a larger collective. This ethic relies on concepts of duty, hierarchy and interdependency. This ethic sees the self as an office

[2] These are: Virtue and Merit; Social Order; Souls and Sentiments; Tradition, Custom, Culture and Relative Dharmas; Duty; Scared Order; Interdependence/Relationship; Hierarchy; Nature, Biological Order; Justice, Fairness and Rights; Purity, Sanctity and Pollution; Harm and Wellbeing; Chastity; Respect for Possessions; Truthfulness, Honesty and Trustworthiness; Transcendence.

holder of a larger collective (Shweder et al., 1997). This role dictates the individual's duty's, responsibilities and relationships, which all relate back to the larger whole of their community. These responsibilities and duties are firmly embedded in a hierarchy, where both those above and those below have different social obligations to each other. Those in positions of authority use their power to take care of those beneath them, while the less powerful respond to them with loyalty and gratitude. Ideally, the powerful understand that their position rests on the support of those beneath them. Taking advantage or abusing their power will disadvantage both themselves and those who are in their care. Therefore, these ethics are focused on maintaining social relationships for the stability and prosperity of the community.

Finally, there is ethics of divinity, where the self is seen as a spiritual entity. This ethic relies on concepts of scared order, natural order, sanctity, sin and pollution. Incorporated into the ethics of divinity is the sense of spiritual and physical cleanliness, as by keeping the spirit and body clean, one keeps themselves spiritually pure. The self is conceptualised as a spiritual entity who is the barer of a larger story/legacy which is elevated/divine (Shweder et al., 1997). Therefore, the way which the self relates to their divine legacy and the natural world constructures how one should act. This emphasis on the divine makes them more sensitive to uncleanliness. As such, cultures within the ethics of divinity take cleanliness very seriously and are prone to have stronger disgust reactions (Haidt et Hersh 2001). This is because the point of disgust is to avoid diseases, through cleanliness (Curtis et al., 2004). Therefore, explanations for disgust responses will come more naturally to those grounded in the ethics of divinity, as those two ideas are directly related. This is important, as many of the later moral dumbfounding experiments primarily use disgust to confuse participants into being dumbfounded. However, this may not work on those within the ethics of divinity, as their culture primarily focuses on why disgusting things are morally wrong.

Moral Foundations Theory

The Moral Foundations Theory proposed by Haidt and Joseph (2006) sought to build off of The Big Three, by breaking down each code of ethics into 5 foundational innate moral modules. These Five modules are as follows: respect/authority, loyalty/ingroup, disgust/purity, harm/care and fairness/reciprocity. These modules are considered innate; that is to say, these five modules are "means organised in advance of experience" (Samuels, 2004). This definition of innateness allows for malleability and flexibility, as these innate modules can be (and will be) changed by experience, rather than an unchanging feature that an

organism is stuck with. Think of each module like a dial, with some being augmented and some being reduced depending on the code of ethics. For example, for the ethics of autonomy, the modules of respect/authority and loyalty/ingroup preference would be reduced while the modules of fairness/reciprocity and harm/care will be augmented. As such, these modules are flexible starting points, not static structures.

The idea of a module is well established within evolutionary theory, with the idea that through repeated challenges faced by species across many generations would form a certain built in preparedness to those situations. For example in a study done by Seligman (1971) young rhesus monkeys were exposed to videos of other monkey's reacting and being scared of snakes. Before watching this video, these young monkeys were unafraid of plastic snakes, but became afraid of them after watching the video. However, when the same experiment was repeated for flowers, the young monkey's did not become afraid of the flower. As such, there seems to be a prepared module to be scared of snakes, due to their predatory nature. The modules within the Moral foundations theory act in a similar manner. They are a set of prepared responses due to continued challenges faced by our species.

The first of these modules is harm/care, which is the idea that those who actively avoid and condemn harm and those who value care are more likely to survive. Therefore, humans who evolved to avoid and moralise harm, were more likely to flourish as a result, and a group of people who act this way would produce a more flourishing society. Within humans is a natural affinity for empathy and empathic action which comes as a result from detecting pain in others through social cues and facial expressions (de Waal, 2008). A more concrete example of this is the crying and smiling of enfants which spur their caregiver to action (de Waal, 2008). Considering similar behaviours happen across cultures, and to other animals (Boesch, 1992), it is unlikely these are purely learned behaviours, but rather, adaptive modules.

Disgust/purity is slightly more ambiguous but is an offshoot of harm due to its connection with disease. The main theory behind disgust responses is that they evolved to avoid diseases, and therefore disgust is another strategy to avoid harm (Curtis et al., 2004). Most harm can be directly traced to its source, so its cause can be identified and dealt with. However, bacteria and diseases are invisible to us, so protection from them must be stronger and broader than visible harm. We have such strong disgust responses, as it is hard to pinpoint what caused a disease, so avoiding any potential threat is necessary. These disgust responses are far stronger in humans than in other animals due to our larger population sizes, allowing for diseases to spread far quicker among human populations (Curtis et al., 2004). Since diseases spread quickly from person

to person, the harm caused by the disease can be attributed to the one who spread it. This allows something disgusting to become a moral violation, and due to the visceral nature of disgust responses, such disgust violations tend to be heavily condemned. A good example of this would be deviant sexual practices like incest or bestiality and (in some cultures) homosexuality to be considered a great evil. Avoiding disgusting practices is directly connected to ideas of purity and holiness. Holiness and purity laws, such as those found in the Bible (Leviticus 15) or Quran (Quran 5:6), deal with keeping the body and spirit clean. This helps to explain religious cleaning rituals and abstinence from certain kinds of food (Al-Baqarah 2:174) (like pork for Jews and Muslims).

The module of respect/authority refers to the social structures and hierarchies within human culture and the stability they provide. Most social creatures engage in some variation of dominance hierarchy (Chase, 1980), and humans are no exception. Greater social stability affords greater survivability, and as such, it makes sense that most human cultures moralise these structures. These structures also allow individuals to know their place in society and how they should act in any given social scenario. In order to maintain this web of relationships, exactly how an individual should act is moralised. For example, impartiality and generosity are highly valued in leaders, as they afford greater stability across the group, while obedience and respect are valued in subordinates for the same reason (Haidt & Joseph 2006).

While not a part of the five-module theory, it is worth briefly considering the flipside of respect, which is autonomy. While respect concerns the group, autonomy is more concerned with the individual. How the individual differs from those in the group and how much freedom they should have outside of their group responsibilities, fall under this idea of autonomy. Individualistic societies prioritise autonomy, and communal societies prioritise respect. This is not to say that an individualistic society has no concept of respect, but it is dialled down relative to a more communal culture.

Within a similar vein, the loyalty/ingroup module also operates within social structures. Loyalty focuses on the tendency for humans (and other social animals) to operate in groups and to compete with other groups. Morally speaking, this is most clearly displayed within 'us vs them' narratives and in group preference (Penn et al., 1993). Ideas of self-sacrifice, heroism, and bravery characterise this moral module (Haidt & Joseph 2006). Loyalty can often lead to ideas of cultural/racial superiority and all the violence that comes along with those ideas.

Finally, fairness/reciprocity has evolved to be valued due to the advantages of social organisms to have altruistic relationships. Both parties can mutually benefit from such relationships, however trust is needed for these relationships to survive. Therefore, we are very sensitive to being cheated/lied to, even if the deal made is still beneficial to us. For example, in the ultimatum game, there are two participants, one has a set amount of money. This participant must divide the money between themselves and the their partner. After doing this, the partner can reject or accept the offer, however rejecting the offer results in both parties getting none of the money. Despite losing everything, when unfair offers are made participants have a tendency to reject them (Güth et al., 1982). This displays our sensitivity to fairness, as it is more important to establish trustworthy relationships, than obtaining short term resources.

These two models give a firm ground as to what the foundational moral ethics are and how the dials of these ethics are turned up/down to create the main ethical structures within our societies. How an individual takes these raw moral components and processes them into individual decisions and actions will now be discussed.

School of Moral Reasoning

The first influential school of thought focused on the importance of reasoning when coming to moral decisions. During the modern period, a great emphasis was placed on objective analysis and explanation (Yousef, 2017). As such, early investigations into moral judgements focused on the logical, reasonable process by which people come to moral conclusions. It was believed that when making moral decisions, people acted like judges, weighing up evidence on both sides before making a choice. Such thinking spawned from enlightenment thoughts around morality, which focused on reasoning, harm and justice. Thinkers like Immanuel Kant significantly influenced this thinking (Kant, 2016). As such, early psychologists focused on reasoning to explain moral decision-making.

The first was Jean Piaget (1932/1965), who focused on children's moral development. Piaget rejected the common notion that morality was transferred between generations by enforcement but instead argued that children would come to the same moral conclusions as their parents through experience. Piaget's ideas can be broken down into two parts; firstly, he argues that children can come up with their own rules, and secondly, that children can learn the rules of morality and apply them. By observing children during play, Piaget determined that the children could create their own rules (Piaget, 1932/1965). He noted that children

up to four years old played games for the sensorimotor experience (the process by which children learn about their environment from grasping, sucking, listening and looking) rather than being interested in creating rules. The very act of playing was enough for these children. Children from 4 to 7 years tended to make up rules as they went along, caring more about how they applied to themselves than others. From ages 7 to 11, children start to master rules, and games become more social and competitive. Finally, in the last stage, children become legalistically aware of the rules, allowing them to be applied to all participating. Piaget called this genuine cooperation, and it displays that children would naturally learn to understand rules in a universal sense. This theory explains how a child could naturally develop and become rational moral decision making agents, as they consciously understand rules and their importance.

Secondly, Piaget believed that children could learn the rules of morality without them being enforced by their parents. By telling children moral stories, Piaget noticed a pattern in how children of different ages would justify who was in the wrong. An example is the plate story, in which a child accidentally opens a door and knocks over a stack of plates. This story contrasted with another story in which a child tries to sneak some honey from the cupboard, resulting in a dish being knocked over (Piaget, 1932/1965). Piaget found that younger children (ages 4 - 7) used moral realism to reason. This type of reasoning is absolute and cares more about consequences than intentions. Therefore, children with this thinking would see the first child as naughtier as they knocked over more plates despite it being an accident. Piaget observed that as children develop, they shift from a moral realism approach to a moral relativism approach, which emphasises the intention rather than the consequences of an action. This shows that children learn that morals are based on an individual's situation and intention rather than absolutes. This forces children to take the child's perspective in the story rather than just looking at the consequences. Therefore, for Piaget, children's ability to create rules and understand the source of moral rules allowed them to reason their way to mature moral decisions naturally.

Kohlberg followed in Piaget's footsteps by using moral dilemmas to test children's reasoning abilities. The most famous would be the Heinz Dilemma, in which a man steals medicine to save his wife. He expanded on Piaget's stages, creating three main theories of moral development, each level containing two sub-stages. The first stage is pre-conventional morality. In this stage, the world of morality is determined by the punishments of actions (Kohlberg, 1963). As such, the world is divided down the middle; if the punishment is bad, so is the action and vice versa. In the context of the Heinz dilemma, a child of this stage

would condemn the action, as stealing would be considered wrong (because you would go to jail). While this stage oversimplifies morality, it does encourage the child to engage in behaviours that give good rewards and vice versa. This is important, as natural consequences from social interactions will steer the child towards pro-social behaviours, as being accepted and liked by others is a good consequence. This would naturally give rise to perspective-taking, as this pro-social behaviour would naturally give good rewards.

The second level is conventional morality. This naturally develops after the first, as a greater emphasis is placed on the wellbeing of the group rather than the individual (which was learnt during the first phase). Presenting yourself in a way that keeps social cohesion and/or is approved by the group is what is valued at this stage. As such, social validation and following laws become important, as both keep social unity. This stage also allows for intention, rather than consequence to be given greater importance, as greater thought is given to others than the individual. While these changes in thinking will naturally start with the family (extended/nuclear), these laws will also be extended to other social structures, like school or the community at large (Kohlberg, 1963).

The final stage is post-conventional morality, in which morals are placed in ideals rather than law (Kohlberg, 1963). This allows for specific unjust laws to be questioned, allowing for particular moral virtues to be universalised. Within this stage, moral laws are seen as an absolute good, so even while the reasoning as to why they are an absolute good is based on consequence, intention and social good, these laws transcend them. The latter ends of this stage universalises these moral ideals, and the individual seeks to act by them. Kohlberg points out that not many would reach the final post-conventional stage of universalisation of morality. He attributed this stage to great ethical thinkers like Mohandas Gandhi and Martin Luther King, Jr. Like Piaget, Kohlberg used moral dilemmas to record the changes in moral reasoning in children (Kohlberg, 1963). Both Kohlberg's and Piaget's theories of moral development base their ideas on reasoning. Children are seen to develop greater and greater reasoning abilities by interacting with the world.

Critiques with School of Moral Reasoning

One main critique of focusing on moral reasoning is how psychologically distant the vignettes are. This same critique is levied at most moral dilemmas and vignettes, as many participants find them unbelievable and unrelatable. Psychological distance is how close a person feels to a situation or scenario. People feel psychologically distant from a situation when they are far away (physically), when there is a

limited social connection to the situation, when they are far away temporally (happened in the past) and when the situation is hypothetical (Trope & Liberman, 2010). How people react to events changes dramatically depending on how close they feel to the situation; the further away someone feels, the more abstract the representation of that situation/object becomes (Trope & Liberman, 2010). This is because higher levels of abstraction are more likely to remain unchanged across larger distances. For example, the 'higher'/more abstract form of keeping in touch with a friend will stay consistent over a long period of time and space, while how you keep in touch with them is dependent on how you accomplish this and can change over time and place. Therefore, when considering hypothetical scenarios, people tend to consider these higher-level abstractions due to the psychological distance rather than reflecting how they would act.

