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THEORETICAL ARTICLE

# Execution, Violent Punishment and Selection for Religiousness in Medieval England

**Edward Dutton**[1] · **Guy Madison**[2]



**Abstract** Frost and Harpending, *Evolutionary Psychology*, 13 (2015), have argued that the increasing use of capital punishment across the Middle Ages in Europe altered the genotype, helping to create a less violent and generally more law-abiding population. Developing this insight, we hypothesise that the same system of violent punishments would also have helped to genotypically create a more religious society by indirectly selecting for religiousness, through the execution of men who had not yet sired any offspring. We estimate the selection differential for religiousness based on genetic correlation data for conceivably related traits, and compare that to the actual increase in religiosity across the Middle Ages. We further explore other mechanisms by which religiousness was being selected for in Medieval England, and conclude that executions most likely contributed substantially to the increase in religiosity, but that other selection pressures also played a role.

**Keywords** Religion · Selection · Execution · Medieval

## Introduction

Frost and Harpending (2015) have examined the way in which judicial violence acted as a selection pressure in pre-industrial Europe. Up until the eleventh century, they note, execution was not widely employed, because the Church was opposed to it, law enforcement was rudimentary, and it was believed that people should have the right to settle their own disputes. But as the Medieval Era progressed, the Church accepted that the 'wicked' should be executed so that 'the good could live in peace' (Frost and Harpending 2015). The word 'felony' was originally defined as a crime sufficiently serious to warrant the confiscation of land or goods (Blackstone 1765, Book IV, Ch. 7). By the beginning of the Early Modern Era (that is by the end of the fifteenth century), all felonies carried the death penalty in England. This meant that up to 1% of the male population of Europe was executed each generation, with roughly another 1% dying at the scene of the crime or in prison while awaiting trial. Most of these felons, Frost and Harpending argue, were young men who thus suffered reduced fertility.

Frost and Harpending aver that this process would have altered the nature of Western personality, by preventing those with low Agreeableness and low Conscientiousness; the heritability of which are approximately 0.5 (see Nettle 2007), from passing on their genes. Various scholars have argued that intelligence was increasing up to the Industrial Revolution due to the documented positive association between wealth and fertility in this period and between wealth and intelligence more generally (Woodley and Figueredo 2013, cf. Clark 2007, Dutton et al. 2016a; Lynn 2011). Those who were executed or who died in prison awaiting trial were overwhelmingly poor and uneducated. In England, those who were of high social status could fund relatively luxurious conditions in prison and, unless their crime was treason or heresy, they could avoid execution by pleading 'Benefit of the Clergy'. In essence, this meant if they could read then they would avoid execution (Gregory-Abbott 2016). This would have meant that it was disproportionately those of low intelligence who

✉ Edward Dutton
ecdutton@hotmail.com

Guy Madison
guy.madison@umu.se

[1] Ulster Institute for Social Research, London, UK

[2] University of Umeå, Umeå, Sweden

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went to the gallows. In addition, intelligence is negatively associated with criminality (Jensen 1998) and we might expect this association to be particularly strong when the punishment for felony is death. This would mean that judicial execution was very possibly playing a role in boosting European intelligence by removing some of the least intelligent young men every generation.

However, there is a dimension to this 'genetic pacification' which Frost and Harpending not only did not examine but which, unlike intelligence, is not immediately obvious. This is the impact which it would have had on religiousness. It is this possibility which we will focus on in this article. We will show that the widespread use of execution as a punishment for large numbers of crimes (as well as other violent punishments) would have made society gradually more religious. This, indeed, would help to explain why a society which was seemingly becoming more intelligent (see Dutton and Charlton 2015)—something weakly negatively associated with religiousness (see Dutton and Van der Linden 2017)—was also becoming more religious. It would also help to explain why society was so intensely religious during the Reformation (see Ridley 1988).

## Selection for Religiousness

The heritability of religiousness is approximately 0.4 in general, based on twin studies. Certain specific religion measures, such as having had a conversion experience or adhering to fundamentalist dogmas, have a heritability around 0.6 (Koenig et al. 2005). Religiousness can be regarded as selected for on a number of levels.

