

Physiology and Faith: Addressing the “Universal” Gender Difference in Religious Commitment

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That men are less religious than women is a generalization that holds around the world and across the centuries. However, there has been virtually no study of this phenomenon because it has seemed so obvious that it is the result of differential sex role socialization. Unfortunately, actual attempts to isolate socialization effects on gender differences in religiosity have failed, as have far more frequent and careful efforts to explain gender differences in crime. There is a growing body of plausible evidence in support of physiological bases for gender differences in crime. Making the assumption that, like crime, irreligiosity is an aspect of a general syndrome of short-sighted, risky behaviors leads to the conclusion that male irreligiosity may also have a physiological basis. If nothing else, this article may prompt creative efforts to salvage the socialization explanation.

So far as is known, throughout recorded history religious movements have recruited women far more successfully than men, except for those that excluded women from membership. For example, Greek and Roman writers routinely “portrayed women as particularly liable to succumb to the charms of” new religions (Beard, North, and Price 1998:297). Thus, as the cult of Isis spread west from Egypt it attracted a mainly female following, as did the cult of Dionysus (ibid.; Burkert 1987). Early Christianity was far more appealing to women than to men (Stark 1996). The same gender difference marked the heretical movements of medieval times. The eighth-century self-styled saint Aldebert gathered huge throngs in northern France and founded many new congregations as “great numbers of women flocked to him and formed the nucleus of his cult” (Russell 1965:103). Although men dominated the positions of leadership, women dominated the rank and file among the Cathars and the Waldensians, while among “free spirit” groups, the female Beguines greatly outnumbered their Beghard male counterparts (Anderson and Zinsler 1989; Crawford 1993; Lambert 1992, 1998; Lerner 1972; Russell 1965).

In more recent times the data are far more trustworthy and the same pattern holds. According to American census reports from the late 19th and early 20th centuries, women far outnumbered men among the Shakers, Christian Science, Theosophy, Swedenborgians, Spiritualists, and in the Vedanta Society (Stark and Bainbridge 1985, 1997). Even so, just as Shannon McSheffrey (1995) argued, it is incorrect to think women are especially prone to join “new” or deviant religious movements. Women substantially outnumber men in conventional religious groups, too! That folklore has long classified religion as “women’s work” is well supported by denominational yearbooks and available religious census data: in every sizeable religious group in the Western world, women outnumber men, usually by a considerable margin.

These membership differences are supported by survey research findings. From very early days, American surveys conducted by the Gallup Poll often included items on religion and invariably found that women were more likely than men to belong to and attend church, to pray, to say religion was a very important part of their lives, to read the Bible, and to believe in life after death (see the many publications of the Princeton Religion Research Center, Inc.). Other studies revealed similar gender effects. Shortly after World War II, Roman Catholic women in Louisiana were found to be almost twice as likely as men to go to confession (Fichter 1952). Women were far more likely than men to go forward at Billy Graham’s revivals (Colquhoun 1955). As the use of

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surveys spread to Europe and Latin America, these same substantial gender differences persisted (Argyle 1959; Beit-Halahmi and Argyle 1997). By now it is so taken for granted that women are more religious than men that every competent quantitative study of religiousness routinely includes sex as a control variable.

Nevertheless, as Tony Walter and Grace Davie (1998:640) recently pointed out, despite the huge and rapidly expanding social scientific literature on gender and religion, the most significant of all questions about this connection has been almost completely ignored: *Why* are women more religious than men? For example, in their fine article on “Religious Consolation Among Men and Women: Do Health Problems Spur Seeking?” Kenneth Ferraro and Jessica Kelley-Moore (2000:232) included gender in their title and reported that “women are more likely than men to seek religious consolation,” but they were silent as to why this might be. This neglect may be due to the fact that *everyone knows why*: that women are simply raised so as to be more open to religion. Perhaps. But, as will be seen, what little research has been done does not offer much support to that claim. Thus, it is far past time that we seriously addressed the question.