For example, a study conducted by Nussbaum et al. (2006) found that participants were more confident in their ability to replicate classic findings in psychology when they imagined doing the experiment a year in the future, while they were far less confident if they imagined themselves doing it tomorrow. This is because the main focus considered in the long term would be the abstract (the participant's knowledge of the topic). Since these participants were students, their confidence levels naturally rose. In contrast, more than just the abstract would have to be considered in the short term, (actually running the experiment) so their confidence level was lowered.

In terms of making decisions, those who are psychologically distant will focus on central elements (that should remain unchanged). In contrast, more peripheral elements will be given less weight (and vice versa). For example, in the study conducted by Kray (2000), participants were asked to give job advice to a distant social target (a student in another class) and a closer social target (a student in their class). For the distant social target, most weight was given to one important element (personal satisfaction), while money and location were given less weight. The exact opposite was true when advising the closer social target. Kary also found this difference when participants decided for themselves vs. making it for others; greater weight was given to money and location when choosing for themselves. It is important to note that participants reported greater responsibility and potential regret when making decisions for others, so it would not be reasonable to conclude that these differences are based on lack of effort/care.

These studies display that people answering a hypothetical scenario will consider different elements than if they faced the scenario directly. Specifically, people should prioritise a few central abstract moral elements rather than considering practical ones. This lends itself more to a rational-based decision-making

model rather than an intuitive one, as weighing up a few central elements is a far more rational process than considering all the different practical aspects which is how people would behave if the event were psychologically closer. Therefore, the Heinz dilemma and others like it prime participants to think and reason rationally rather than display how they would think all the time. Once again, the situations typically used in the moral reasoning model lends itself more to an objective analysis rather than an intuitive one.

Moral Dumbfounding

Another critique of the moral reasoning model is the moral dumbfounding effect. Moral dumbfounding is "the stubborn and puzzled maintenance of a judgment without supporting reasons" (Haidt et al., 2000, p.1). In other words, people can sometimes maintain a judgment despite having no reason for that judgment. This is most clearly seen in Haidt et al. (2000) moral dumbfounding study. Haidt used slightly different moral stories in this study, focusing on respect and disgust rather than harm and autonomy. Following is the vignette that Haidt used.

> "Julie and Mark, who are brother and sister are traveling together in France. They are both on summer vacation from college. One night they are staying alone in a cabin near the beach. They decide that it would be interesting and fun if they tried making love. At very least it would be a new experience for each of them. Julie was already taking birth control pills, but Mark uses a condom too, just to be safe. They both enjoy it, but they decide not to do it again. They keep that night as a special secret between them, which makes them feel even closer to each other." (Haidt et al., 2000, p. 22)

Participants tended to condemn the sibling's actions but failed to provide reasons to justify their position, resulting in moral dumbfounding (Haidt 2000). This study was done in person, with the experimenter arguing with the participant, pointing out that no harm/violation of autonomy had occurred. As such, dumbfounded participants ended up admitting that they had no reason to believe the situation was wrong, yet still thought that is was. There is no indication that any participants made other arguments, such as purity or respect arguments. Since neither of these arguments were accounted for in the study, (assumingly) both would have been accepted as reasons. This is how we will treat dumbfounding in this

study, as long as a participant gives a reason (that contains no logical fallacy) it will be accepted as a reason. This effect cannot be easily explained with the moral reasoning model, as reasoning does not seem to be the main force driving these participant's decisions.

This effect of moral dumbfounding seems to work best with disgust, as the moral module of disgust is so strong. It could be that a more intuitive heavy process is used for modules like disgust due to their potency. A study by Wheatly & Haidt (2005) supports this notion. In this study, participants were hypnotised to feel a flash of disgust upon hearing certain words. Then typical moral vignettes were told to these participants to see the impact of hearing these trigger words would have on their moral judgements. They found that scenarios that included the trigger word were considered less morally acceptable than scenarios without. This indicates that their moral intuitions (disgust = wrong) have a greater impact on their moral decision-making than moral reasoning. This is especially seen in their second study, where a morally neutral vignette was used. The vignette is as follows.

> "Dan is a student council representative at his school. This semester he is in charge of scheduling discussions about academic issues. He [tries to take/often picks] topics that appeal to both professors and students in order to stimulate discussion." (Wheatly & Haidt, 2005 p. 782)

The word 'often' was used as the trigger word. They found that disgust and wrongness scores significantly increased when hearing the trigger word compared when it was not used. This indicates the power disgust responses have over reasoning. Having said this, moral dumbfounding has also been seen to occur in respect-based vignettes, where there is no presence of disgust at all (Haidt et al., 1993), although this effect is less potent. Therefore, it is possible for other moral stories to trigger the moral dumbfounding effect, but due to the strength of disgust, it is most strongly observed in disgust-related stories.

Social Intuitionist Model

The social intuitionist model ultimately challenges the main assumptions of the school of moral reasoning attempting to explain the moral dumbfounding effect. This model claims that intuitions are the primary basis of moral judgements rather than reasoning, and reasoning rarely overrides these intuitions. The

social intuitionist model has five main 'links'. These links outline the process by which moral judgements are formed.

The first is called the intuitive judgement link, which claims that moral judgements appear in our consciousness automatically and effortlessly. Secondly, the post-hoc reasoning link claims that deliberative reasoning will only take place after our moral position has been reached to defend it rather than to reach it. The idea that we engage in post-hoc reasoning has been demonstrated in other studies. For example, Perkins et al. (1991) demonstrated that we biasedly search for reasons to back up our pre-established beliefs. Nisbett et al. (1977) displayed that we use post-hoc reasoning for causal explanations. Thirdly, the reasoned persuasion link states that we use reasoning to justify and argue for our moral positions. Therefore, we are trying to defend our position with reasoning rather than using reasoning to arrive at a conclusion. Haidt also argues that we defend our positions with emotional examples, which trigger new intuitions in the listener, rather than reasonable arguments triggering that change. The importance of affective persuasion has been shown by Edwards and von Hippel (1995) and by Shavitt (1990) (as cited in Haidt 2001). Finally, the social persuasion link claims that social forces greatly affect our intuitions, as we tend to align our views with friends, family and acquaintances. For example, in a study by Davis & Rusbult (2001), they found that partners attempted to align their attitudes to be consistent with their partners. Likewise, Sherif (1935) found that when individuals with different reference points/norms were put in a group, the group created a new reference point/norm that all agreed on. This focus on intuition mostly removes moral reasoning from the equation. Haidt contends that the only aspect of reasoning remaining is the private reflection link. This is when an individual, either alone or in dialogue, thinks up new intuitions that may contradict/clash with old ones.

In short, Haidt argues that we come to conclusions intuitively and then use reasoning to defend our positions. This defence triggers new intuitions in others, allowing for these arguments to be convincing, but not due to their reasonable nature. This model explains the moral dumbfounding effect well, as their intuitions completely override their reasoned judgment, allowing people to judge something as wrong but not know why. It also explains why defending our judgments using reasoning would be useful, as it can shift others to our perspective by triggering new intuitions.

Critiques of the Social Intuitionist Model

In response to Haidt's 2001 paper, Pizzaro and Bloom (2001) attempted to argue the importance of moral reasoning back into the picture. They pointed out that reasoning through perspective-taking could change a person's intuitions. For example, disdain can turn to sympathy when you learn the reason a student is late is that their mother died. They argue that this perspective-taking is a type of reasoning, assuming that intuitions are far too fast for us to have any conscious control over; therefore, the conscious decision to take a new position must be reason-based. This is not the greatest of critiques, as taking on new intuitions from others is built into the social intuitionist model since it is often the affective parts of a person's argument that we find convincing (Edwards and von Hippel, 1995; Shavitt, 1990 as cited in Haidt 2001). Also, how close the relationship is to us has a greater impact than the logical answers presented (Davis & Rusbult, 2001; Sherif, 1935). Therefore, it is more reasonable to say that our social intuitions rather than reasoning cause these new perspective shifts to take place.

Pizzaro and Bloom (2001) also argue that we can override our automatic behaviours with deliberative decisions. For example, someone who wishes to go on a diet can force themselves not to eat unhealthy food. Therefore, it could be possible for someone to force themselves to go to a seminar on racism to change their intuitions. Both Dasgupta and Greenwald (2001) and Rudman et al. (2001) (as cited in Pizzaro & Bloom, 2001) displayed how such actions could lead to significant intuitive shifts in perspective. This argument raises a question: where does this conscious understanding of right and wrong come from? Obviously, a racist would never willingly go to a course on racism in America; they would have to be convinced before they made any deliberative action. This seemingly loops back to Haidt's original point that social interaction will trigger new intuitions. Finally, Pizzaro and Bloom make one last argument, pointing out that people engage in deliberative reasoning outside of laboratories. For example, women facing abortion engaged in such reasoning (Gilligan 1982, as cited in Pizzaro and Bloom, 2001), and white and black children faced such dilemmas during the civil rights movement in the South (Shaw et al., 1994, as cited in Pizzaro and Bloom, 2001). This last criticism is harder to account for in the social intuitionist model. Indeed, in his response to this point, Haidt contends that people will cycle back and forth between different perspectives, using the social intuitions of both perspectives to conclude. However, this process is clearly a conscious weighing up of the evidence, even if the evidence is emotional. It is still clearly a conscious, slow, laborious response, not intuitive. Ultimately, Haidt responds to this criticism by saying.

> "I can only ask the reader to make a mental list of how many times he or she has agonised over a moral issue in the past year and has gone back and forth in his or her judgment. Now compare that with an estimate of the total number of moral judgments the reader has made in the last year while reading the newspaper, participating in gossip, or driving on roads surrounded by drivers less competent than oneself. My prediction is that for most people, the first number is less than one 100th of the second number." (Haidt 2003, p198)

As stated, Haidt's cyclical process is an example of moral reasoning rather than intuitions. His point that the number of times this occurs is rarer does not argue against this fact. Actually, from these arguments, it seems that reasoning occurs when social intuitions clash, either through direct experience or perspective-taking. This would mean the purpose of moral reasoning is to resolve contradictory thinking/beliefs rather than the main tool we use to arrive at moral decisions in general. This is clearly seen in the type of vignettes used in moral reasoning and social intuitionist models. In the moral reasoning model, vignettes like the Heinz dilemma are used, where two intuitions clash, the first being respect for the law and the second being taking care of one's family. In this dilemma, it is the participant's job to resolve this clash in intuitions by weighing up which intuition should be given more weight in this scenario. At no point in this vignette does the experimenter question why breaking the law is wrong or why saving the life of your wife is right. Both are assumed to be valid moral intuitions from the beginning.

In contrast, Haidt's Incest vignette does not have two intuitions but only one (incest). Instead of clashing these intuitions together, he questions the validity of the intuition itself. This tells us that most people find it difficult to explain why they believe in their foundational moral values. However, it does not prove that people do not engage in reasoning when these intuitive values clash.

Another criticism of the social intuitionist model was the tendency of people to state that harm existed despite the moral stories being carefully cleaned of any harmful consequences. Stanley et al. (2019) argue that harm could still be inferred despite harm explicitly being removed from Haidt's moral stories. Therefore, people were not dumbfounded by the stories, as they had good reason to believe the story was morally wrong. For example, people found it hard to believe that Mark and Julie's relationship would not be damaged (despite researchers insisting that it would not be). To prove this, Stanley et al. (2019) ran a study

in which two disgust-based stories were presented. The first was the previously stated Incest vignette. The second was a vignette in which a medical researcher takes a piece of human flesh home from the research lab and then proceeds to cook and eat the flesh. Participants were then asked how harmful they thought the stories were and how wrong they were. There was a significant correlation between harmfulness scores and wrongness scores. They repeated this study but then asked participants how harmful, wrong, disgusting, sad, angry, scared and distressed they were on a 7-point response scale. They again found a strong correlation between harm and wrongness and a strong correlation between disgust and wrongness (Stanley et al., 2019). Therefore, dumbfounding may have only occurred because Haidt refused to acknowledge the harm-based reasons people gave. This means that participants still engaged in moral reasoning rather than just using their intuitions.

The Dyadic harm-based model proposes this, rejecting the idea that moral decision making can fall outside the perception of harm. This claim could be interpreted in two ways. One: the perception of physical harm (like illness or injury) causes a problem to become moral. For example, the possibility that a disfigured baby could be born from Mark and Julie's fling is enough to be considered moral. Therefore, the harmful consequences are what matters. This becomes problematic when referring to a different disgust story, in which a man has sex with a dead chicken, which he then cleans and eats. Many participants found this story morally wrong, with some calling for the man to be stopped (Haidt et al., 1993). You could argue that the possibility of getting sick from eating the chicken activates feelings of harm, causing the story to become concerned with morality. However, eating chicken is also potentially harmful (you may get food poisoning). However, most people would not consider cooking and eating a chicken a moral issue.

Therefore, what non-vegetarians find morally wrong about this story is not the potential harm but their disgust response. Harm is used as a post-hoc justification to explain the participant's strong feelings against such an act. This is clearly displayed in Haidt et al. (1993), in which people directly stated that specific stories contained no harm. However, these same participants still condemned the acts, universalised them and believed the person should be stopped (Haidt et al. 1993). Therefore, this first interpretation of the dyadic harm-based model is unconvincing.

The second interpretation would be to say something valuable to the participant has been harmed. For example, the man's (who had sex with a chicken) integrity had been harmed. This way of thinking would work for other scenarios focusing on respect, in which flags were used to clean toilets. One could say the

country had been harmed, or the respect for the country had been harmed. However, this interpretation has become too broad. This interpretation states that when an important issue to the individual is violated, it becomes moral. This is just stating the obvious. Harm is no longer the indicator of moral situations. Rather, violations of moral standards are. This interpretation predicts nothing as it encompasses everything. Therefore the dyadic harm-based model is not convincing.