Religion is sexually selected for because it can be regarded as a marker of high General Factor of Personality. 'General Factor of Personality' refers to the personality type that is socially effective, and it is a factor underpinning aspects of each of the Big Five. In particular, however, it reflects high Conscientiousness and high Agreeableness (see Dunkel et al. 2015). This means that the religious are more rule abiding, altruistic, and trustworthy (Figueredo et al. 2006). It would therefore be in the interests of men to select for religious women, because religiousness would be a guarantee against cuckoldry. From a female perspective, a religious male would be attractive because he would be less likely to abandon her and the child (Blume 2009). Furthermore, religions tend to promote clear sexual ethics and membership of a religious group would imply adherence to these. And, as Blume (2009) has argued, religiousness indicates access to a useful network of people.

Religion is naturally selected for inasmuch as it renders its adherents more prosocial. Norenzayan and Shariff (2008) have argued that the main mechanism behind this is that people behave in a more prosocial way due to the belief they are being watched by God or gods, and that the selection pressure for prosociality increased as societies became more complex. As we moved to the cities, we were compelled to fraternize with non-relatives and total strangers, and it was in this context that the gods became more and more focused on morality, such that non-kin could successfully build a functioning society. In addition, religiousness—by providing a sense of ultimate certainty—reduces stress and so promotes physical and mental health (Koenig 2012). Further, religion tends to provide God-mandated justifications for fitness-improving behaviour, including having large families and looking after them (Sela et al. 2015). For all of these reasons, we would expect religiousness to be naturally selected for.

This idea that religiousness is 'group selected' for has been notably propounded by Wilson (2002). Wilson argues that groups sharing a system of belief will be more cooperative and bonded and will thus outcompete less unified groups, rendering religiousness an adaptive trait. Wilson has provided many examples of historically successful religiously oriented groups, while one study has shown that religious Kibbutzism has been more long-lived than its secular counterpart (see Tremlin 2012, pp. 19–20). Further evidence can be added to that already presented. Religion is also likely group selected for because religious groups tend to be higher in both positive and negative ethnocentrism (e.g. Dutton et al. 2016b). Ethnocentric societies will ultimately triumph in battles of group selection, as shown in computer models (e.g. Hammond and Axelrod 2006). This, of course, means that religious societies will in general flourish and thus promote their inhabitants' genotypes and, as such, win the battle of group selection.

Some scholars of religion argue that religiousness is actually a by-product of assorted adaptive traits and is not, in itself, group selected. However, it can be countered that there is strong evidence that religiosity is likely to be selected for in itself: it is a human universal, it is associated with increased fertility, it is substantially genetic, it has clear physical manifestations (in terms of brain changes specifically associated with religious experiences, for example), and it can be argued to be adaptive, in promoting health, among many other positive dimensions (see Vaas 2009).

## How Widespread Societal Violence Selects for and Elevates Religiousness

With this theoretical background, it becomes clearer how an intense employment of execution and other violent punishments, from the early Middle Ages onwards, would have selected in favour of religiousness. It would have done so in a number of ways:

1. *Positive general factor of personality-religion nexus*: Frost and Harpending observe that execution and imprisonment (in unhealthy conditions) would have selected against those with the personality characteristics that would make them prone to criminality. Specifically, it would have selected against low General Factor of Personality as this is associated with criminality (Van der Linden et al. 2015). We have already seen that religiousness is positively associated with the General Factor of Personality. So, by removing in every generation around 2% of young men (1% being executed, 1% dying in gaol) whom we would expect to have particularly low General Factor of Personality (GFP), the widespread use of execution would be indirectly increasing the religious faction within the population.[1]
2. *Autism-religion nexus*: Caldwell-Harris et al. (2011) studied discussions by 192 different posters on an autism website. From these posts, they were able to discern the views on religion held by the subjects. High-functioning autistic (HFA) individuals demonstrated significantly higher rates of 'non-belief identities' such as Atheism (26%) and Agnosticism (17%). In the neurotypical (NT) group which they analysed as a control, only 17% were Atheists and 10% were Agnostic. Thus, high-functioning autistics are significantly more likely to be atheists than the 'neurotypical'. The same authors conducted another survey with a sample of 61 people who self-identified as autistic. They found that those who regarded themselves as 'atheists' scored significantly higher on the Autism Quotient Scale, a means of quantifying the extent of autism, than those who were believers. The heritability of autism is reported to be 0.64–0.91 in a recent twin study meta-analysis (Tick et al. 2016). The evidence for a connection between autism spectrum disorder (ASD) and criminality in general is mixed, but there is some evidence that sufferers have an elevated propensity towards violent behaviour (see Im 2016). This being the case, it is probable that they would be more prone to certain kinds of criminality and, in particular, getting into fights and possibly injuring or killing people. This would mean that autism would assist in pushing people towards felonious behaviour and thus a greater likelihood of being executed. Accordingly, society's violent punishments would have some impact on reducing autism levels and thus increasing religiousness.
3. *God's watchful and policing eye*: It has been shown that feeling that one is being watched makes one behave in a more prosocial way and makes one less inclined to criminality (Norenzayan and Shariff 2008). In a society which executed felons, those who had an intense feeling of being watched—those for whom God's watchful eye was a constant presence, demanding moral behaviour—would have been at a selection advantage. They would have avoided breaking the law, as it has been shown that the feeling of being watched makes one behave in a more prosocial and law-abiding manner. By doing so, these firm religious believers would have avoided being executed for breaking the law. In this way, execution should have selected for those who were intensely religious and those who strongly felt that they were being watched. In addition, those who believed in God would have done so as a component of a broader religious system that promoted morality, with God as the ultimate moral guardian. In this sense, belief in God—independent of the feeling of being watched—would promote law-abiding behaviour, meaning that the more religious would be less likely to be executed.
4. *Stress reduction via religion*: It has been shown that religious belief tends to become heightened at times of intense stress (Kay et al. 2010) and that dramatic religious experiences are particularly associated with acute stress (Newberg et al. 2002). Thus, in effect, religion is a means of reducing stress down to manageable levels. Accordingly, the ever-present risk of execution—and other gruesome punishments such as mutilation and severe flogging—would potentially act as a constant environmental stressor. Those who were religious would be better able to cope with this constant source of stress and would thus be more likely to pass on their genes. But stress may also have a direct effect in terms of the likelihood of being executed. The more stressed people are, the more prone they are to committing crimes (Artello and Williams 2014). We would expect religious people to be less stressed and so less prone to criminality, meaning that the widespread use of execution for criminality would select in favour of the religious.
5. *The mark of the devil and sexual selection:* By the Early Modern Era, felonies carried the death penalty but the number of crimes carrying the death penalty continuously grew throughout the Middle Ages. Mutilation was long employed alongside execution. Thus, in Medieval England, the punishment for trespass in the King's Forest was to have hands or legs chopped off. Under

[1] As an aside, the same would be true, to a lesser extent, of corporal punishment, which was widely practiced in the Middle Ages with great severity, from childhood onwards (Bowen 1975, Willemsen 2008, p.183, Orme 2006, p.146), sometimes continued to the point of bleeding (McCoy and Keen 2013, p.5). Corporal punishment could also directly select in favour of high GFP, to the extent that the better-behaved would be less likely to experience it. Any trauma to the body would cause it to direct resources away from pathogen resistance, elevating the possibility of death. Moreover, if the miscreant were wounded then—mindful of the pre-modern era's lack of cleanliness—an infection could result and this could lead to death. Certainly, there were reported cases from the eighteenth and nineteenth centuries of children dying as a result of school corporal punishment and it may have contributed to mortality at English boarding schools (see Gibson 1978). Of course, whether the effects of this use of severe corporal punishment were sufficient to alter the gene, pool remains to be seen.

Henry VII (r. 1485–1509), the punishment for church non-attendance was to have one or both ears cut off, and amputation was the punishment in Early Modern England for speech crimes, such as insulting the monarch (Adam 1998, p.118). Mutilation would clearly mark people out as undesirable. It would potentially render them social pariahs, and profoundly unattractive to any prospective partner. They would be physically unattractive and their disfigurement would clearly betoken their criminality. Accordingly, even if they could father children, they would be unlikely to have the opportunity to do so other than via rape. Mutilation would select in favour of a high General Factor of Personality and so in favour, indirectly, of religiousness.