Keep in mind that any phenomenon that occurs in many and very different social and cultural settings necessitates explanations that are equally general, which tends to rule out most social and cultural factors. Hence, in this article I pursue the question of gender and religion toward a universal factor: human physiology. I have not done so eagerly or even very willingly. I regard the current flood of work in evolutionary psychology, for example, to be mostly worthless. I arrived at physiological explanations only after I found every cultural and social alternative to be inadequate. Even so, I would rather be wrong and would hope that, at the very least, this article prompts some worthwhile efforts to demonstrate that I am.

The most efficient way to proceed is to recapitulate my search. First, I attempt to justify my assertion that this gender difference borders on the universal. Then I show that the various available social and cultural interpretations seem inadequate. Next, I assess a major conceptual breakthrough in which the persistent gender difference in religiousness was linked to the even more substantial and universal gender difference in criminality. I review more than a century of efforts to identify biological sources of criminality, noting that even the early studies were merely dismissed, not refuted, by social scientists. Finally, I examine recent studies of biochemistry that imply that both male irreligiousness and male lawlessness are rooted in the fact that far more males than females have an underdeveloped ability to inhibit their impulses, especially those involving immediate gratification and thrills.

CROSS-CULTURAL GENDER DIFFERENCES

The World Value Surveys (WVS) offer easy access to many important cross-cultural comparisons. These surveys are planned by an international committee of social scientists and then translated into local languages and conducted by local polling organizations. The intent is to obtain fully comparable data from as many nations as possible, facilitating comparative research. The data are available to researchers from the various data archives.

Table 1 is based on the 1995–1996 surveys, although data for some nations are from the 1991–1992 surveys because the item was not asked in that country in 1995–1996.

Many years ago, after examining data from elaborate sets of items concerning religious beliefs and actions, Charles Glock and I discovered that the best single measure of personal piety is simply to ask people how religious they are (Stark and Glock 1968). The English language version of the WVS item is: “Whether you go to church or not, would you say you are a religious person.” Table 1 compares men and women in 49 nations. In every instance, a higher percentage of women than men said they were a religious person. In all but Brazil the differences were highly statistically significant. These results were fully replicated when based on other measures of religiousness (and these were significant in Brazil as well).

TABLE 1
GENDER AND RELIGIOUSNESS IN THE CHRISTIAN WORLD

	Percent Saying They Are "a Religious Person"		
	Males	Females	Ratio of Females/Males
<i>Europe</i>			
Armenia (2,000)	58.4	73.9	1.27**
Austria (1,281)	74.4	85.4	1.15**
Belarus (2,092)	46.6	67.6	1.45**
Belgium (2,483)	61.8	76.5	1.23**
Bosnia (1,200)	62.3	71.0	1.14**
Bulgaria (1,072)	37.9	57.0	1.50**
Croatia (1,196)	67.2	74.8	1.11**
Czech Republic (1,147)	34.3	46.7	1.36**
Denmark (965)	63.2	81.8	1.29**
Estonia (1,021)	24.3	41.0	1.69**
Finland (987)	44.2	63.3	1.43**
France (950)	47.4	53.7	1.13**
Germany ¹ (1,017)	50.1	67.2	1.34**
Great Britain (1,421)	49.6	64.1	1.29**
Hungary (645)	44.4	62.0	1.40**
Iceland (695)	66.0	83.5	1.27**
Ireland (987)	66.9	77.5	1.16**
Italy (1,925)	78.8	89.4	1.14**
Latvia (1,200)	49.5	69.1	1.40*
Lithuania (1,009)	69.9	86.5	1.24**
Moldava (984)	74.7	84.7	1.13**
Netherlands (997)	53.1	66.8	1.26**
Norway (1,127)	37.0	55.7	1.51**
Poland (1,153)	88.0	93.3	1.06*
Portugal (1,156)	65.1	83.5	1.28**
Romania (1,239)	73.1	84.4	1.16**
Russia (2,040)	45.8	67.9	1.48**
Serbia (1,278)	52.3	59.0	1.13*
Slovakia (1,095)	67.4	82.7	1.23**
Slovenia (946)	62.1	75.0	1.21**
Spain (1,211)	57.4	76.8	1.34**
Sweden (1,009)	25.0	38.1	1.52**
Switzerland (1,212)	49.1	62.2	1.27**
Ukraine (2,811)	46.7	65.6	1.41**
<i>North America</i>			
Canada (1,682)	65.0	76.5	1.18**
Mexico (1,488)	57.8	68.4	1.18**
United States (1,502)	77.2	87.0	1.13**
<i>South America</i>			
Argentina (1,054)	76.0	86.8	1.14**
Brazil (1,149)	83.4	87.7	1.05
Chile (1,000)	67.7	77.9	1.15**
Colombia (2,996)	81.6	88.0	1.08**