In order to test to see if people's perceptions of harm are what causes a situation to be considered morally wrong, Royzman et al. (2015) accounted for harm in a moral dumbfounding experiment by asking participants if they believed harm was still present after hearing the vignette. Participants did a typical moral dumbfounding experiment, where they read a vignette (Incest vignette), and were asked if they believed it to be wrong, then asked why. After these two questions participants were reminded that Julie and Mark used contraceptives and consented, and then again asked if the situation was wrong. Participants then had three options, either they selected A: there is nothing wrong, B: There is something wrong and I can think of a reason and C: There is something wrong, but I cannot think if why. Answering C meant the participant was dumbfounded. Royzman et al. (2015) added to this experiment by presenting participants with two statements (at the end of all those previous steps): "Having read the story and considering the arguments presented, are you able to believe that Julie and Mark's having sex with each other will not negatively affect the quality of their relationship and/or negatively affect how they feel about each other later on?" and "Having read the story and considering the arguments presented, are you able to believe that Julie and Mark's having sex with each other will have no bad consequences for them personally and/or have no bad consequences for those close to them?". If participants disagreed with one or both statements, they were no longer considered dumbfounded, as these participants believed the stories to contain harm, and as such, had a valid reason to not be considered dumfounded. This caused the number of dumbfounded participants to drop almost to zero (4/53). Then, Royzman et al. (2015) interviewed these four participants, pointed out their inconsistencies, and allowed them to reverse their decision, resulting in only onw of the four remaining to be dumbfounded (1/53). This seems to indicate that the perception of harm was why people judged the Incest vignette to be wrong. Therefore, people still use reasoning, not intuitions, to justify their moral decisions.

McHugh et al. (2020) criticised Royzman et al’s. (2015) approach, arguing that participants could not come up with their own reasons and used the experimenter's reasoning to justify their position. In other words, participants who disagreed with Royzman et al.’s statements were hijacking their argument as their

own, rather than detecting that harm for themselves. This was evidenced in Royzman et al. (2015) data, as some who believed nothing was wrong with the incest story also disagreed with the statements in the previous paragraph. In other words, some participants believed that Julie and Marks actions were morally acceptable, but also believed that the situation was harmful (as they believed Julie and Mark would be harmed later on and/or would negatively affect the quality of their relationship). This does not line up with the theory that people would pair harm with morality, since they are not being paired in this scenario. More likely, these participants did not find anything wrong with the story, but then used the experimenter's arguments later, because they could not come up with them themselves. Therefore, Royzman's filter does not work, as it gives arguments for the participants to use.

McHugh et al. (2020) applied a more stringent filter to account for this Royzman et al. (2015) data inconsistencies. They added two other measures to their filter: articulation and application. For articulation, the participants needed to come up with a reason unprompted by the researcher. For consistent application, participants needed to apply the rule to other scenarios; for example, is it wrong for someone to participate in boxing? By adding these conditions, their filter no longer included as many contradictory results as Royzman et al.'s (2015) filter. This new filter also increased moral dumbfounding (69/345). McHugh et al. (2020) also accounted for the norm principle, which is the idea that something can be morally wrong because it does not align with current social norms. However, those who use the norm principle should still be considered dumbfounded, as believing something to be wrong due to social norms is a logical fallacy (Kelley, 2013). Therefore, it should not be construed as a genuine reason. As such, the norm principle will not be accounted for in the current study.

Dual Process Model of Moral Reasoning.

While the social intuitionist model explains the moral dumbfounded effect well, it reduces the amount of influence reasoning can have to obscurity. The dual process model (proposed by Greene) seeks to bring both intuitions and reasoning into one combined model (Paxton & Greene, 2010). Greene proposes two main pathways by which moral decision-making will occur: intuitive moral responses and reasoned moral responses. This model is based on many other psychological dual process models, which divide the mind's processes into two systems. System 1 processing (intuition) is fast, simple and requires no articulation, which means the process of intuition cannot be described in detail by the individual (Frankish, 2010). System two processing is the reasoning pathway, which is a slow, conscious, laborious process that relies on language.

The individual can track the process, allowing them to break down how they reached a conclusion that follows reasonable steps (Haidt 2001). It is much younger than the ancient system one processing. Various areas of psychology have used the dynamic between system one and system two processing to explain brain behaviours. In Greene's model, these pathways run parallel and simultaneously to one another, with the intuitive pathway dealing with deontological decision-making, while the reason-based pathway deals with utilitarian decision-making (Paxton & Greene, 2010).

Deontological thinking focuses on whether the action performed is right or wrong rather than the consequence of the action. For example, telling a white lie would still be considered wrong, as lying is wrong. In contrast, utilitarian thinking focuses on the consequence rather than the action, so a white lie would be tolerated as long as it reduces more pain than telling the truth.

The main difference between this model and the social intuitionist model is the greater weight given to reasoning. Greene acknowledges that intuitions are faster and, therefore, come to conclusions before the reasoning pathway. However, Greene does not believe intuitions always have the final say; in the dual processing model, the moral reasoning pathway can override the intuitive pathway through cognitive control. An example of this would be someone going on a diet and resisting their urge to snack. This idea was evidenced in a study conducted by Pizzaro et al. (2003), in which the following moral vignette was presented to participants.

> "Barbra wants to kill her husband, John. When they are eating at a restaurant, Barbra slips some poison into John's dish while he isn't looking. Unbeknownst to Barbara, the poison isn't strong enough to kill her husband. However, it makes the dish taste so bad that John changes his order. When he receives his new order, it contains a food that John is extremely allergic to, and which kills him within minutes." (Pizzaro et al., 2003 p. 660)

Participants responded to this vignette (and others like it) by assigning less blame to the active agent when instructed to rely on their gut feeling. This seems to indicate that they are using an intuitive process to come to this conclusion. However, when asked to make a rational decision, participants were more likely to assign blame to the active agent. This suggests that the goal of the task (be rational) can induce participants

to override their intuitive judgment. This gives evidence to Greene's dual process theory and that we can override our gut feelings, at least when we are told to do so by authority figures.

A study by Paharia et al. (2009) also supports this notion. In this study, participants were presented with two vignettes. One is when a pharmaceutical company increased its profits on cancer drugs by increasing their price. In the other vignette, the company sold the rights to this drug to another company to increase its profits, fully aware that this company would increase the drug's price. Participants were more likely to view the second scenario as more morally acceptable than the first when viewed separately. However, when viewed together, participants tended to reverse this intuitive tendency and judged both stories equally wrong. Green argues that viewing both scenarios together makes it easier for participants to apply cognitive control, as the differences between the vignettes are too subtle to make a distinction. This is another example of cognitive control overcoming intuitive responses.

Finally, in another study conducted by Greene et al. (2008), participants responded to trolley-like dilemmas, where the safety of the few is sacrificed for the safety of the many. While responding, experimenters engaged participants in a cognitive load task to slow down their controlled cognitive processing. Those engaged in the cognitive load task were significantly slower at making utilitarian decisions than those in the control group. However, the task had no significant impact on deontological decisions. This indicates that there are two distinct pathways, one for utilitarian decisions and one for deontological.

This model seems to best account for moral dumfounding while also accounting for times when people clearly still use reasoning (like women thinking about getting an abortion) and in other dilemmas like trolley problem dilemmas and the Heinz dilemma, where participants seem to be engaging in reasoning. Exactly how much intuitive forces are relied on and how much cognitive control can override these intuitions is not clear. It may be possible that cognitive control is used when intuitions clash in order to weigh up and determine which intuition should be followed.

In conclusion, there are three main theories of moral decision-making. The school of moral reasoning, which supposes that people are scientists, weighing the evidence consciously before deciding. The dual process model believes that roughly equal weight is given to intuitions and reasoning. When we use intuitions, we make deontological decisions, while we make utilitarian ones where we use reasoning. These first two models focus on dilemmas, giving greater weight to our rational minds. Finally, the social intuitionist model believes people act more like lawyers defending a pre-established intuitive position.

Reasoning is only used to justify previously made decisions, and only rarely can it override our intuitions. This model focuses on foundational moral values, specifically disgust and therefore relies more on intuition than reasoning. However, is it possible that cultures who have dialled up the disgust and respect modules allow them to be less dumbfounded by the incest vignette?

Differences in Reasoning Between Cultures

It is possible that the moral dumbfounding effect is not consistent across all cultures. This is due to certain cultures dialling up different modules. For example, the ethics of community would dial up respect and, therefore, would react to moral vignettes differently than the ethics of autonomy. This difference between the ethics of community and autonomy is displayed in a study conducted by Miller & Luthar (1989). In this study, social violations and justice violations were compared between an American and Indian sample. To do this, seven social violation vignettes and five-justice vignettes were created. An example of a social violation vignette would be a girl refusing to give her notes to her friend who needed them to complete their assignment. An example of a justice vignette would be a man leaving his city without paying back a loan. Participants were asked if these violations were moral or personal violations (social convention) and whether they should be universally applied. They found that Americans were significantly more likely than Indians in six out of the seven social violation vignettes to consider them as personal violations. Therefore, Americans did not consider the social violation vignettes to be universally wrong. There were no differences between the two groups for the justice vignettes. This indicates that Americans, who would be under the ethics of autonomy, have dialled autonomy to the point where social obligations are seen more as personal choices.

This distinction is again displayed in a study by Miller et al. (1990). In this study, American and Indian participants were again compared. This time, vignettes were created were based on social relationships. These relationships were mother and child, friend and friend and stranger and stranger. Each of these vignettes has a social violation of varying degrees of need (extreme, moderate and minor). For example, a minor need friend vignette would go something like this: a woman fails to give directions to a friend for selfish reasons, and as a result, the friend misses out on an art sale. Indian participants were significantly more likely than Americans to view minor and moderate vignettes as objective moral violations that should be punished or stopped (either by the law or through social condemnation). Indians were also

more likely to have welfare considerations when justifying their decisions and less likely to appeal to personal choice (autonomy). The only exceptions to these findings were the extreme need vignettes, which both Americans and Indians agreed were objective moral violations that should be stopped.

Miller & Bersoff (1992) continued to examine this difference in attitude towards social responsibility between Americans and Indians. Instead of presenting vignettes with only one moral violation, they created dilemmas that clashed justice and social responsibility violations to see which would be given greater weight. To test this, three types of vignettes were used, each clashing a social responsibility element against a justice element. The only difference between the three vignettes was how serious the moral violations were (minor, moderate and extreme). The following is an example of one of these vignettes.

> "Ben was in Los Angeles on business. When his meetings were over, he went to the train station. Ben planned to travel to San Francisco in order to attend his best friend's wedding. He needed to catch the very next train if he was to be on time for the ceremony, as he had to deliver the wedding rings. However, Ben's wallet was stolen at the train station. He lost all of his money as well as his ticket to San Francisco. Ben approached several officials as well as passengers at the train station and asked them to loan him money to buy a new ticket. But, because he was a stranger, no one was willing to lend him the money he needed.
>
> While Ben was sitting on a bench trying to decide what to do next, a well-dressed man sitting next to him walked away for a minute. Looking over at where the man had been sitting, Ben noticed that the man had left his coat unattended. Sticking out of the man's coat pocket was a train ticket to San Francisco. Ben knew that he could take the ticket and use it to travel to San Francisco on the next train. He also saw that the man had more than enough money in his coat pocket to buy another train ticket." (Miller & Bersoff, 1992, p. 545)

Participants were then asked if Ben should steal the ticket or not. Those who believed Ben should steal the ticket were classed as prioritising social responsibilities over justice. They found that for the minor and moderate vignettes, Indian participants were much more likely to choose social responsibilities. In contrast, American subjects were much more likely to choose justice. In addition, Americans were more likely to view breaches in social responsibility in personal-moral terms. In other words, Americans did not universalise this

moral violation, while Indians did conceive social responsibility as a universal moral violation. Regarding justification, Indians were more likely to use non-responsiveness to another's needs and role-related obligations. This is a clear example of the ethics of community dialling up respect over fairness. However, it is also interesting to note that for the extreme vignette, there was a shift in how many Indians selected social responsibilities over justice, and they were more likely to use fairness, rights and harm to justify their responses in these extreme vignettes. The American sample also observed this decrease in prioritising social responsibility as the level of harm in the vignettes increased. This could be because an extreme violation of harm involves death, which, even in cultures within the ethics of community, will override their emphasis on respect.

Another study that displays moral differences between cultures is a study done by Haidt et al. (1993). This study compared Brazil with the USA, analysing three cities: one in America (Philadelphia) and two in Brazil (Porto Alegre and Recife). Participants were divided into a high social economic situation (SES) or low SES. Participants viewed harmful and harmless moral vignettes and asked 6 probe questions to draw out detail around their perceptions of these vignettes. Evaluation (was the situation wrong?). Justification (give reasons for evaluation). Harm (was anyone harmed?). Bother (if you saw this happening, would it bother you?). Interference (should the person be stopped). Universal (if this happened in another country, would it still be wrong?). An example of a harmful vignette is a girl wants to use a swing, and so pushes a boy off the swing and hurts him. An example of a harmless vignette is a man who goes to the supermarket to buy a dead chicken. Before eating the chicken, he has sex with it, then cooks and eats it.

They found that those in high SES were more likely to use explanations of harm and autonomy, more likely to be permissive of disgusting acts and less likely to universalise or stop disgusting and disrespectful actions. In contrast, low SES were more likely to use explanations of social norms, purity and community, less likely to be permissive of disgusting acts and more likely to universalise or strop disgusting and disrespectful actions (Haidt et al. 1993). These effects occurred, even when removing participants who cited harm, indicating it was not differing perceptions of harm that caused these differences. Indeed, there were no significant differences in the perceived harmfulness in the harmless-offensive stories between cultures/SES groups.

