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ON SEX AND SUICIDE BOMBING: AN EVALUATION OF KANAZAWA'S 'EVOLUTIONARY PSYCHOLOGICAL IMAGINATION'

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Abstract. KANAZAWA (2007) proposes the 'evolutionary psychological imagination' (p.7) as an authoritative framework for understanding complex social and public issues. As a case study of this approach, Kanazawa addresses acts of international terrorism, specifically suicide bombings committed by Muslim men. It is proposed that a comprehensive explanation of such acts can be gained from taking an evolutionary perspective armed with only three points of cultural knowledge: 1. Muslims are exceptionally polygynous, 2. Muslim men believe they will gain reproductive access to 72 virgins if they die as a martyr and 3. Muslim men have limited access to pornography, which might otherwise relieve the tension built up from intra-sexual competition. We agree with Kanazawa that evolutionary models of human behaviour can contribute to our understanding of even the most complex social issues. However, Kanazawa's case study, of what he refers to as 'World War III', rests on a flawed theoretical argument, lacks empirical backing, and holds little in the way of explanatory power.

Keywords: evolutionary psychological imagination, terrorism, suicide bombings

INTRODUCTION

In a recent Original Article published in the *Journal of Social, Evolutionary, and Cultural Psychology*, KANAZAWA (2007) advocates evolutionary behavioural science as enabling enlightened individuals to explain complex social and public issues through the use of an 'evolutionary psychological imagination' (p.7). It is suggested that such explanations have a strict authority over other alternatives as 'really, what could we possibly know about human behaviour without evolutionary

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psychology?' (p.8). To illustrate his claim, Kanazawa leads us through an account of his own application of the evolutionary psychological imagination to international acts of terrorism, specifically suicide bombings committed by Muslim men. Here, Kanazawa suggests that a comprehensive explanation for such events can be gained from taking an evolutionary perspective armed with only three points of local cultural knowledge: 1. Muslims are exceptionally polygynous, 2. Muslim men believe they will gain reproductive access to 72 virgins if they die as a martyr and 3. Muslim men have limited access to pornography, which would otherwise relieve the tension built up from intra-sexual competition. Unfortunately, Kanazawa's account falls short on theoretical and empirical grounds.

We begin our evaluation of KANAZAWA (2007) with a discussion of some general theoretical problems with the form of evolutionary psychology that Kanazawa advocates. In particular, we focus on the promotion of an unsophisticated version of the Environment of Evolutionary Adaptedness (EEA) and a misinterpretation of the research focus of evolutionary psychology on 'human universals'. We then suggest that Kanazawa's claims – that Muslims are exceptionally polygynous and believe that they gain sexual access to 72 virgins following martyrdom, and that humans are unable to distinguish pornographic images from real sexual encounters – lack solid empirical backing. We consider if Kanazawa's thesis holds real explanatory power, taking particular issue with the notion that authoritative speculation on individual terrorist acts is possible without a detailed knowledge of local cultural history. Finally, we note clear contradictions between Kanazawa's hypotheses.

We should make clear that we are not opposed to the notion that evolutionary models of human behaviour contribute to our understanding of even the most complex social issues. We are quite confident this is the case. While we identify ourselves as evolutionary anthropologists (specifically, associated with traditions of human behavioural ecology and approaches to cultural evolution) rather than evolutionary psychologists, our criticisms should not be seen as an attack on evolutionary psychology. Indeed, we see evolutionary anthropology and evolutionary psychology as complementary approaches to the study of human behaviour (see SEAR, LAWSON and DICKINS 2007; DUNBAR and BARRETT 2007), provided that the work in question meets the requirements of the scientific method.

THEORETICAL PROBLEMS

The Savanna Principle and the Human Mind

Kanazawa claims that one of the most important principles in evolutionary psychology is his own 'Savanna Principle', which states that 'the human brain has difficulty comprehending and dealing with entities and situations that did not exist in the ancestral environment', and 'the human brain implicitly assumes that we still

live in the African savanna during the Pleistocene Epoch, roughly 1.6 million to 10,000 years ago' (p.12). The notion of mismatch between ancestral and modern environments has been a common emphasis of much evolutionary psychology since its inception. However, Kanazawa's own particular brand of this idea is itself in mismatch with contemporary writings in evolutionary psychology which make clear that the EEA should not be regarded as a specific time and place, but as a statistical composite of the selection history for a given trait (TOOBY and COSMIDES 2005). More broadly, hominin species have been living (successfully) in diverse ecologies across the globe since first dispersing from Africa over 1.8 million years ago.