TABLE 1
CONTINUED

	Percent Saying They Are "a Religious Person"		
	Males	Females	Ratio of Females/Males
Peru (1,211)	74.5	79.8	1.07*
Puerto Rico (1,143)	82.8	87.7	1.06*
Uruguay (1,000)	40.7	61.0	1.49**
Venezuela (1,178)	81.6	89.7	1.10**
<i>Other</i>			
Australia (2,013)	52.3	65.6	1.25**
New Zealand (1,171)	42.6	52.5	1.23**
Philippines (1,200)	80.0	87.2	1.09**
South Africa (2,935)	75.7	86.8	1.15**

¹West Germany and East Germany have been merged in proportion to their populations.

() = number of cases.

* $p < 0.050$; ** $p < 0.000$.

Source: World Values Surveys, 1991–1992, 1995–1997.

One may suppose that consistent cross-national gender differences of this magnitude on almost anything other than religiousness would have been the object of great interest and a lot of analysis. To the best of my knowledge, only on the commission of crime and delinquency are there comparable differences—gender differences are virtually nonexistent on opinions about sex roles, for example. The primary reason that social scientists have ignored the gender differences in religiousness is probably because the majority of them have been mistakenly educated to believe that religion is of little interest because it is soon to disappear. However, that surely cannot be why sociologists of religion also have ignored gender effects.

As with so much social science, the actual evidence of gender effects on religiousness has been limited to Western cultures—indeed Walter and Davie (1998) explicitly limited their recent review of the literature to the “religiosity of women in the modern West.” Consequently, much of the discussion has been concerned exclusively with Christianity. But, in this instance that limitation is unnecessary and unproductive. As Table 2 shows, substantial gender effects hold in non-Western societies as well. Since no similar data have been published before, I have not limited the table to the single item used in Table 1, but have included other available items.

These data also are from the World Values Surveys conducted during 1995–1997, except for the Chinese data, which come from 1991. Unfortunately, some questions were omitted in some countries. In the instance at hand, I could not include Bangladesh and Pakistan in the Islamic group because many of the religion questions were not asked in their surveys and obvious coding problems mar the data for each. Indeed, I was forced to omit Nigeria because the codes provided indicate that there are more Jews (18.8 percent) and Eastern Orthodox Christians (22.5 percent) in Nigeria than there are Muslims (11.2 percent).¹

Turning to the table, four Asian nations make up the first group. In Japan, women are more apt to report religiousness than are men on all five measures and each difference is statistically significant. For example, while slightly fewer than half of the men in Japan say they “believe in God,” two-thirds of Japanese women believe. Similar differences exist in Taiwan—70 percent of Taiwanese men believe in God compared with about 84 percent of Taiwanese women.

Fewer measures of religiousness are available for China and South Korea, but in every instance women are significantly more religious than men. For example, while the Chinese are far less