A similar effect (but weaker) occurred by city, with more 'western cities' more likely to have characteristics of a high SES group and vice versa. This is important as it displays that different cultures and

socio-economic situations value different explanations. Since explanations of community, purity and social norms are valued as reasonable explanations for moral injustice, it is possible that moral dumbfounding would not occur as often in these communities. In the West, saying something is 'impure' would typically not be a good enough reason for it to be morally condemned, but it is in other parts of the world (Miller et al., 1992). Therefore, Julie and Mark would be judged via purity. This would mean that those under the ethics of autonomy would be more likely to be dumbfounded by the Incest vignette than those under the ethics of community or even divinity. This has implications for most moral studies, as they typically involve Western university students, who tend to come from high SES backgrounds.

Previous research has indicated substantial differences between autonomy, community and divinity ethics. Relying heavily on one of these ethics could make justifying the disgust-based incest story easier, reducing dumbfounding. However, these previous studies focused on non-Western religious cultures, how would Western religious cultures react to disgust based vignettes? Haidt et al. (2001) studied a group of American liberals and conservatives (who tended to use more fundamental religious arguments) to see how they would justify being for or against homosexuality. Just like the incest story, homosexuality falls under the domain of disgust due to its association with disease (any sexual activity would be associated with disease). In this study, two vignettes describing lesbian and gay sex were used, as well as two vignettes describing unusual masturbation practices and two incest vignettes. Participants were asked to rate how wrong the situation was, whether their judgement should be applied universally, and if the person should be stopped.

Conservatives were more likely to negatively judge the homosexual vignettes and universalise them than liberals. Liberals tended to only invoke the ethics of autonomy, using arguments related to harm, justice and freedom to act. In contrast, conservative participants used both the ethics of divinity AND autonomy which in this instance, these ethics clash. Therefore, conservative participants had significantly higher levels of dumbfounding than liberal participants, as their values clashed.

The moral dumbfounding effect seems to show that we are more intuitive with our moral decision-making when it comes to justifying our moral foundations. However, this dumbfounding reaction could result from the ethics of autonomy rather than a universal human response. People who lean more heavily into the ethics of divinity or even autonomy may find it easier to justify their moral intuitions. To test this, we conducted a moral dumbfounding study that compares levels of religiosity with the propensity for

dumbfounding. The research question for this experiment would be, are individuals with high religiosity less prone to dumbfounding?'

Method

Participants

137 participants were recruited online using both social media and with posters set up around AUT university. However, 21 participants were excluded from the analysis because they failed to fully answer one block of questions. As such, only the 116 answers from participants who completed at least one block of the survey were retained. Participants were aged between 16 and 80 (M = 28.24, SD = 14.2). There were 45 males, 64 females, 3 non-binary and 4 either did not answer or selected "prefer not to say". Most participants considered themselves to be NZ European (n = 62). There were more Asian participants (n = 26) than Māori (n = 6) or Pasifika (n = 8). There was only a handful of participants of other ethnicities (n = 9). 5 participants did not record their ethnicity.

Measures

To measure religiosity, the centrality of religiosity scale was used. This scale measures the "centrality importance or salience of religious meanings in personality" (Huber & Huber, 2012. p. 710). This is a 10-item scale, an example from it is "How often do you think about religious issues?" Responses were measured on a 5-point response scale measured from 1 = never, to 5 = very often. This scale has previously had a good internal consistency (α = .93; Huber & Huber, 2012), which was maintained at a similar level in the present study (α = .96).

This study used a within subjects design, where participants answered questions relating to three different vignettes. Each vignette had a set block of questions to go with it. These blocks of questions (and their associated vignettes) were presented in a randomised order. The three vignettes used were as follows:

Incest vignette

> Julie and Mark are brother and sister. They are traveling together in France on summer vacation from college. One night they are staying alone in a cabin near the beach. They decide that it would be interesting and fun if they tried making love. At the very least it would be a new experience for

each of them. Julie was already taking birth control pills, but Mark uses a condom too, just to be safe. They both enjoy making love, but they decide not to do it again. They keep that night as a special secret, which makes them feel even closer to each other. (Haidt et al., 2000; p.15)

Dog Vignette

A family's dog was killed by a car in front of their house. They had heard that dog meat was delicious, so they cut up the dog's body and cooked it and ate it for dinner. (Haidt et al., 1993; p.617)

Promise Vignette

A woman was dying, and on her death bed she asked her son to promise that he would visit her grave every year. The son loved his mother very much, so he promised to visit her grave every year. But after the mother died, the son didn't keep his promise, because he was very busy. (Haidt et al., 1993; p.617)

Each block of questions were tailored to fit each vignette. For example, for the Incest vignette one of the questions was "Julie and Mark's behaviour did not harm anyone, how can there be anything wrong with what they did?", while the same question for the Dog vignette read "The family's behaviour did not harm anyone, how can there be anything wrong with what they did?". For the sake of simplicity, only the Incest vignette's block will be described in detail, since the other two blocks are fundamentally the same.

Procedure

This study is a replication of McHugh et al. (2020). As such, the sample size and methods are based on their study. The study was carried out online. Participants first completed the centrality of religiosity scale (Huber & Huber, 2012). Then, participants read the Incest vignette. Participants were then asked to rate how wrong Julie and Mark's behaviour was on a seven-point response scale ranging from 1 = Not at all wrong, to 7 = Very wrong. Then participants were asked "Why did you give their behaviour that rating? (please explain), along with space for them to type a response. Those participants who managed to articulate a reason to justify their position obtained the requirement of articulation. For a reason to be considered valid, it

had to not use any logical fallacies (Kelly, 1988). This is a slight variation from previous moral dumbfounding studies, which accepted either the harm principle (has someone been harmed?) or the norm principle (is this practice considered abnormal by the participant?) as valid reasons. However, the norm principle is considered a logical fallacy, which is why we won't be using it in this study. This leaves only the harm principle to judge participants reasons, which is far too limited, considering the many other reasons participants could give to justify their position. Therefore, we will be using logical fallacies to judge participant's reasons in this study. Participants also rated their confidence in their answer on a seven-point response scale ranging from 1 = Not very confident, to 7 = Very confident.

Then, three counterarguments were presented to the participants, which were taken from Royzman et al. (2015) and McHugh et al. (2020). These arguments covered typical moral arguments against Julie and Mark's actions. They were designed to reinforce the idea that no harm occurred in this story and that both participants gave consent. These arguments were: "Do you agree that any concerns regarding reproductive complications are eased by their using of two forms of contraception?", "And do you accept that they are both consenting adults and that they both consented and enjoyed it?" "And do you concede that nobody else was affected by their actions?".

Then participants were presented with the critical question that determines dumbfounding, "Julie and Mark's behaviour did not harm anyone, how can there be anything wrong with what they did?". There were three options: "A; There is nothing wrong. B: There is something wrong but cannot think of why. C: There is something wrong, and I can think of why." Those who answered B were considered dumbfounded. Those who answered C were given space to explain.

Participants then re-rated the wrongness of behaviour and their confidence using the same wrongness and confidence scales.

Next, we measured participant's endorsement of the harm principle with the following questions: "Having read the story and considering the arguments presented, are you able to believe that Julie and Mark's having sex with each other will …" "Negatively affect the quality of their relationship?" (yes/no). "Negatively affect how they feel about each other later on?" (yes/no). "Have no bad consequences for them personally?" (yes/no) "Have no bad consequences for those close to them?" (yes/no). The four yes/no questions will be presented in a random order. If participants at least agree with one of the first two statements or disagree with one of the second two statements, they were recorded as endorsing the harm

principle. In other words, participants who still believe harm exists in the stories will have endorsed the harm principle.

To be considered dumbfounded, participants must not satisfy the requirement of articulation, must not endorse the harm principle and must answer B on the critical question. Only participants who meet all these requirements will be considered dumbfounded. Due to low dumbfounding rates using this criteria, several other methods were created to assess dumbfounding, these are as follows.

Firstly, dumbfounding across all three vignettes were combined together. If a participant was dumbfounded by at least one of the three vignettes, they were considered dumbfounded in this variable. This variable will be referred to as Combined Dumbfounding.

Secondly, dumbfounding scores for the Incest and Promise vignettes will be combined, the same way as Combined Dumbfounding. This was done because the Incest and Promise vignettes have religious reasons to justify why they are wrong, therefore the impact of religiosity should be clearer when combining them. This variable will be referred to as Religious Dumbfounding.

Thirdly, dumbfounding was also completely recoded by the researchers only using the reasons given by the participants as a guide. If a participant's reason was a logical fallacy they were considered dumbfounded. These logical fallacies were taken from a list of common logical fallacies by Kelly, (1988). Three researchers independently coded the responses and reached a consensus on the Incest vignette and the Dog vignette. There was too much disagreement on the Promise vignette, so this vignette will not be analysed in this way. A qualitative analysis was also done on the reasons that participants gave to see if there were any patterns in their responses.

Results

Descriptive Statistics

Religiosity fell across the full range of the scale, from not very religious (1) to very religious (5), with a mean of 2.85. Participants tended towards one end of the scale or the other, with the data being bimodally distributed. This bi-modal distribution was more strongly seen for males (Levene's test of homogeneity of equal variances ($F(1, 107) = 8.25$, $p = .005$). Additionally, male participants had a somewhat higher religiosity score (M = 3.00, SD = 1.38), than females (M = 2.85, SD = 1.13), however, this was not statistically significant ($t(83.5) = .61$, $p = .541$). Older participants tended to be more religious, but this was also not statistically significant ($r(110) = .14$) $p = .131$).

Relationship Between Vignettes

Using the original dumbfounding coding method, overall we found that participants dumbfounded in one vignette also tended to be dumbfounded in the other vignettes as well. Participants who were dumbfounded by the promise vignette, were also dumbfounded by the Dog vignette, although this relationship only approached significance χ^2 (1, N = 116) = 3.55, p = .06. Furthermore, participants dumbfounded by the Incest vignette also tended to be dumbfounded by the Promise vignette χ^2 (1, N = 116) = 8.48, p =.004 and the Dog vignette χ^2 (1, N = 114) = 6.23, p = .013. This was also the case for the dumbfounding variables that were recoded by the researchers. Those dumbfounded by the Incest vignette were also dumbfounded the Dog vignette χ^2 (1, N = 114) = 10.1, p < .001. This shows that despite the vignettes having different content, all three tended to dumbfound the same people.

In Table One we see that the more wrong an individual rated a vignette, the more confident that person was in their rating. This occurred across all three vignettes, but was only statistically significant for the Dog and Incest vignettes. Furthermore, those who considered the Incest vignette to be morally wrong, also tended to consider the Promise and Dog vignette to be wrong, although this effect only approached significance for the Dog vignette. Interestingly, those who were confident in their answers for the incest vignette also tended to be confident for the Dog vignette.

Table One also shows that more religious participants found the Incest and Promise vignettes to be more wrong than less religious participants. This did not occur in the Dog vignette, assumingly because religious participants had no religious reason as to why eating a dog is wrong, while there are religious reasons as to why incest and breaking promises are wrong, which were both statistically significant. Continuing this pattern more religious people tended to be more confident about their reasons for the Incest and Promise vignette, but tended to be less confident for the Dog vignette, however, none of these effects were statistically significant.

Female participants tended to find the Incest and Dog vignettes to be more wrong than male participants, both of these correlations were statistically significant. Otherwise, there was no significant gender differences.

For age, younger participants were more confident in how they rated the Dog vignette, but this increased level of confidence did not translate over to any of the other vignettes, nor were they any more condemning of any of the stories compared to older participants. See Table One for more details.

Table 1.
Correlation Matrix for Wrongness, Confidence, and Descriptive Statistics.

	Wrongness Incest	Confidence Incest	Wrongness Dog	Confidence Dog	Wrongness Promise	Confidence Promise	Gender	Age	Religiosity
Wrongness Incest									
r	---								
Confidence Incest									
r	.21*	---							
Wrongness Dog									
r	.17	.20*	---						
Confidence Dog									
r	.16	.45***	.32***	---					
Wrongness Promise									
r	.43***	.05	.12	.08	---				
Confidence Promise									
r	-.05	.15	.04	.16	.05	---			
Gender									
r	.23*	.10	.23*	-.02	-.09	-.11	---		
Age									
r	.04	.05	-.09	-.19*	.12	-.15	-.16	---	
Religiosity									
r	.33***	.13	.03	-.09	.41***	.02	-.06	.14	---

$p < .05$ = *, $p < .01$ = **, $p < .001$ = ***

Dumbfounding Rates

Most participants were not considered dumbfounded by the specific vignettes; 15/116 (12.9%) were dumbfounded for the incest vignette, 16/114 (14%) were dumbfounded by the Dog vignette and 13/114 (11.4%) were dumbfounded for the Promise vignette. Only two participants from the Incest and Dog vignette and one from the Promise vignette were changed from dumbfounded to not dumbfounded due to meeting both the requirement of articulation and endorsement. Dumbfounding was practically reduced to zero across all vignettes (0/116 for the Incest vignette, 2/116 for the Dog vignette, and 2/116 for the Promise vignette) when only accounting for the requirement of endorsement, suggesting that participants who agreed with one of the pre-made reasons against the vignettes were engaging in post-hoc reasoning, as many were not able to come up with reasons on their own.

For the dumbfounding that was recoded by the researchers, dumbfounding levels increased across both the Incest vignette (60/116, 51.7%) and the Dog vignette (62/114, 54.4%). This increase was mostly due to many participants claiming to know why they believed a particular story to be wrong, but answered in a circular way. For example, many participants said incest was wrong because “its incest”. From this it seems that this type of experiment would be better done in person due to this drastic increase in dumbfounding rates.