## Tracking the Rise of Religiousness

If our hypothesis is correct, then people should have been becoming more religious from the beginning of the Middle Ages up until at least the time of the Reformation, something to which rising levels of violent punishment (and particularly execution) would have been contributing. As Frost and Harpending observe, this period is the height of judicial violence and, thereafter, its use declines. We would expect some kind of a lag, a period of time that it would have taken for selection pressure to alter the genotype. This is consistent with the heights of religiousness not being reached until the Reformation, despite the very widespread use of execution for felony by 1400. There is certainly a sound argument for claiming that the Reformation witnessed extremely high levels of religiousness. Heresy became a capital crime in England in 1400, though the country saw very few executions for this or other forms of religious non-conformity until the mid-sixteenth century. For example, during the reign of Queen Mary (1553–1558), roughly 280 people were burned at the stake for heresy in England (Ridley 1988, p.118).

To bring some quantitative rigour be bear on their theorizing, Frost and Harpending compare the selection differentials for the number of homicides and the genotypic change due to pruning the individuals most inclined to violence. The selection differential based on the tenfold decrease in homicide rates was estimated to 0.08 standard deviations (SD) per generation, and that due to execution (or death in prison) of violent felons, it was estimated to ~0.03–0.05 SD per generation, (Frost and Harpending, p. 239). To estimate how much this particular selection against violence might affect religiosity, one must know the genetic correlation between these traits. A more rigorous test of our claim will be pending this information, as we have not been able to find any such study. However, we note that religiosity in itself has a heritability of 0.44 (Koenig et al. 2005). Also, several traits that can be seen as part of the religion-interpersonal behaviour nexus (due to the documented relationship between religiousness and GFP) have heritabilities of a similar order. For example, heritability is about 0.5 for Agreeableness (e.g. Nettle 2007), 0.68 for affective empathy (Chakrabarti and Baron-Cohen 2013), and 0.34–0.53 for prosocial behaviour (Knafo et al. 2011). Only a small proportion of behavioural genetics studies make bi- or multivariate genetic analyses of the traits considered, which is why we could not find any data pertaining directly to religiosity and various forms of prosocial behaviours. With regards to Agreeableness, it was found to be genetically correlated with trait Emotional Intelligence facets on the order of 0.3 (−0.01–0.62) (Vernon et al. 2008) and with similar magnitudes with the nine indices of the Mental Toughness Scale (−0.11–0.56) (Horsburgh et al. 2009), which all tend to be greater than the meta-analytic phenotypic correlation of 0.13–0.20 (Saroglou 2002). More to the point may be the genetic correlation between religiosity and community integration, amounting to 0.67 (Lewis and Bates 2013). From these varying estimates, we could at least suggest that a reasonable estimate is about 0.5, for the sake of providing a coarse evaluation of the magnitude of the effect. Thus, we would expect an increase in religiosity of 0.015–0.025 SD per generation (0.03–0.05 × 0.5) based on the selection differential inferred from the execution of violent males alone. However, the previous section listed several selection pressures for religiosity per se, the strength of which we cannot estimate.

We will now compare that with estimates of actual changes in religiosity in England during this period. The data we have been able to find that may reflect the general level of religiosity are composed of the number of people in religious orders between 1400 and 1500. This is useful because it allows us to cross a number of generations and because religious orders were a strongly established part of the English social fabric by 1350 (Harper-Bill 1991, p. 7). This means that it cannot be argued that any increase simply reflects highly religious people previously having had no order to join. Religious orders in England counted 6500 members in 1400 and 9000 in 1500 (Clark 2002, p. 7), at the same time as the total population increased only very slightly, from 2 million to about 2.3 million (Wrigley and Schofield 1989, p. 408—estimated from graph—and Hatcher and Bailey 2001, p. 29, estimated from graph). This quantitative observation is consistent with qualitative assessments by many historians who conclude that late Medieval England really was more religious than early Medieval England, with the power of the church growing along with religious devotion (e.g. Harper-Bill 1991). Indeed, consistent with this rise in religiousness is the fact that the Church became challenged during this period for being insufficiently religious. This challenge was led by a proto-Protestant minority known as the Lollards (see McSheffrey and Tanner 2003). The Lollards were regarded as a dangerous