TABLE 2
GENDER AND RELIGIOUSNESS IN THE NON-CHRISTIAN WORLD

	Males	Females	Ratio of Females/Males
Asia			
<i>Japan (1,054)</i>			
% who are "a religious person"	20.3	31.6	1.56**
% who "get comfort and strength from religion"	29.4	39.5	1.34**
% who pray or meditate	84.8	89.6	1.06*
% who believe in an afterlife	38.6	56.3	1.46**
% who believe in God	48.4	66.3	1.37**
<i>Taiwan (1,452)</i>			
% who are "a religious person"	70.1	76.8	1.10**
% who "get comfort and strength from religion"	58.6	76.6	1.31**
% who believe in an afterlife	53.8	65.4	1.22**
% who say religion is important in their life	43.2	51.0	1.18**
% who believe in God	70.0	83.5	1.19**
<i>China (1,500)</i>			
% who are "a religious person"	4.4	5.9	1.34*
% who pray or meditate	17.3	27.7	1.60**
% who say religion is important in their life	11.4	21.1	1.85**
<i>South Korea (1,249)</i>			
% who say religion is important in their life	42.9	58.2	1.36**
% who belong to a religious organization	38.6	54.4	1.40**
<i>India (2,040)</i>			
% who are "a religious person"	69.5	75.9	1.09**
% who "get comfort and strength from religion"	74.2	82.0	1.11**
% who pray or meditate	46.4	50.4	1.09**
% who believe in an afterlife	38.9	48.4	1.24**
% who say religion is important in their life	76.3	82.0	1.08**
% who believe in God	91.6	95.9	1.04**
Islam			
<i>Albania (980)</i>			
% who are "a religious person"	35.5	51.5	1.45**
% who "get comfort and strength from religion"	41.9	62.7	1.50**
% who believe in an afterlife	15.4	30.6	1.99**
% who say religion is important in their life	50.5	69.5	1.38**
% who believe in God	85.8	96.2	1.12**
<i>Azerbaijan (2,002)</i>			
% who are "a religious person"	81.0	86.3	1.07**
% who "get comfort and strength from religion"	69.4	77.2	1.11**
% who believe in an afterlife	41.9	51.9	1.24**
% who say religion is important in their life	81.3	85.0	1.05*
% who believe in God	94.2	96.2	1.02*
<i>Turkey (1,907)</i>			
% who are "a religious person"	71.2	77.8	1.09**
% who "get comfort and strength from religion"	85.3	91.7	1.08**
% who believe in an afterlife	84.1	84.5	1.01
% who say religion is important in their life	89.0	92.6	1.04*
% who believe in God	95.5	98.9	1.03*

* $p < 0.05$; ** $p < 0.000$.

Source: World Values Surveys, 1991–1992, 1995–1997.

likely than the Koreans to say “religion is important” in their life, Chinese women are almost twice as likely as Chinese men to hold that view.

The second section of the table is based on the WVS survey of India. While Indians in general are more religious than Asians, here, too, women are more religious than men—all the differences are statistically significant.

Finally, take a look at the section on Islam. In Albania, women are quite substantially more religious than men. The same holds in Azerbaijan. As for the five comparisons in Turkey, there is no sex difference on belief in life after death, but women are more religious than men on the remaining four items.

Thus, of 36 gender comparisons in non-Christian nations, women are significantly more religious for 35. It would, of course, be wonderful to have data on much less developed nations and, indeed, on small, preliterate societies. However, given that data are available for most of the western hemisphere, all of Europe, and for the major nations of Asia, and that the gender effect holds in all of them, this suggests that what we are looking at something that at least borders upon the universal.

THE SEARCH FOR EXPLANATIONS

Despite the lack of attention given to gender differences in religious commitment, a number of explanations have been offered. Most of these are tautological, inconsistent with the evidence, or silly. In his much-admired study of the revivals that swept western New York during the 19th century, Whitney R. Cross attributed the greater “feminine susceptibility” to women being “less educated, more superstitious, and more zealous than men” (1950:178). Little did he know that gender differences in religiousness are as large, or larger, among the highly educated as among those with little or no schooling. As for superstition and zealousness, this is pure tautology, since Cross uses each as a synonym for religion.

The same can be said for explanations that attribute greater susceptibility to guilt feelings among women as the cause of their religiousness, since belief in sin is taken as a measure of guilt (Beit-Hallahmi and Argyle 1997). As for Freudian revelations that women turn to God because from childhood humans relate more closely to the opposite-sex parent, this is falsified by the lack of any credible evidence that children do relate more strongly to the opposite-sex parent and by the greater involvement of women than men in Goddess religions as well.