Further objections to such a narrowly defined notion of mismatch have been repeatedly made elsewhere (FOLEY 1996; IRONS 1998; LALAND and BROWN 2006; POTTS 1998). The most important point to emerge from these discussions is that there is no reason to believe *a priori* that behavioural evolution has not happened in the last 10,000 years – there is certainly good evidence for physiological evolution (e.g. HOLDEN and MACE 1997) – nor that human minds will have difficulty responding adaptively to all seemingly novel features of modern environments (in particular see LALAND and BROWN 2006). Rather, the extent to which modern humans interact adaptively with current environmental factors is an empirical issue and should be assessed on a phenomenon-by-phenomenon basis. Kanazawa's lack of necessary empirical backing in his authoritative application of the Savanna Principle is well illustrated by his unsubstantiated claim that:

> Adapted to the conditions of the ancestral environment without TV and videos, the brains of young men today cannot really comprehend that they cannot have sex with the porn stars they see on TV (KANAZAWA 2007, p.12).

We briefly draw attention to everyday evidence that suggests that humans are quite capable of distinguishing pornography from real life sex in the section on empirical problems below.

Universal Human Nature and Human Behaviour

Kanazawa sets out the evolutionary psychology approach further with the following statement:

> One of the themes of evolutionary psychology is that human nature is universal (or "species-typical") and people are the same everywhere (or their cultural differences can be explained by the interaction of universal human nature and the local conditions) (KANAZAWA 2007, p.9).

Indeed, historically, evolutionary psychology has tended to focus on attempts to identify universal human-typical patterns of cognition. However, it should be noted that this is a research focus on central tendencies rather than on complete uniformity, as Kanazawa would seem to be suggesting when he says 'people are the

same everywhere' (p.9). Moreover, there are several well-established pathways through which evolution has shaped inter-individual differences at the genetic level which evolutionary psychology has tended to gloss over as a matter of tradition (for a discussion see NETTLE 2007). Kanazawa is most likely fully aware of these points, but his circumlocution around such matters is misleading.

More problematic is that, despite noting the role of 'local conditions' in determining human behaviour, throughout the article he consistently downplays or misinterprets that role, overstating the degree to which human behaviour and experience can be meaningfully understood as universal. For example, in a section (p.8) entitled 'Personal Troubles: Why You Are Spending Every Saturday Night Alone' (which presumably refers to heterosexual male readers only), Kanazawa states 'You may be comforted to know that you are not alone in your plight; there are losers like you everywhere in the world, and for the same reasons' (p.9). The commonality that Kanazawa refers to is based on his notion that 'every human society is more or less polygynous' (p.9), that 'humans are naturally polygynous' (p.9), and that 'the traits sought by men and women are culturally universal; men everywhere in the world seek the same traits in women (such as youth and physical attractiveness) and women everywhere seek the same traits in men (such as wealth and status) (BUSS 1989)' (p.8). Thus, Kanazawa would have us believe that there are culturally universal reasons why particular men may find themselves without a mate around the globe and those reasons are simply 'a mathematical consequence of polygyny' (p.9) and a lack of wealth or status.

It is difficult to consider well-documented polyandrous marriage systems (when one woman takes multiple husbands, usually brothers e.g. SMITH 1998) as polygynous to a degree (p.9). Moreover, although polyandrous marriage systems are rare, their very existence contradicts Kanazawa's assertion that 'humans are naturally polygynous' (p.9). Is this to imply there is something 'unnatural' about polyandrous societies, or hunter-gatherer societies where the majority of marriages within all but the most polygynous groups are monogamous (MARLOWE 2003)? Such cases indicate that human mating systems are characterized by a high degree of phenotypic plasticity and that human males are best understood as facultatively polygynous. When conditions permit males to obtain more than one mate, and this best serves their reproductive interests, they do so. These conditions may arise when there are high rates of male mortality, stratified wealth systems, and when female autonomy and access to resources are limited; features which are not common to all societies (for an example, see BORGERHOFF MULDER 1990). We note that Kanazawa's discussion of polygyny is further muddled by his lack of clear operational definitions regarding mating versus marriage systems.

Kanazawa further overstates the universal traits humans seek in potential mates and consequently the reason individuals succeed or fail in the mating market. The cited study by BUSS (1989) demonstrates that across cultures, relative to the opposite sex, men typically give higher rankings to physical attractiveness and women higher rankings to resource related traits. It also demonstrates that the

relative importance of these characteristics compared to others shows considerable cross-cultural variation (a point more explicitly addressed in GANGESTAD et al. 2006) and crucially, as BUSS (1989, p.13) himself points out, no culture ranks physical appearance or earning potential as the most important trait for either sex. Buss's sample is also unlikely to capture the full variation in human mating strategies given its well known overrepresentation of Westernised and cash economy societies and underrepresentation of traditional populations (MOORE and CASSIDY 2007). Furthermore, mate choice tactics, within cultures, are marked by significant individual differences relating to factors as diverse as individual market value (e.g. PAWLOWSKI and DUNBAR 1999) and social transmission (e.g. JONES et al. FEINBERG 2007).