Relationship Between Religiosity and Dumbfounding

In order to determine if religiosity could predict dumbfounding, a binary logistic regression was performed. As seen in Table Two, those higher in religiosity tended to be less dumbfounded by the Incest vignette, although this effect only approached significance. This continued to be the case when accounting for age and gender. However, when using the dumbfounding which was recoded by the researchers, this effect was no longer significant and remained unchanged when accounting for age and gender. Since the first dumbfounding coding was based on whether participants admitted to being dumbfounded, this means that religious people were more confident in choosing that they were not dumbfounded than less religious people. This does not mean they were less dumbfounded, as this effect disappeared when the researchers dictated who was dumbfounded. See Table Two for overview of statistics.

Table 2.

Binary Logistic Regression Between Religiosity and Dumbfounding for the Incest Vignette

Dumbfounding		95% confidence interval			
	Odds Ratio	Lower	Upper	Z	p
Unadjusted model					
Religiosity	0.65	0.39	1.07	-1.7	.089
Adjusted model					
Religiosity	0.63	0.37	1.08	-1.67	.095
Age	0.33	0.10	1.02	-1.03	.305
Gender	1.10	2.33	1.15	-1.74	.081
Recoded Dumbfounding		95% confidence interval			
	Odds Ratio	Lower	Upper	Z	p
Unadjusted model					
Religiosity	0.97	0.72	1.30	-0.23	.821
Adjusted model					
Religiosity	1.00	0.74	1.37	0.03	.979
Age	1.00	0.97	1.03	0.07	.945
Gender	0.82	0.38	1.78	-0.50	.616

Table 3.

Binary Logistic Regression Between Religiosity and Dumbfounding for the Dog Vignette

Dumbfounding		95% confidence interval			
	Odds Ratio	Lower	Upper	Z	p
Unadjusted model					
Religiosity	1.34	0.87	2.07	1.33	.183
Adjusted model					
Religiosity	1.4	0.87	2.23	1.39	.165
Age	0.99	0.95	1.03	-0.5	.618
Gender	1.12	0.34	3.49	0.19	.846
Recoded Dumbfounding		95% confidence interval			
	Odds Ratio	Lower	Upper	Z	p
Unadjusted model					
Religiosity	0.97	0.72	1.31	-0.21	.837
Adjusted model					
Religiosity	0.97	0.71	1.33	-0.18	.859
Age	1.01	0.98	1.03	0.45	.653
Gender	0.69	0.32	1.50	-0.94	.348

Table 4.

Binary Logistic Regression Between Religiosity and Dumbfounding for the Promise Vignette

Dumbfounding		95% confidence interval			
	Odds Ratio	Lower	Upper	Z	p
Unadjusted model					
Religiosity	1.39	0.86	2.23	1.34	.179
Adjusted model					
Religiosity	1.50	0.89	2.54	1.51	.130
Age	0.93	0.85	1.02	-1.62	.105
Gender	1.15	0.33	3.96	0.22	.830

As seen in Table Three, contrary results were found for the Dog vignette, as there was no evidence that religiosity predicted dumbfounding. This did not change when accounting for age and gender. When using the recoded dumbfounding, there was no change in significance levels, and accounting for age and gender did little to change these outcomes.

As displayed in Table Four, no evidence was found that religiosity could predict dumbfounding for the Promise vignette. This seems to indicate that religiosity could only predict dumbfounding in the Incest vignette. This makes sense, as the Promise vignette is based in respect, rather than disgust. These results did not change when accounting for both age and gender. The recoded dumbfounding for the Promise vignette will not be analysed as the coders could not reach a consensus for this vignette.

A binary regression was also performed for Combined and Religious Dumbfounding variables. The Combined Dumbfounding variable combined the dumbfounding of all three vignettes into one variable so if you were dumbfounded by at least one of the three vignettes, you were considered dumbfounded by this variable. This was done due to the low levels of dumbfounding recorded in the initial coding. As seen in Table Five, no evidence was found that religiosity could predict dumbfounding for Combined Dumbfounding. This did not change when accounting for age and gender.

Table 5.

Relationship between Religiosity and Dumbfounding for Combined Dumbfounding

Dumbfounding		95% confidence interval			
	Odds Ratio	Lower	Upper	Z	p
Unadjusted model					
Religiosity	1.02	.74	1.42	.14	.891
Adjusted model					
Religiosity	1.01	.74	1.50	.30	.762
Age	.98	.94	1.01	-1.26	.208
Gender	.7	.29	1.65	-.82	.410

Table 6.

Relationship between Religiosity and Dumbfounding for Religious Dumbfounding

Dumbfounding		95% confidence interval			
	Odds Ratio	Lower	Upper	Z	p
Unadjusted model					
Religiosity	.9	.62	1.31	-.55	.581
Adjusted model					
Religiosity	.91	.61	1.37	-.46	.648
Age	.97	.92	1.01	-1.51	.132
Gender	.50	.19	1.35	-1.37	.171

Religious Dumbfounding combined two of the vignettes together, the Incest vignette and the Promise vignette in the same manner as Combined dumbfounding. This was done because there seemed to be evidence that religious people would have religious reasons for these two vignettes, but not for the Dog vignette. Some evidence for this can be seen in Table One, as more religious people gave the Promise and Incest vignette higher wrongness scores, but no such relationship was seen for the Dog vignette. Therefore, combining these two vignettes together may more clearly show the impact on religiosity on dumbfounding. However, as displayed in Table Six, there was no evidence that religiosity could predict Religious Dumbfounding. This somewhat changed when accounting for age and gender, but stayed insignificant. As such, no evidence for the predicting power of religiosity was found across these dumbfounding variables.

Impact of Counter Arguments

Participants rated now wrong they thought each vignette was, 'from not at all wrong' to 'very wrong'. They also rated their confidence in their wrongness scores from 'not very confident' to 'very confident'. Participants then re-rated both of these scales after viewing three counter arguments. These counter arguments were designed to remind participants that no harm or violation of autonomy had occurred during the vignette. In order to test if the counter arguments effected the wrongness and confidence scales, a repeated measures ANCOVA was run for all three vignettes with age and gender controlled.

As displayed in Table Seven, there were mild fluctuations in the wrongness and confidence scales before and after the counter arguments for the Incest vignette. None of these changes were statistically significant, but both how wrong participants rated the Incest vignette and the confidence in their answer increased. This shows that the counter arguments had very little impact on how the participants viewed the Incest vignette. These results stayed the same when accounting for age and gender.

The Dog vignette had even smaller changes than the Incest vignette, with the confidence scale not changing at all, and the wrongness scale barely decreasing. Obviously, neither of these changes were statistically significant (see Table Seven). Considering that both the Incest and Dog vignettes are both based in disgust, it is unsurprising that the counter arguments were similarly obsolete for both. This did not change when accounting for age and gender. Once again, the counter arguments did little to change the participants' minds and the confidence in their answers.

As seen in Table Seven, the counterarguments seemed to have some impact on the Promise vignette. For the wrongness scales, participants rated the vignette as less wrong after hearing the counterarguments. This difference was also statistically significant, unlike the previous two vignettes. However, upon accounting for age and gender, the model was no longer significant ($F(1, 113) = .81$, $p = .37$). This indicates that the counter arguments did make a difference on how wrong people thought the vignette was, but this difference is mostly explained by how old the person was, and their gender rather than the counterargument itself. For the confidence scales, like the previous vignettes there were small fluctuations, but nothing significant. Accounting for gender and age had little impact on how confident people were in their answers. However, participants tended to view the Incest vignette as more wrong than the Promise vignette ($F(1, 113) = 4.22$, $p = .003$). Therefore, across all vignettes there was no evidence that the counterarguments had any impact on how wrong participants thought the vignettes were and how confident they were in their answers.

Table 7.
Wrongness and Confidence Scales before and after Counterarguments

Within Subjects Effects	F	*p*	M Before Counter Arguments	M After Counter Arguments
Wrongness Incest Vignette	1.40	.24	5.70	5.63
Confidence Incest Vignette	0.22	.643	6.43	6.47
Wrongness Dog Vignette	0.01	.916	5.14	5.13
Confidence Dog Vignette	<.01	1	6.16	6.16
Wrongness Promise Vignette	5.37	.022	3.90	3.67
Confidence Promise Vignette	0.34	.561	6.03	5.98

Thematic Analysis

Participants were asked to justify the wrongness rating they gave each vignette. This was done both before the counterarguments and after them. Therefore a thematic analysis was done on these responses to see if any patterns emerged in the type of reasons people gave.

For the Julie and Mark vignette, the most common response was a circular argument, followed by feelings of disgust. Ideas of harm, respect and autonomy, were prominent. See Table Eight for a summary of reasons.

For participants who felt nothing was wrong, most cited the consensual nature of the relationship, making an autonomy argument, while a few cited the lack of harm. This makes sense, as autonomy and harm arguments were accounted for, so participants who primarily use those arguments should find nothing wrong with this vignette.

For participants who felt there was something wrong, a good portion made appeals to potential harm, like the the possibility of a child being born, emotional harm or possible harm to future relationships. As such, harm was still widely used to argue against the Incest vignette, rather than just for it. This shows despite harm being accounted for, many participants still felt like the vignette contained harm. However, unlike those who thought there was nothing wrong with the vignette, several participants used respect based arguments. These arguments appealed to family structure and societal norms. This is an interesting deviation, as it shows that participants who use respect based arguments only thought the vignette was wrong, displaying the lack of accounting for respect arguments. Several participants also appealed to a higher order,

such as the law, nature or God. However, most participants found it difficult to explain themselves, expressing disgust at the situation or making a circular argument. By far these dumbfounded responses (circular and expressing disgust) were the most common reactions to the Incest vignette, which aligns well with previous studies. Just about all of the people against the Incest vignette made one sided arguments, failing to acknowledge that both parties consented and enjoyed it. Only a handful of people were able to acknowledge this fact, and still found reasons to be against the vignette. As such, most participants did not weigh both sides of the argument.

Different patterns emerged for the participants who heard the counterarguments and still believed there was something wrong. By far, the most popular reason was future impacts, which increased from before the counter arguments, while the possibility of a child being born decreased. This is probably because one of the counter arguments reminded participants that Julie and Mark used protection, so there was no chance of a child being born. Therefore, it is likely many participants changed why they believed the story to be wrong, rather than admitting there was nothing wrong. This shows that the counter arguments did have an impact, but were unable to change anyone's minds. Many participants still appealed to norm principles, to the law, and to God. But once again circular and emotional arguments were most commonly used although their frequency did decrease. See Table Eight for more details.

Table 8.

Reasons Given in Response to the Incest Vignette.

Reason	Nothing wrong	Something Wrong (Before Counter-Arguments)	Something Wrong (after Counter-Arguments)
Child could be born	-	22 (2)	13 (3)
Future harm	-	4 (1)	27 (11)
Destruction of family structures	-	13 (2)	12 (6)
Norm principle	-	12 (1)	9 (1)
Circular	-	47 (35)	22 (10)
Emotional	-	8 (5)	16 (6)
No harm occurred	4 (3)	-	5 (0)
Both consented	13 (5)	8 (0)	1 (0)
Religious	-	12 (0)	7 (1)
Against the law	-	6 (0)	5 (0)
Natural	1 (1)	3 (1)	-

Note: Numbers outside the parenthesis are the total responses. Numbers in the parenthesis are the responses that ***only*** used that reason.

For the Dog vignette, most responses focused on the cultural and relational element of the story when justifying why it was wrong while focusing on the harm and cultural element when describing why it was morally okay. For a summary of reasons, see Table Nine.

For those who did not think there was anything wrong with the vignette, most pointed out different cultures have different tastes. They acknowledged it was not normal to eat dogs in NZ, but they could put that aside. Many participants also voiced their disgust at the situation, and pointed out that the vignette was very disrespectful, but again were able to put these points aside. This is already quite different from the Incest vignette, as people are already weighing up both sides rather than being one sided. The next most cited

reason was the lack of harm, as neither the dog nor the family was harmed. This aspect is quite similar to the Incest vignette, as the people who did not think the vignettes were wrong both cited the lack of harm, and autonomy. This makes a lot of sense, considering both of these vignettes were made with autonomy and harm arguments accounted for.

Just like the Incest vignette, participants who believed there was something wrong with the story used social and respect based reasons. Many participants believed that eating the dog was just like eating a family member. Others believed that the family was being disrespectful towards the dog, or even being disrespectful towards the dead in general. This focus on the relationship with the dog was the main difference from those who thought there was nothing wrong. Similarly to the Incest vignette, emotional outbursts and circular reasoning were also popular reasons, although they were not nearly as popular as in the Incest vignette. Also, emotional outbursts were often paired with a social reason, as such, these participants were not as likely to be dumbfounded as those who used circular reasoning. Just like those who did not believe anything was wrong, many participants acknowledged that eating dogs was fine in other countries. Again, this shows a greater level of weighing up both sides of the argument than in the Incest vignette. Other than these main themes, many other reasons were used. See Table Nine for full list of reasons.

Similar patterns emerged for participants who saw the counterarguments and still believed the story to be wrong. Respect based reasons were still the most popular, participants believed that the dog's relationship with the family should be treated with the same level of respect as any other family member. Once again, those who used circular arguments and emotive language tended to have another reason to justify their response. Therefore, unlike in the Incest vignette, the counter arguments had very little impact on the reasons used.

Table 9.

Reasons Given in Response to the Family Vignette.

Reason	Nothing wrong	Something Wrong (Before Counter-Arguments)	Something Wrong (After Counter-Arguments)
Different cultural practices	12 (1)	13 (0)	4 (0)
No harm done	7 (2)	3	2 (0)
It is like eating family	4 (0)	37 (10)	29 (16)
Disrespectful	1 (0)	17 (3)	11 (2)
Circular	-	20 (6)	14 (10)
Emotional/disgusted	3 (0)	16 (7)	9 (0)
Norm principle	-	3 (1)	5 (0)
Against the law	-	3 (0)	-
Could get sick	-	10 (0)	6 (2)

Note: Numbers outside the parenthesis are the total responses. Numbers in the parenthesis are the responses that ***only*** used that reason.