It also has been suggested that because many women do not work outside the home, they simply have more time to devote to religious activities (Azzi and Ehrenberg 1975; Iannaccone 1990; Luckmann 1967; Martin 1967) and it can be argued further that greater participation in religious groups also increases belief and private religious practice. This explanation fails because career women are as religious as housewives, and both are far more religious than their spouses or male peers (de Vaus 1984; Cornwall 1988; Stark 1992). Moreover, even among those who are equally active in church, women are more religious than men in other dimensions of faith. For example, using the 1998 General Social Survey I calculated that among Americans who attended church once a month or more often, only 30 percent of men compared with 47 percent of women prayed more than once a day. Or, among those who never attended church, 6 percent of men and 14 percent of women prayed more than once a day.

Perhaps the most popular of all explanations proposes that women are socialized to be more religious than men. This takes many forms, but all of them involve discussions of women being raised to be more nurturant and submissive and then associating these traits with religious commitment (Mol 1985; Suziedalis and Potvin 1981). Indeed, it is often argued that religiousness is built into the role of mother (Glock, Ringer, and Babbie 1967; Walter and Davie 1998). However, research does not show that childrearing is associated with greater female religiousness (de Vaus and McAllister 1987; Steggarda 1993). More generally, Marie Cornwall (1989) found that substantial gender differences in religiousness persist under a variety of controls for socialization.

The most compelling results in favor of the socialization explanation involved the use of a masculinity-femininity scale. Edward H. Thompson, Jr. (1991) found that religiousness was associated with femininity *within* each gender. That is, feminine men and women were more religious than masculine men and women. These results strongly suggest that the basis for the gender and religiousness association lies deeply in gender *per se*. However, Thompson had little to say about what or why. An additional problem is that the findings are based on 385 New England undergraduates. However, Thompson's study soon prompted a spate of replications by Leslie J. Francis. All these studies found substantial "femininity" effects, which eliminated the effects of biological gender (Francis 1991, 1997; Francis et al. 2001; Francis and Wilcox 1996, 1998). Francis, also, has been content to leave the fundamental source of these gender differences unexamined. Finally, using data on sexual partners included in the General Social Surveys, Darren Sherkat (in press) found that heterosexual females and homosexual males are far more religious than are heterosexual males or lesbian females.

And that's where things stand, except for Alan S. Miller and John P. Hoffmann's remarkable insight. As so often is the case, they realized that we had been asking the wrong question. Rather than ask what is it *about women* that causes them to be more religious than men, they asked what is it *about men* that causes them to be less religious than women.

GENDER AND RISK

There is only one other gender difference similar to the one involving religion: males are far more likely than females to commit crimes. But unlike religion, this effect has attracted a great deal of scholarly attention. Here, too, differential socialization has been the favored explanation, and here, too, the facts have proven uncooperative. For one thing, the gender effects tend to be limited to impulsive, violent, physical, and dangerous actions having short-term gratifications: murder, assault, robbery, rape, and burglary. Sex differences are small or nonexistent on planned, "sit-down" offenses such as forgery, embezzlement, and credit card fraud. Moreover, remarkable data on homicides in France from early in the 19th century reveal that of persons charged with murder, only 1 of 10 was a woman, but when poisoning was the method, women made up nearly half the accused (Guerry 1833). What these data clearly show is that it is not socialization taking the form of conscience that prevents women from breaking the law, since it is the kind of crime, not generalized conformity, that produces the effect.

A second factor to consider vis-à-vis socialization is that the rates of "male crimes" tend to decline rapidly with age and therefore gender differences attenuate as well. For example, in the United States, homicide and robbery rates are highest among males aged 16 to 19, decline by about 50 percent for males aged 25 to 29, and men over 40 very seldom commit such offenses (Gove 1985; Stark 2000).

All explanations, regardless of whether they involve socialization, must deal with the fact that most of the impulsive, physical, and risky crimes are committed by young males who also engage in many other risky behaviors, legal or not. They get drunk, smoke, use drugs, don't wear their seat belts, speed, drive without a license, urinate in public places, skip school, often don't show up for work, gamble compulsively, cheat on their wives and girlfriends, and engage in unprotected sex with strangers (Gottfredson and Hirschi 1990).