problem for the English government, not least because many of them used the (translated) Bible to challenge the authority of the Church and undermine its traditions. Their ideas were blamed for the Peasants Revolt of 1381, which almost toppled the government and involved the mob murder of the Archbishop of Canterbury. The eventual result was the introduction of the death penalty for heresy in 1400 (see Jones et al. 2003). The religious orders were able to grow because there were more people prepared to enter them and more people prepared to fund them. And funding them was motivated, in part, by the genuine belief that the number of years in Purgatory could be allayed by having religious devotees spend all their time praying for you.

Based on these data, the proportion of members of religious orders increased from 0.32 to 0.39% of the population, which corresponds to 2.72 and 2.66 SD, respectively, across this 100-year period. With a generation lag of 25 years, we get 0.015 SD per generation, but as this is a phenotypic trait, it has to be divided by the heritability of religiosity (0.44) to correspond to the selection differential, which is then 0.034 SD. That this is larger than 0.015–0.025 suggests that religiosity was also directly selected for to some extent. People were becoming more religious and the high level of execution would have played a role in this process.

## Limitations and Future Research

In this article, we set out the hypothesis—following Frost and Harpending's earlier research on personality—that the high levels of execution across the Middle Ages would not only have selected for a more prosocial modal personality but also for increasing levels of religiousness. We explored the mechanisms by which execution—and other forms of state violence—would have selected for religiousness, and we then tested it, following the method previously employed by Frost and Harpending. Our conclusion, based on the heritability of religiousness, is that widespread execution across the Middle Ages would have had a modest effect on increasing levels of religiousness at the genetic level. We then turned to the best data we could find which would allow us to see if religiousness was being selected for, and our conclusion was that it was indeed being selected for. There are a number of limitations to this study, which we have already alluded to. We do not know the genetic correlation between violent traits and aspects of religiosity and have, therefore, had to base our estimates on genotypic correlations between other traits. It would be extremely useful if a future twin study could calculate the relevant relationships.

In addition, it must be emphasised that though increasing piety is the simplest explanation for the growth of religious orders in late Medieval England, there may be other localized historical explanations of which we are not aware. We have attempted, through reading the historical literature, to discern what these might be. However, there does not appear to be any clear candidate noted by historians other than the implication that people really were becoming more religiously devout and were especially so on the eve of the Reformation (e.g. Ryrie 2017, p. 12). Indeed, this is consistent with the religious conflicts which characterised the Reformation. We have managed to find only one sound measure of growing religiosity, but it is possible that a Medievalist reader may be able to conceive of additional ones, which could offer the opportunity for collaboration between the humanities and the sciences. Some scholars have criticised the way in which the humanities and sciences appear to diverge from each other rather than cooperate (e.g. Wilson 1998).

Future research could also extend this study by testing whether other factors may have increased selection for religiousness in Medieval England and the extent to which they did so. For example, the Black Death during the 1350s may have hastened selection for religiousness, to the extent that religiousness is associated, in modern samples, with physical health and recovery from illness (Koenig 2012) and GFP, which predicts not just religiousness but SES. It was overwhelmingly those with low SES who were killed by the Black Death. Approximately 40% of English people died, but it was 80% of serfs and free labourers (Dodds 2008). Our study also contributes to understanding the causes of secularization; the process whereby religious participation and belief have decreased in the West, particularly since the beginning of the Industrial Revolution (see Ellis et al. 2017). A factor in this decline may be the decline in the use of execution in Western countries, alongside improvements in prison conditions.

Our article also raises the question, from an evolutionary perspective, of why Western Europe began to increasingly execute people from the early Middle Ages onwards. One possibility is that it provided an advantage in terms of group selection, perhaps precisely because it increased religiousness, although this must be a matter for a future article. In conclusion, the high level of execution in Medieval England served to increase that country's religiosity across the Middle Ages.

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