There was greater variability in the reasons given for the Promise vignette than the other vignettes. This seemed to be the case because almost all participants admitted that 'life happens' and, therefore, did not blame the son for not keeping his promise. This meant participants who believed the son was wrong had a great range of how wrong they thought he was, as they weighed up how realistic the promise was with other reasons. The same occurred for those who thought the son was not wrong; they just gave greater weight to the promise being unrealistic. For a summary of the results, see Table Ten.

For those who did not think anything was wrong with the story, most believed the promise was unrealistic or that life just happens. The next most popular reason was that the mother was not harmed by the son's actions. Several participants focused more on how the mother acted, believing the mother would understand. Some participants focused more on the son's intention, believing nothing was wrong because the promise gave the mother peace, and his good intention mattered more than his action. Two participants

actually blamed the mother for forcing her son to make this unrealistic promise. Despite all of these reasons, many participants still acknowledged that the son might feel bad about not keeping his promise, that visiting a grave once a year was not a hard promise to keep and that promises should be kept. As such, most answers had multiple reasons, comparing and contrasting different story elements. Only a handful of people only gave one reason to justify their judgement. This complexity stands in stark contrast to the Incest vignette, and even the Dog vignette. Furthermore, the Promise vignette did not just have people using autonomy and harm arguments, but had a variety of respect arguments as well. This could be because this is a respect based vignette, so using respect based arguments comes more naturally to people than in the other vignettes. Regardless, this shift to more and more complex arguments and greater weighing of arguments is an interesting pattern to point out.

Participants who believed something was wrong in the story had very similar reasons to those who thought nothing was wrong. By far, the most cited reason was that promises should be kept. This is borderline a circular argument. However, most participants who used this reason backed it up with other reasons; the most popular was that it was very easy for him to keep his promise. Other reasons used were as follows: visiting the mother's grave was a social obligation, son acted disrespectfully towards mother, son would have a guilty conscience and the son did not care about his mother. As such very few participants only used circular and emotional arguments, which is quite different from previous vignettes. Additionally, many participants weighed up both sides before reaching a verdict. Many participants admitted that the promise was unrealistic and that ‘'life happens'. Some participants acknowledged that the mother was not harmed, and believed the Son had good intentions. A couple of participants believed the mother would understand the situation. Other participants blamed the mother, saying she should not have forced her son to keep this promise, and this was preventing him from moving on. Therefore, the answers given to justify the Promise vignette were far more complex and varied than both the Incest and Dog vignettes.

For participants who viewed the three counterarguments, the results were very similar. The greatest difference was appealing to how unrealistic the promise was; far less people used this reason. Instead, many participants found it hard to believe that the son had no time to visit his mother's grave questioning whether he loved his mother at all. Other than this change, the reasons used before and after the counter arguments were remarkably similar in their complexity and variety. The most cited reason was that breaking a promise was wrong. Most justified why breaking a promise was wrong. Some claimed it would affect his future

relationships and character, while others claimed it would make him feel guilty and was disrespectful towards his mother. Regarding contrasting arguments, many participants admitted no harm had been done to the mother, and that the son still loved his mother (which lessened how wrong his actions were). Only one argument was truly circular, and no one appealed to emotion or had emotive responses.

Table 10.

Reasons Given in Response to the Son Vignette.

Reason	Nothing wrong	Something Wrong (Before Counter-Arguments)	Something Wrong (After Counter-Arguments)
Life goes on	21 (7)	19 (2)	1 (0)
Mother would understand	4 (0)	2 (0)	-
Mother not harmed	13 (3)	6 (2)	6 (0)
Son had good intentions/still loved her.	12 (3)	7 (0)	3 (0)
Son will feel bad	5 (0)	5 (0)	8 (7)
Not a hard promise to keep	2 (0)	10 (3)	7 (1)
Promises should be kept	4 (0)	31 (6)	23 (6)
Disrespectful/social obligation	-	17 (1)	10 (4)

Note: Numbers outside the parenthesis are the total responses. Numbers in the parenthesis are the responses that ***only*** used that reason.

Relationship Between Religiosity and Argument Type

Finally, a binary regression was performed to see if religiosity predicted the type of reason used. This was done by counting the number of similar arguments made by participants. These groupings were made to try to encapsulate as many responses as possible and were only done by one researcher. This was only done for four main reasons for each vignette since only a few participants used some of the reasons. How participants used these reasons (either for or against) in the vignette was not distinguished. For

example, if one participant believed the incest vignette to be morally wrong and cited the potential harm of a child being born, this was considered a harmful reason just as much as a person believing nothing in the story to be wrong and citing the lack of harm. For the Incest vignette, the four reasons coded were harm, autonomy, respect and emotional/circular reasoning. For the Dog vignette, the four reasons coded were harm, respect, circular reasoning/emotional and the norm principle. For the Promise vignette, the four reasons coded were harm, life goes on, respect, and promises.

For the Incest vignette, religiosity did not predict reasons based in harm, autonomy, respect or circular/emotional. This did not change when accounting for gender and age. Therefore, how religious a person was did not impact the reasons they used.

For the Dog vignette, more religious people were more likely to use respect based reasons than less religious people (χ^2 (1) = 4.17 p = .041). This fits the idea that secular cultures rely on harm and autonomy. There was no difference for harm, circular/emotional and normative arguments. When accounting for age and gender, none of the reasons reached significance except for the norm principle (χ^2 (3) = 8.32 p = .04).

For the Promise vignette, the more religious you were the more likely you were to use keeping promises as a part of your answer (χ^2 (1) = 5.88 p = .015). However, there were no significant effects for any of the other reasons. It was also observed that older religious participants were more likely to use harm as a reason (χ^2 = (2) 9.74, p = .008). Apart from these findings, how religious a person was did not predict the type of reason used.

Discussion

The present study set out to do two things. Firstly, to replicate McHugh et al's. (2020) moral dumbfounding study. Our study was successful in this endeavour. Dumbfounding reached similar levels to McHugh et al. (2020) and Royzman et al. (2015) before they applied the endorsement filter, which was later shown by McHugh et al. (2020) not to be an accurate way of filtering dumbfounding. As such, this study managed to replicate the moral dumbfounding effect.

Despite this replication, dumbfounding rates were still quite low, much lower than the initial moral dumbfounding study conducted by Haidt et al. (2000). It is very likely this is because their study was conducted in person, allowing for more push back on faulty reasoning. This also lines up with our study, as it was noted that dumbfounded would have been higher if this experiment had been done in person, as many

participants refused to admit they were dumbfounded despite not giving any reasons for their stance, which is the definition of dumbfounding. For example, one participant explained incest was wrong because 'it's incest', and upon picking option three on the critical question, explained 'because it is morally wrong'. Due to how this study is set up, this person was classified as not dumbfounded despite having no reasons for considering incest as wrong. Our recoded dumbfounding allowed us to push back on these reasons in a similar manner to Haidt et al. (2000), using logical fallacies as our measuring stick to determine the legitimacy of a reason. This resulted in a significant spike in dumbfounding, with over half the participants for both the Incest and Dog vignettes being classified as dumbfounded. As such, this new dumbfounding rate was comparable to Haidt et al. (2000) who found 23/30 participants used faulty reasoning. Therefore, for future dumbfounding experiments, it seems reasonable to either conduct the experiment in person to push back on faulty reasoning or sweep the data of logical fallacies to get a better estimate of moral dumbfounding.

Further evidence Dumbfounding Studies Should be Done in Person

In addition to this, we found a confusing association between how wrong a participant believed a vignette to be and their level of dumbfounding. We found that the less wrong the participant found the vignette, the more likely they were to be dumbfounded. While this could be because the wrongness and confidence ratings were correlated, so less confident participants also tended to rate the vignette lower on the wrongness scales. Therefore, less confident participants are more likely to be dumbfounded, which makes a lot of sense. However, there was no evidence found that confidence scores predicted dumbfounding, making the above findings somewhat puzzling. Exploring this relationship further found that there was a spike of participants who were dumbfounded and also answered one out of seven for the wrongness scale. This is problematic, because a rating of one is meant to mean the vignette is not wrong at all. Cleary these participants did not understand what this meant, because it is impossible for them to be considered dumbfounded if they did not think there was anything wrong with the situation. On the critical question, theses participants should have selected option A (There is nothing wrong), which would have stopped them from being considered as dumbfounded. Instead, they must have selected either option B (There is something wrong but cannot think of why) or C (There is something wrong, and I can think of why). This is why we did not record these results in the results section, as there are indications that the participants did not understand

our scales, which may be why we obtained these puzzling results. This adds to the idea that this type of study should be carried out in person.

Religiosity Predicting Dumbfounding

The next and main goal of our study was to see if religiosity could predict levels of dumbfounding, specifically whether those with higher religious tendencies would be less likely to be dumbfounded. Our study found some weak evidence to back up this hypothesis, as this pattern nearly emerged with the Incest vignette. However, this pattern was not found for any of the other vignettes, and completely disappeared when using the recoded dumbfounding data (the data that the researchers recoded). This lack of evidence could be due to our sample size, considering how close our significance levels got, a larger sample size may have given us a better indication this effect. As for the rest of the data, the lack of predictive power of religiosity could be due to how secular many Western Christians are (Haidt & Hersh, 2001). This focus on Christianity is due to its dominance (compared to other religions) in New Zealand, so most participants (if they were religious) would have been Christian. Around 29% of Māori are Christian of some denomination (Figure. NZ, 2018), and around 32% of New Zealanders identified themselves as some form of Christian (Figure. NZ, 2018). Western Christians may hold their religious beliefs in one hand and secular beliefs in another, living by both. If this is the case, Western Christians would be more confused by the vignette of Julie and Mark, and their religious beliefs would tell them that the scenario is wrong. However, their more secular beliefs would tell them to focus on autonomy and harm (which, having been accounted for) would make the situation morally acceptable. This would cause them to be dumbfounded.

This idea is partially backed up by Haidt & Hersh (2001), who found conservative Americans more likely to be confused/morally split over homosexuality. This was because conservatives used autonomy as often as liberals in their reasoning but were also more likely to use purity to justify their responses. As such, conservatives had higher dumbfounding rates than their liberal counterparts for homosexual vignettes, as they had two aspects of reasoning that clashed with one another. While this study was done on the political spectrum and in the United States, making its relevance to this current study imperfect, it still allows this clash of ideals that may occur among Christian New Zealanders. This would explain the study's main results. As such, a culture that is not as secular may be less likely to experience this clash.

Another reason for religiosity not predicting dumbfounding may be due to the sample used in the study. In Haidt et al.'s (1993) study they found that richer, western university educated participants tended be more permissive of disgusting acts, less likely to universalise them and more likely to use harm and autonomy based reasons to justify their positions. Considering our sample largely consisted of university students (who were mostly NZ European) it could have reduced the impact religiosity had. After all, religiosity did approach significance, so with a larger more diverse sample size, evidence for this effect may be observed.

This may be why Haidt et al. (1993) and Miller et al. (1990) found such clean results when comparing South American cultures and Indian cultures with American cultures, as those places put less emphasis on reasons based in harm and autonomy, and focus more on respect and purity. (Miller & Luthar, 1989; Miller & Bersoff, 1992; Shweder et al., 1987). Therefore, future studies could look at the same effect in India or South America to see if religion helps those participants avoid being dumbfounded. Future research could be done to see if this clash of ideals exists within New Zealand on both the religious and political spectrum.

Similarities and Differences Between Vignettes

An analysis was also run to see if participants who were dumbfounded in one vignette would be dumbfounded in another. We found that those dumbfounded in the Dog vignette were also dumbfounded in the Incest vignette. This result can be explained by both vignettes being based on disgust. Therefore, participants who found disgusting stories difficult to answer or had a higher tendency to be disgusted would answer similarly to both of these vignettes. The Promise and Incest vignettes were also found to have similar results, so the Promise vignette also dumbfounded those dumbfounded by the Incest vignette. This was not expected to be the case, as the Promise vignette focuses on feelings of respect rather than disgust. This could be due to religious views. Since most of our religious participants are probably Christian, there is little in Christianity which talks about not eating certain animals. As such, Christians and secular people have similar moral reasons to justify the Dog vignette. However, Christians may be more likely to see incest as wrong, as well as lying to be wrong, while secular people may tend toward the harm principle, which was not violated in either of those stories.

Having said this, since our dumbfounding rates were so small with the original dumbfounding coding (where the participant decided if they were dumbfounded) these results are more likely to be a reflection that those NOT dumbfounded in one vignette were also likely to not be dumbfounded in another. In other words, this relationship may not exist if dumbfounding rates were higher and therefore should be taken with caution. We can be more confident in the relationship between the recoded dumbfounding variables (where the researcher decided who was dumbfounded), as our dumbfounding rates for those were much higher. Since we were only able to recode the Incest and Dog vignettes in this way, we can only be more confident in the relationship between these two vignettes.

The idea that religious people would answer the Incest and Promise vignettes similarly is also backed up with other data. People high on the religiosity scale tended to find the Son and Incest stories more wrong than those low on this scale. Therefore, the more secular you were, the more likely you were to find nothing wrong with the Incest and Promise vignettes. As such, those vignettes do seem to be linked by religiosity. This at least indicates that religious and non-religious people think differently regarding matters of ethics, which is unsurprising. However, when it comes to dumbfounding, an individual's ability to reason matters more than upbringing. In the social intuitionist model, it is assumed that people use their intuitions to come to conclusions and then reason post hoc. Therefore, people who are not dumbfounded are better at looking for reasons rather than being more logical. It would be interesting to test this idea by measuring participants' IQ and education, then conducting a moral dumbfounding experiment to see if more intelligent/educated people are less likely to be dumbfounded.