Finally, the male tendency to criminality does not appear to be a continuous variable. That is, a small percentage of young men commit many crimes, while most men of any age commit none. The famous study of a Philadelphia, male birth cohort revealed that 6 percent committed about half of all offenses and two-thirds of the violent crimes (Wolfogang et al. 1972). A subsequent longitudinal study in England got precisely the same results—a very criminal 6 percent (Farrington 1988). This points to a precipitating factor that is not present in varying degrees in all men, but present only in some and absent in most. The same applies to that tiny percentage of women who commit "male crimes."

In their influential *A General Theory of Crime*, Michael R. Gottfredson and Travis Hirschi (1990) concluded that the serious, repeat offenders lack the self-control needed to defer gratifications—they simply can't or don't concern themselves with future consequences. The rewards of their risky behavior are immediate (including thrills and excitement), while the potential costs of their behavior are uncertain and not immediate and the habitual criminal population consists of those who are unable to resist temptations of the moment.

It was against this background that Miller and Hoffmann (1995:64) drew their truly important conclusion that gender effects on religion and on crime are different facets of the same phenomenon. That is, to the list of risky behaviors engaged in by males, Miller and Hoffmann added irreligiousness: "one can conceive of . . . the rejection of religious beliefs as risk-taking behavior."

Miller and Hoffmann's logic is in accord with a classic argument in theology known as "Pascal's Wager" (Durkin and Greeley 1991). Blaise Pascal (1623–1662), a French priest and philosopher, wrote that anyone with good sense would believe in God because this is a no-loss proposition. He noted that God either exists or does not exist and people have the choice of either believing in God or not. This results in four combinations. Assuming that God exists, then upon death those who believe will gain all the rewards promised to the faithful and escape the costs imposed on the unfaithful. In contrast, nonbelievers will miss out on the rewards and receive the punishments. Now assume there is no God. When they die, believers will simply be dead. But so will those who didn't believe. Therefore, Pascal reasoned, the smart move is to believe, for one has everything to gain and nothing to lose by doing so.

However, Pascal overlooked something. Faith is not free. Believers must give up some gratifications here and now because various worldly delights are defined as sins. Consequently, if one is willing to take the risk of betting that God does not exist, one can enjoy many immediate gratifications prohibited by religion, and in that sense come out ahead of the believer.

Because many sins also are crimes, the interests of criminology and the social scientific study of religion converge on the same set of behaviors that overwhelmingly are committed by males. People who are willing to risk the secular costs of seeking immediate gratifications also are prone to risk the religious costs of misbehavior. Whatever it is that makes some men risk takers also makes them irreligious. It seems appropriate to mention that only two groups have had significant success in resocializing serious criminals, both of them religious: the Prison Fellowship founded by Charles Colson and the various groups of Black Muslims (Stark and Bainbridge 1997).

When they analyzed appropriate data, Miller and Hoffmann found that within each gender, those scoring high on risk aversion were more religious. Moreover, when they compared men and women with a similar orientation toward risk, their religious behavior and beliefs were also similar. Further support has been lent to this finding by research showing that members of a sample of 1,148 newly ordained clergy in the Church of England scored well below the national average for English men on a scale of risk taking (Francis et al. 2001). It also is consistent with findings that men tend to accept higher risks than do women when making financial investments (Glass and Kilpatrick 1998; Powell and Ansic 1997).

For all the brilliance of their insight, however, Miller and Hoffmann merely expanded the fundamental question to include irreligiousness among the acts of crime and irresponsibility. The question remains: Why are some men short-sighted risk takers? Miller and Hoffmann suggested that the answer is to be found in differential socialization. I am willing to agree that socialization probably accounts for some of the gender difference, but that's not saying much. To attribute something to differential socialization is merely to sloganize unless one is able to identify the specific elements of socialization. And that is precisely what generations of sociologists and criminologists have been unable to do. Indeed, during the 1970s, feminist authors such as Freda Adler (1975) predicted that changes taking place in female socialization would soon eliminate the gender differences in crime. A generation later the gender differences are as large as ever. In similar fashion, any number of studies have attempted to account for gender differences in

delinquency by controlling for attachments to parents and variations in parental supervision, without significant success (Gottfredson and Hirschi 1990).