Thematic Analysis: Link Between Autonomy/Harm and Moral Acceptability

A thematic analysis also revealed several patterns in how people responded to the vignettes. Firstly, there were differences in reasons between those who found the vignettes to be morally acceptable and those who did not. For the Incest vignette, participants who found the vignette morally acceptable focused on the lack of harm and the consent between Julie and Mark: "Sex doesn't necessarily have to be for reproductive purposes. As long as both of them are consenting and take safety precautions, it doesn't matter.". This response clearly outlines such thinking.

This greater emphasis on harm and autonomy also occurred in the Dog vignette. Most participants who believed nothing was wrong cited a lack of harm or argued that different people have different cultural

expectations. They should not impose their way of thinking onto others, which is practically an autonomy argument: "It is not normal in NZ culture to eat dogs, but morally, I think it is the same as eating a pet sheep or cow, so no inherent moral problem.".

Therefore, those who placed greater weight on autonomy and harm seemed more likely to find the situation morally acceptable. However, it also could be possible that these participants were just better than others at ignoring their disgust responses. Therefore, a better predictor of dumbfounding could be people who are less sensitive to disgust. A study done by Inbar et al. (2009) found that conservatives had greater disgust responses than liberals, which was reflected in their political views on homosexuality and abortion. This also lines up with Haidt & Hersh's (2001) observation that conservatives were more likely to be dumbfounded by homosexual vignettes and liberals. Therefore, sensitivity to disgust, or the ability to ignore it, could better explain why these participants did not find the story morally wrong. This pattern was also observed in the Dog vignette, with most participants making an autonomy-like argument that the situation was not morally wrong as different cultures have different practices or made harmful arguments.

There also seemed to be certain 'fallback' arguments that people used to add greater evidence to their claims. These arguments were always used with others but had little relation to them. For example, saying incest was illegal worked in this way: "They are brother and sister, and that is disgusting. It's also very illegal for a reason.". This participant primarily uses emotion and circular reason to justify their position. However, they tacked the legality of incest onto the end, seemingly to give more weight to their points. As such, any appeal to legality never occurred in isolation. This also happened in the Dog vignette "Illegal to eat dogs. And it's wrong to eat your own pet after death.". In this case, it is in the reverse, but the pattern is the same: legality is used to bolster their point. This also occurred when people argued that you could get sick from eating road kill: "That dog could've been someone's pet and I don't think anyone would want to eat their pet?? Also the meat could potentially make the family sick and also ITS A DOG too cute". While these fallback arguments did not occur for most participants, it is still interesting to note because they indicate post-hoc reasoning or searching for reasons. This is because (most) participants would not just obey a law. After all, it is an appeal to authority and, as such, a logical fallacy. Therefore, participants who use this reason do not fully believe in it but rather use it to strengthen their argument. These participants are looking for reasons. This adds some evidence to the social intuitionist model.

Thematic Analysis: Relationship Between Complexity and Disgust.

Interestingly, as the vignettes progressed from more to less disgusting (Incest – Dog – Promise), participants were far less likely to use circular arguments and emotive responses. For the Incest vignette, 47 people used circular argument, "it's incest", and 8 had emotional outbursts within their responses "because that is absurd and foul". The majority of these participants only used emotional and circular augments. This number decreased in the Dog vignette, with only 14 making emotional outbursts, "Because again it is foul and disgusting and not human", and 20 making circular arguments "Because you don't eat a dog". Only 7 participants made pure circular arguments in the Promise vignette "I'm morally against lying" and only 2 had emotional responses "… However it's still a bit sad because it's a promise!". This indicates that the more disgusting a situation becomes, the more likely participants were to use circular/emotional arguments. This was also clearly reflected in the agreement ratings among the researchers who recoded dumbfounding; because of this tendency, the first two vignettes were much easier to find clear logical fallacies.

Secondly, the arguments became more nuanced as the stories became less disgusting. In this case, nuanced means weighing up both sides of the argument and having more than one reason in the response. For the Incest vignette, 94 participants only used one argument when justifying their wrongness rating. This decreased to 60 participants in the Dog vignette and further decreased to 45 participants in the Promise vignette. This shows a general increase in the complexity of arguments as the stories became less disgusting. There was also a general increase in acknowledging and weighing counterpoints in the same direction. For the Incest vignette, 15 participants acknowledged that Julie and Mark consented and that no harm occurred. This increased to 19 people conceding that different cultures have different expectations, and no one was harmed in the Dog vignette. Finally, this further increased in the Promise vignette to 38 participants weighing several counterarguments. For example, one participant responded, "He should have kept his promise or not have promised in the first place if he wasn't willing to keep the promise by making it a high priority. However, we don't know everything that has been happening in his life, so we cannot judge him entirely based on this story.". In this response, we can see the participant contrasting two aspects of the story, giving a more nuanced account.

In contrast, here is a response to the Incest vignette: "Incest is wrong and immoral on every single level". Clearly, there are no contrasting ideas, no nuanced account, just a one-sided circular argument. Presumably, this pattern emerged due to the disgusting elements of both the Incest and Dog vignettes. It

seems the more disgusting the story gets, the more unreasonable, intuitive and emotive a person becomes. This is probably because of how strong our disgust responses must be to ensure we don't come in contact with harmful diseases (Curtis et al., 2004). This effect was also very strongly displayed by Wheatly & Haidt (2005) as hypnotised participants who had disgust paired with neutral words displayed greater levels of condemnation towards neutral vignettes. As such, the strength of disgust seems to be enough to overpower many people's reasoning capacities.

This could be due to the link disgust has with harm, as it is a mechanism to detect and avoid disease (Curtis et al., 2004). As situations become more harmful, the less margin of error our body could give us to reason and explore a situation. This idea is somewhat backed up by Miller et al. (1990), who found that as situations become more and more extreme, there is a greater amount of agreement across cultures about the wrongness of those situations. These extreme scenarios had a great possibility of death involved, and as such, there was little cultural difference in how these situations were perceived. Some situations might be dangerous enough that branching out and considering new ideas is not 'worth' considering. At least, our body has an adverse reaction to considering them. Having sex with your sibling poses greater harm than eating a dog, and so we have a greater aversion to it. Admittedly, this thematic evidence is not close to conclusive, but these patterns should still be considered.

Relationship Between Religiosity and Reasons Used

Another analysis run on the data was a binary regression to see if religiosity could predict the type of reasons used. For the Incest vignette, none of the models reached significance, however the harm and autonomy reasons were close. These models indicated that the more religious you were, the less likely you were to use harm and autonomy arguments. It is possible that with a greater sample size, this effect could be observed, especially if comparing cultures within the ethics of divinity with an ethics of autonomy culture. This pattern continues with the Dog vignette, as the more religious you were, the more likely you were to use respect based explanations, and religious people were more likely to use the breaking of a promise as a reason in the Promise vignette suggesting a potential divide between religious and non-religious people. Although, no evidence was found for harm in the Dog vignette, so this indication is shaky at best. Therefore, there is some evidence for the predictive power of religiosity, but this could be obscured by how secular New Zealanders tend to be, even when religious. This analysis is also greatly hindered by the fact the experiment

was conducted online, and therefore was not designed to be qualitative. A more qualitative focused study would better be able to examine if any patterns actually exist concerning religiosity.

Which of the three models best explain these patterns? The reason-based model explains the patterns found in the Promise vignette. Participants in that vignette engaged in reasoning, weighing both sides of the argument before coming to a nuanced conclusion. However, since we do not know the order of events, it is entirely possible that people came to their conclusion and then considered alternative ideas. Regardless, the reason-based model does not well explain the Dog and Incest vignettes, and many people did not engage in any sort of reasoning due to their over-reliance on circular and emotional answers. The reasoning model cannot explain why people would become less and less reasonable depending on how disgusting a story is.

The social intuitionist model (SIM) does better than reasoning based model. This model best explains the Dog and Incest vignettes. It is clear from the responses participants gave that many were grasping at straws or engaging in post-hoc reasoning, indicating they had already come to a conclusion before reasoning. However, the SIM does not explain the Promise vignette well, as many participants seemed to be engaging in reasoning before answering. However, it is impossible to know from these responses if participants reasoned before or after their judgements. It is possible that because of how complex social structures are, the social link, which forms the basis of our intuition, could be more nuanced, resulting in more nuanced intuitions rather than through reasoning.

The dual process model fits these patterns the best. Clearly, some amount of reasoning and intuitions are being utilised, which the dual process theory accounts for (Paxton & Greene, 2010). It is clear from the thematic analysis that participants primarily used intuitions when responding to the Incest vignette. The dual process model proposes that our reasoning pathway can overcome intuitions through cognitive control. For example, Paharia et al. (2009) showed that when viewing their vignettes separately, participants relied on their intuitions, but viewing the vignettes together allowed for participants to exercise cognitive control. From this experiment it seems that cognitive control can be activated when both sides are considered. This may be why no such cognitive control activated when participants viewed the Incest vignette, because they refused to consider the alternative side. As stated before, this is probably because considering the other side may be too dangerous, so intuitively our body tries to stop it, see Millar et al. (1990) and the reactions towards the extreme vignettes. Since disgust is directly related to disease (Curtis et al., 2004), it is signalling that the situation is harmful, and in the case of incest, extremely harmful. Therefore, the more highly

disgusting the vignette, the more potentially harmful it is, triggering our brain to rely on intuitions rather than reasoning, as slow, deliberative reasoning is not worth considering in such a dangerous situation. This would explain why the Dog vignette elicited similar patterns to the Incest vignette, but not as strongly, as eating foreign meat is less potentially harmful than incest (you can catch diseases from both, but only one results in a deformed child). This would also explain why the reasoning pathway would be more capable of overcoming the intuitive pathway in the Promise vignette, as the potential harm in his story is social rather than disease. You cannot negotiate with disease, so it must be treated far more deliberatively than social issues, which can be negotiated. It would be interesting to see if there is a relationship between how nuanced an answer is and how extreme the potential harm is. This could be a way to define when reasoning can overrule our intuitions, as proposed in the dual process model.

Therefore, the dual process model can explain the reactions towards the Incest vignette. Furthermore, cognitive control did seem to take place with the Dog vignette, and especially with the Promise vignette, with participants using greater amounts of reasoning, comparing and contrasting. It would be interesting to do similar experiment to Greene et al. (2008) by using a cognitive loading task to see if participants take longer to respond to the less disgusting vignettes, as they should be using the reason based pathway, while no change should occur for the Incest vignette as participants should be using the intuitive based pathway. As such, the dual process model accounts for the full range of responses across all the vignettes.

Impact of Counter Arguments

There were no major differences between reasons given before or after the counterarguments, other than the number of reasons generally decreasing. This would be explained by the number of people decreasing, as some had been self-filtered by admitting to dumbfounding. The only other change was the increase in people citing future reasons from before (4) and after (27) counterarguments in the Incest vignette. This could be because many participants failed to recognise that Julie and Mark both used contraceptives and, therefore, could not have a child, and the number of people using this reason also decreased from 22 to 13. This means that the counterarguments did have an impact, changing what reasons people gave, but they did not change the participants' minds. This would be another (albeit small) indication of post-hoc reasoning, which aligns well with the social intuitionist model (SIM) and the Dual-Process

model as upon loosing one of their arguments, participants simply found another one rather than admitting that the situation was morally acceptable.

This alignment with the SIM and Dual Process model continues as there was no significant difference in wrongness or confidence ratings before and after the counterarguments for all three vignettes. This would seem to indicate that reasoning had very little effect, even for the Promise vignette, where participants tended to have better reasons for their judgments. SIM also predicts that it is not the reasoning that convinces us but the activation of new intuitions. Therefore, it would be interesting to conduct a moral dumbfounding study where the researcher presents more emotional and logical arguments to see if one would be more effective at convincing people.

Strengths and Limitations

One main strength of our study was the use of a non-disgust based vignette. Most dumbfounding studies use disgust vignettes as they were most effective at eliciting the dumbfounding response. Despite this, our respect based vignette (Promise vignette) still received similar levels of dumbfounding to the other disgust based vignettes.

The main limitation of this study was that it was not done in person. Conducting the study online allowed for participants to either misunderstand the vignettes or give logically inconsistent answers. While the latter was somewhat remedied by our recoded dumbfounded data, this solution comes with its own set of drawbacks, particularly researcher bias. While we tried to be as non-biased as possible when determining whether a participant should be considered dumbfounded it would be negligent to believe that our implicit bias had no impact on the process. The impact of this bias is most clearly seen with our failure to recode the Promise vignette, as all three of the researchers had very low agreement, so much so that we were unable to use this recoded data in our analysis. Conducting the study in person would help alleviate these biases, as researchers could directly push back on faulty reasoning, allowing for the participants to determine whether they are dumbfounded or not, rather than leaving it up to the researcher. Conducting the study in person would also help participants to fully understand the vignettes, as several participants showed signs of lack of understanding. For example, one participant when asked to justify their wrongness rating for the Promise vignette said “The story does not make sense” and another participant answered the same section by saying

“CAUSE THEY ARE SIBLINGS”. Such misunderstandings would be easily clarified if the study was done in person.

Having said this, there are also some limitations to doing the study in person. Having a researcher argue with the participants increases the possibility of researcher bias. Some researcher’s may find certain arguments to be convincing, and therefore give up trying to challenge them, and vice versa. Therefore, who is determined as dumbfounded would be influenced by the researcher. It is possible to minimise these effects, by clearly defining what would be considered as a valid reason, and also having several researcher’s going over the transcript until they agree on which reasons are valid.