Meanwhile, however, some progress was being made on the gender and criminality front from an entirely different direction.

PHYSIOLOGY AND NONCONFORMITY

The idea that biology plays an essential role in criminality has had a long and controversial career in criminology. Late in the 19th century, the Italian criminologist Cesare Lombroso proposed that the most vicious and habitual criminals differed from others who committed crimes by being genetic “throwbacks” to our more primitive ancestors. As he described them, the “born criminal” is “an atavistic being who reproduces in his person the ferocious instincts of primitive humanity and inferior animals” (Lombroso-Ferrero 1911). Lombroso’s fundamental point has never really been falsified by data. Indeed, although the textbooks cite the work of Charles Goring as providing trustworthy data to refute Lombroso, they uniformly fail to report that Goring was fully convinced that his data showed that indeed there are “born criminals.” As Goring put it: “our evidence conclusively shows that, on average, the criminal in English prisons is markedly differentiated by . . . physique . . . by defective mental capacity . . . and by an increased possession of anti-social proclivities” (1913:370).

The disappearance of biology from academic criminology and sociology was not based on empirical findings. Rather, “nature” was “outlawed” by virulent attacks based on the new ideology of “nurture.” Emile Durkheim was among the most strident of these critics, proclaiming that crimes were committed by entirely normal individuals who were compelled to crime by social forces beyond their comprehension or control. Consequently, Durkheim wrote, “crime must no longer be conceived of as evil” ([1894] 1982:102).

Fortunately, most biologists, including physical anthropologists, were content to shrug off this sort of sociological “counsel.” Writing in 1939, Earnest Hooten remarked: “The anthropologist who obtrudes himself into the study of crime is an obvious ugly duckling and is likely to be greeted by the lords of the criminological dung-hill with cries of ‘Quack! quack! Quack!’” (1939:3). Undeterred, Hooten offered some remarkable work on the biological characteristics differentiating criminals from noncriminals, including indications that it was a difference in general physique, not in specific bodily anomalies, that mattered. Hooten’s conclusions launched a continuing and significant line of study. Thus, in 1940 W. H. Sheldon found that persons having a husky or mesomorphic body build are far more likely than others to commit risky crimes of impulse. This was confirmed by Epps and Parnell in 1952, by the Gluecks in 1956, by Cortéz and Gatti in 1972, and by a number of other researchers.

Another line of research pursued the question of heredity and crime through studies of twins and adoptives. The first of these was a study by Johannes Lange ([1929] 1931), involving 13 pairs of identical (MZ) twins and 17 pairs of fraternal (DZ) twins located in Germany. Among the MZ twins, if one of the pair had a criminal record, so did the other in 10 of the 13 pairs. Among the DZ twins (who are no more closely related than ordinary siblings), in only two of the 17 pairs were both criminals. These findings were confirmed in at least five studies during the 1930s, followed by a lapse of 20 years. Then in 1962, twin studies resumed as Yoshimasu found a high concordance in the criminality of MZ twin pairs compared with the concordance among DZ pairs (all in Christiansen 1977). All these studies suffered from small numbers of cases. However, in 1977, Karl O. Christiansen assembled data on 3,586 Danish twin pairs and found that for identical twins, if one had a criminal record, the odds were 50/50 that the other twin did too. But, among dizygotic twins, if one twin was criminal the odds were only 1 in 5 that the other twin had a record. It follows that the difference reflects a biological effect since both kinds of twins shared environments. Soon, other researchers found that in terms of criminal records, adoptees far more closely resembled their biological than their adoptive parents (Mednick et al. 1984).

Finally, in 1985, Walter Gove, a sociologist, proposed that the combination of the well-known gender and the age effects on crime clearly point to physiology. Many crimes require strength, agility, aggression, and self-confidence. This is why males, and especially big, strong males, excel in these offenses, while gender makes much less difference in “sedentary crimes” such as embezzlement or poisoning. Gove also noted that the traits that give males advantages in committing violent and risky crimes are very age related. Hence, just as athletes must retire at a rather early age, so too do criminal males become too old to keep on being criminals. Of course, Gove’s theorizing does not address the issue of why only a few of the strong young males commit crimes.