Another aspect that would be improved if the study was done in person is the richness of qualitative information. Since participants only gave their final answers, the process of reaching that conclusion is completely lost in this study. This is most clearly seen with some participant changing their reasoning after the counterarguments. For example, one participant justified their wrongness scale to the Promise vignette by saying “She’s dead so it doesn’t really matter”. In other words, they did not think there was anything wrong with the vignette, but after the counter-arguments changed their mind saying “Maybe he should have tried harder to visit mothers grave”. Exactly what caused them to change their mind is completely lost due to this study being conducted online. Additionally, a few participants wanted clarification on the details of the vignette, declaring that the current vignette did not have enough information for them to properly answer. For example, one participant responded to the Dog vignette by saying “Why they decided to eat the dead dog meat and how they cooked it would be important information to be able to decide”. Another participant responded to the same vignette saying “again you present a case with absolutely no context, I might as well assume this was on mars which may be a bad faith answer, but I say this: these questions are based on the assumption that the answer is morally black or white. If life was so simple why then do we even need courts of law?”. Having a researcher clarify particular points of the vignettes would allow participants like these to answer the questions, rather than being frustrated. Therefore, one of the major weaknesses of this study was its failure to be conducted in person.

Another weakness of the study is the lack of exploratory variables used. The study only used three exploratory variables, age, gender and religiosity. This severely limited the amount of analysis done on the data. This was mostly done due to time constraints, however in the future other variables should be explored. Specifically, socio-economic status (SES), education level, political leaning and IQ. Research done by Haidt

et al. (1993) found that more educated participants, and participants from a higher SES level tended to focus on the ethics of autonomy, rather than community and divinity. Accounting for this in our study would have allowed us to see if religiosity actually had predictive power, and if most of that predictive power could be explained by SES and education level. Also, since most of the advertising for this study was done around AUT central and north campus', the majority of participants would be from a high SES backgrounds and have a high level of education. This would skew our data in a particular direction, making it difficult to generalise our findings to the wider population. This tendency towards the ethics of autonomy could have also reduced the importance of religiosity, as these other factors could have over shadowed it. Therefore, these variables should be accounted for in future dumbfounding studies. Additionally, while not yet looked at, accounting for IQ could also be an important factor. Haidt's social intuitionist model and to some extent the dual process model assume some amount of post-hoc rationalisations when justifying moral thinking. Therefore, people who are better at articulating themselves and quickly coming up with answers would be less likely to be dumbfounded. Not because they are better at reasoning, or that they are more logical, but because of their quicker thinking. Therefore, it is possible that people with higher IQ's would be much less likely to be dumbfounded. This may be a better predictor that religiosity, as the difference between a dumbfounded person, and someone who is not could depend on their post-hoc reasoning capacity. As such, accounting for IQ would be worthwhile to do in future studies.

Concluding Remarks

Ultimately, this study did not find what it expected to, as there was only weak evidence that religiosity predicted dumbfounding. However, this is probably due to the mixed values of Western religious people. Therefore, carrying out this same study in a less secular culture (e.g., India or South America) would be useful. Although it could still be possible that being raised in the ethics of divinity or community would make it easier to justify the Incest vignette, this would not attack the foundations of dumbfounding. Based on this experiment and past research, dumbfounding is probably more rooted in an individual's capacity to look for reasons to justify their previously held beliefs. This is because dumbfounding experiments question foundational beliefs rather than getting an individual to weigh two different beliefs, like in the Heinz dilemma. Therefore, factors like IQ may matter more and should be investigated. It is also worth considering that something unique about disgust makes it universally difficult to deal with. It is clear from past research

that disgust is difficult for people to ignore (Inbar et al., 2009; Wheatly & Haidt, 2005; Haidt & Hersh, 2001). It would be interesting to see if it would be possible to make people morally dumbfounded without appealing to disgust. We attempted to do this with the Promise vignette in this study, but dumbfounding was limited, and most accounts were complex and nuanced. It might be possible to do this with loyalty, as group identity and commitment have been shown to be linked with an individual's capacity to sacrifice themselves (Swann et al., 2010). Considering how extreme this behaviour is, it might be possible to replicate dumbfounding using loyalty.

Despite this lack of evidence of religiosity predicting dumbfounding, this study did replicate similar levels of dumbfounding as McHugh et al. (2020), adding more evidence to the existence of dumbfounding and supporting Haidt's social intuitions theory of moral reasoning. The study also displayed much higher levels of dumbfounding upon recoding, suggesting that dumbfounding is more common than McHugh et al. (2020) and Royzman et al. (2015) would have us believe. The study also showed that religious people tended to find the incest and Promise vignettes wrong, while less religious people tended to find them morally acceptable. This shows the divide between religious and non-religious thinking, which supports the theory of morality of purity, autonomy and community. This predicts that different groups prioritise different aspects of morality.

Appendix

Centrality of religiosity scale (Huber & Huber, 2012)

1. How often do you think about religious issues?

2. To what extent do you believe that God or something divine exists?

3. How often do you take part in religious services?

4. How often do you pray?

5. How often do you experience situations in which you have the feeling that God or something divine intervenes in your life?

6. How interested are you in learning more about religious topics?

7. To what extend do you believe in an afterlife—e.g. immortality of the soul, resurrection of the dead or reincarnation?

8. How important is to take part in religious services?

9. How important is personal prayer for you?

10. How often do you experience situations in which you have the feeling that God or something divine wants to communicate or to reveal something to you?

References

Boesch, C. (1992). New elements of a theory of mind in wild chimpanzees. *Behavioural and Brain Sciences*, *15*(1), 149-150.

Chase, I. D. (1980). Social Process and Hierarchy Formation in Small Groups: A Comparative Perspective. American Sociological Review, 45(6), 905–924. https://doi.org/10.2307/2094909

Curtis, V., Aunger, R., & Rabie, T. (2004). Evidence that disgust evolved to protect from risk of disease. *Proceedings of the Royal Society of London. Series B: Biological Sciences*, *271*(suppl_4), S131-S133.

Davis, J. L., & Rusbult, C. E. (2001). Attitude alignment in close relationships. *Journal of Personality and Social Psychology*, *81*, 65-84.

De Waal, F. B. (2008). Putting the altruism back into altruism: The evolution of empathy. *Annual Review of Psychology.*, *59*, 279-300.

Figure.NZ, (2018) *Most common religious affiliations in New Zealand,* Figure.NZ https://figure.nz/chart/RfmHYb2IsMMrn9OC

Figure.NZ, (2018) *Religious affiliations for Maori people in New Zealand,* Figure.NZ https://figure.nz/chart/eDTdoAV5D3B6ucMi

Frankish, K. (2010). Dual-process and dual-system theories of reasoning. *Philosophy Compass*, *5*(10), 914-926.

Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of economic behaviour & organization*, *3*(4), 367-388.

Greene, J. D., Morelli, S. A., Lowenberg, K., Nystrom, L. E., & Cohen, J. D. (2008). Cognitive load selectively interferes with utilitarian moral judgment. *Cognition*, **107**(3), 1144–1154

Haidt, J. (2001). The emotional dog and its rational tail: a social intuitionist approach to moral judgment. *Psychological review*, *108*(4), 814-834.

Haidt, J. (2003). The emotional dog does learn new tricks: A reply to Pizarro and Bloom (2003). Psychological Review, 110, 197-198. https://doi.org/10.1037/0033-295X.110.1.197

Haidt, J., & Hersh, M. A. (2001). Sexual morality: The cultures and emotions of conservatives and liberals *Journal of Applied Social Psychology*, *31*(1), 191-221.

Haidt, J., Bjorklund, F., & Murphy, S. (2000). Moral dumbfounding: When intuition finds no reason. *Unpublished manuscript, University of Virginia*, 191-221.

Haidt, Jonathan, Koller, Silvia Helena & Dias, Maria G. (1993). Affect, culture, and morality, or is it wrong to eat your dog? Journal of Personality and Social Psychology, 65, 613-628. https://doi.org/10.1037/0022-3514.65.4.613

Haidt, Jonathan & Joseph, Craig. (2008). The moral mind: How five sets of innate intuitions guide the development of many culture-specific virtues, and perhaps even modules. Carruthers, Peter [Ed], Laurence, Stephen [Ed], Stich, Stephen [Ed]. The innate mind Volume 3: Foundations and the future. New York, NY, US: Oxford University Press, US; pp. 367-391. https://doi.org/10.1093/acprof:oso/9780195332834.003.0019.

Huber, S., & Huber, O. W. (2012). The centrality of religiosity scale (CRS). *Religions*, *3*(3), 710-724.

Inbar, Y., Pizarro, D. A., & Bloom, P. (2009). Conservatives are more easily disgusted than liberals. *Cognition and emotion*, *23*(4), 714-725.

Kant, I. (2016). Foundations of the Metaphysics of Morals. In *Seven masterpieces of philosophy* (pp. 277-328). Routledge.

Kelley, D. (2013). *The art of reasoning: An introduction to logic and critical thinking*. WW Norton & Company.

Kray, L. (2000). Contingent weighting in self–other decision making. *Organizational Behaviour and Human Decision Processes, 83,* 82–106.

McHugh, C., McGann, M., Igou, E. R., & Kinsella, E. L. (2020). Reasons or rationalizations: The role of principles in the moral dumbfounding paradigm. *Journal of Behavioral Decision Making*, *33*(3), 376-392.

Miller, J. G., & Bersoff, D. M., (1992). Culture and moral judgment: How are conflicts between justice and interpersonal responsibilities resolved? Journal of Personality and Social Psychology, 62, 541-554. https://doi.org/10.1037/0022-3514.62.4.541

Miller, J. G., Bersoff, D. M., & Harwood, R. L. (1990). Perceptions of social responsibilities in India and in the United States: Moral imperatives or personal decisions?. *Journal of personality and social psychology*, *58*(1), 33-47.

Miller, J. G., & Luthar, S. (1989). Issues of interpersonal responsibility and accountability: A comparison of Indians' and Americans' moral judgments. *Social Cognition*, *7*(3), 237-261.

New International Version Bible. (1973) https://www.biblegateway.com/passage/?search=Leviticus%2015&version=NIV

Nisbett, Richard & Wilson, Timothy. (1977). Telling more than we can know: Verbal reports on mental processes. Psychological Review, 84(3), 231-259. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=ovfta&NEWS=N&AN=00006832-197705000-00001.

Nussbaum, S., Liberman, N., & Trope, Y. (2006). Predicting the near and distant future. *Journal of Experimental Psychology: General, 135,* 152– 161.

Paharia, N., Kassam, K. S., Greene, J. D., & Bazerman, M. H. (2009). Dirty work, clean hands: The moral psychology of indirect agency. *Organizational Behaviour and Human Decision Processes*, 109(2), 134–141

Paxton, J. M., & Greene, J. D. (2010). Moral reasoning: Hints and allegations. *Topics in cognitive science*, *2*(3), 511-527.

Penn, M. L., Gaines, S. O., & Phillips, L. (1993). On the Desirability of Own-Group Preference. *Journal of Black Psychology*, *19*(3), 303-321

Perkins, D. N., Farady, M., & Bushey, B. (1991). Everyday reasoning and the roots of intelligence. In J. F. Voss, D. N. Perkins, & J. W. Segal (Eds.), *Informal reasoning and education* (pp. 83-105). Hillsdale, NJ: Erlbaum.

Piaget, J. (1965). *The moral judgement of the child* (M. Gabain, Trans.). New York: Free Press. (Original work published 1932)

Pizarro, D & Bloom, P. (2003). The Intelligence of the Moral Intuitions: Comment on Haidt (2001). Psychological Review, 110(1), 193-196. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=ovftf&NEWS=N&AN=00006832-200301000-00007.

Pizarro, D. A., Uhlmann, E., & Bloom, P. (2003). Causal deviance and the attribution of moral responsibility. *Journal of experimental social psychology*, *39*(6), 653-660.

Royzman, Edward B, Kim, Kwanwoo & Leeman, Robert F. (2015). The curious tale of Julie and Mark: Unraveling the moral dumbfounding effect. Judgment and Decision Making, 10(4) , 296-313. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=psyc12&NEWS=N&AN=2015-54495-002.

Samuels, R. (2004). Innateness in cognitive science. *Trends in Cognitive Sciences, 8*, 136-141.

Seligman, M. E. P. (1971). Phobias and preparedness. Behaviour Therapy, 2, 307–320.

Sherif, M. (1935). A study of some social factors in perception. Archives of Psychology, 27(187), 60-78

Shweder, R. A., Much, N. C., Mahapatra, M., & Park, L. (1997). The "big three" of morality (autonomy, community, and divinity), and the "big three" explanations of suffering. In A. Brandt & P. Rozin (Eds.), *Morality and health* (pp. 119-169). New York: Routledge.

Shweder, R. A., Mahapatra, M., & Miller, J. G. (1990). Culture and moral development. In *The emergence of morality in young children,* edited by J. Kagan and S. Lamb. Chicago: University of Chicago press. Reprinted in *Cultural psychology: Essays on comparative human development,* edited by J. Stigler, R. A. Shweder, and G. Herdt. New York: Cambridge University Press.

Stanley, Matthew L, Yin, Siyuan & Sinnott-Armstrong, Walter. (2019). A reason-based explanation for moral dumbfounding. Judgment and Decision Making, 14(2) , 120-129. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=psyc16&NEWS=N&AN=2019-20609-002.

Swann Jr, W. B., Gómez, Á., Dovidio, J. F., Hart, S., & Jetten, J. (2010). Dying and killing for one's group: Identity fusion moderates responses to intergroup versions of the trolley problem. *Psychological Science*, *21*(8), 1176-1183.

The Qur'an (E. H. Palmer, Trans.). (1965). Motilal Banardsidass

Trope, Yaacov & Liberman, Nira. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2) 440-463. https://doi.org/10.1037/a0018963

Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and collectivism: Cross-cultural perspectives on self-ingroup relationships. *Journal of personality and Social Psychology*, *54*(2), 323-338

Wheatley, T., & Haidt, J. (2005). Hypnotic disgust makes moral judgments more severe. *Psychological Science*, 16(10), 780–784.

Yousef, T. (2017). Modernism, postmodernism, and metamodernism: A critique. *International Journal of Language and Literature*, *5*(1), 33-43.