Then came breakthrough studies of testosterone and crime and these not only were fully compatible with Gove’s analysis, but began to account for the narrow range of susceptibility.

Beginning in the 1970s, the widespread abuse of anabolic steroids (synthetic testosterone) by athletes and bodybuilders lent credence to the view that hormones can greatly influence behavior. Users as well as observers soon noticed that those taking large doses seemed unusually prone to rapid mood swings, to uncontrollable fits of temper, to outbursts of violent behavior, and to greatly increased sexual appetites. From this it seemed to follow that men having unusually high natural levels of testosterone might be prone to violent and impulsive behavior.

The first scientific studies of the effects of testosterone offered very strong support for this view. Not only were men with high levels of testosterone more apt to offend, variations in testosterone levels influenced anti-social behavior among women as well (Dabbs et al. 1987, 1988; Daitzman and Zuckerman 1980; Julian and McKenry 1989; Udry 1988). Like the early twin studies, this research suffered from being based on quite small numbers of cases, seldom more than 100. But then, in 1985, the Veterans’ Administration conducted a huge health study of 4,462 men who had served in Vietnam during the period 1965–1971. In addition to several days of examinations and testing, extensive interviews were conducted concerning social behavior. Every vet’s testosterone level was measured. These data have produced a wealth of testosterone research. Those with the highest levels do behave in quite impulsive, violent, risky ways: they get into fights, commit crimes, abuse drugs and alcohol, are promiscuous, beat their wives, get divorced, and have poor work records (Booth and Dabbs 1993; Dabbs 1992; Dabbs and Morris 1990). Unfortunately, nothing is known of their religious behavior. It should be noted that men with high levels of testosterone also tend to have husky (mesomorphic) builds and that levels of testosterone normally decline with age.

Since these breakthrough studies, there have been many other studies linking physiology and risky behavior. For example, it was recently learned that a group of men who engaged in “anti-social” behavior had significantly less prefrontal gray matter than did a control group (Raine et al. 2000). Even more compelling is a study that found that boys identified by their peers and by their records as guilty of persistent anti-social behavior were quite deficient in the cortisol level found in their saliva after they had been subjected to stress (McBurnett et al. 2000). Cortisol is produced by the body in response to fear and anxiety. What the data show is that there exist boys who do not have normal fear reactions. In effect, they cannot be deterred.

So, here we are. It appears that scientists are closing in on substantial physiological sources of criminality that explain the very substantial gender differences. If we assume with Miller and Hoffmann that irreligiousness is simply another form of risky behavior to which certain kinds of men are given, then there seem to be grounds for proposing a link between physiology and faith.

CONCLUSION

In conclusion let me offer several qualifications concerning gender and biology. First, socialization must make a difference in gender differences too. It is not only risk-taking males who are irreligious; some gender differences no doubt remain even when women are compared to men of more normal physiology. Indeed, this is apt to occur in part because of peer influences,

which not only may exaggerate the genetic potential of the afflicted men, but may well tend to generalize their behavior to other males. Assuming that there are males genetically predisposed to be violence-prone, fearless risk takers, they will serve as undesirable role models, setting quite excessive standards for masculinity: “Real men take what they want.” “Only wimps go to church.” Indeed, it seems likely that normal male genetics and socialization make men rather vulnerable to these excessive standards. That is, I am willing to accept the claim by evolutionists that there is high survival value for the species if males are biologically programmed to be aggressive. However, it is absurd, even within the most doctrinaire evolutionary perspective, to propose that normal males are so inherently violent and aggressive as to be almost beyond the reach of calming socializing influences, just as it is absurd to claim that women function by different, “nonlinear” logical principles. Normal men can feel and normal women can think.

To the extent that there is a genetic basis for the inability of some males to control their anti-social impulses and resist immediate gratification, it is a genetic abnormality not shared by the majority of males. One is very tempted to mention the mark of Cain.

NOTE

1. For earlier surveys, Laurence Iannaccone and I both spent a great deal of time writing to principal investigators in many different nations in order to clean up the irresponsible mess provided by ICPSR.

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