In summary, we object to the assertion that an evolutionary approach 'diverts your attention away from the particular, the exceptional, the individual, and the local' (p.8). Undoubtedly there are unifying features of human psychology, but on the whole the anthropological record indicates massive variation in human behavioural strategies and human experience. Discarding knowledge about this variation (the interaction of universal human nature and the local conditions) as simply noise around the mean can ultimately only lead to a distorted view of underlying psychology. A complete evolutionary account of a behavioural phenomenon requires a full consideration of its plasticity and the evolved decision rules and developmental constraints that define its limits (SEAR, LAWSON and DICKINS 2007). Unfortunately, following his definition of the evolutionary research programme, Kanazawa makes only selective use of information on local socioecological conditions (and with poor empirical backing) while disregarding other relevant information. It is to these empirical issues we now turn.

EMPIRICAL PROBLEMS

Does Polygyny Exclude Muslim Men from Mating Opportunities?

Kanazawa suggests suicide bombers are partially the result of the Islamic sanctioning of polygyny, 'which makes young men violent everywhere' (p.11). The supposed high level of polygyny among all Muslims is actually subject to great cultural variation (OBERMEYER 1992). The practice is indeed sanctioned by the Koran, for up to four wives, and limited by an obligation to treat all wives equally. But the demands of supporting more than one wife appear to limit the number of polygynous marriages to only the most privileged males. Demographers estimate levels as low as 1% in Damascus and 2% in Cairo (GHALLAB 1984). A more recent survey of 37 developing nations found high levels of polygyny in Sub-Saharan Africa, but only 5% of women in Morocco and Pakistan were in polygynous marriages, while in Egypt, Jordan, Tunisia and Indonesia the number of women in polygynous marriages was 'negligible' (EDWARDS 1995; WESTHOFF et al. 1994).

Most estimates put the practice at 10 to 12% among Arab Muslims (CHAMIE 1986; WHITE 1978).

Crucially, Kanazawa's identification of polygyny as a key explanatory factor in suicide bombings lacks life history considerations. He focuses on: 'young low-status Muslim men who are excluded from any mating opportunities because of polygyny among older, higher-status men (p.12)'. Yet this application of reproductive competition lacks an appreciation of how evolution would favour different behaviour(s) over a life-course. In an environment where higher status older males monopolize mating opportunities, younger males are not best served by self-destruction, but by waiting for mating opportunities and aggressively accumulating status in their younger years. This is the pattern seen in other 'gerontocratic' (p.13) primate societies (MULLER and WRANGHAM 2005; STRUM 1994). Thus, young Muslim men are largely not 'excluded from any mating opportunities' (p.12), they just have to wait. In fact, the percentage of ever married males in Muslim nations are typically comparable or greater than those in non-Muslim nations, and men are nearly universally married (>90%) by the age of 50 (United Nations. Dept. of Economic and Social Affairs, Population Division, 2004).

Do all Muslims Believe that Martyrdom Results in Sexual Access to 72 Virgins?

The second 'key ingredient' (p.12) in Kanazawa's application of the evolutionary psychological imagination is to once again site the locus of explanation for suicide bombings in another line of the Koran. However, it is factually incorrect to state that the Koran holds a 'promise of 72 virgins waiting in heaven for any martyr in Islam'(p.12).The relevant statements appear in the Islamic Tradition[1] (specifically, Imam at-Tirmidhi's Sunan), and it is fair to say that religious and linguistic scholarship surrounding the issue is far from clear (e.g. WARRAQ 2002). In brief, not only is the token specifying 'virgin' open to multiple interpretations (generically, 'young women' or 'angels'), but more importantly, heaven is open to all true Muslims. We emphasize that martyrdom is not a prerequisite for such a reward. It is confusing of Kanazawa to use such a statement – even as shorthand – for this contested issue. Even if such a promise was the version transmitted to suicide bombers exclusively and without controversy, the onus is on Kanazawa to demonstrate that this is the case.

[1] Hadith: supplementary material to the core Koran. Various Muslim sects place different emphasis and importance on these writings, often according to the verifiability of their chain of narrators.

Can Humans Distinguish Pornography from Real Sexual Encounters?

Kanazawa asserts that the human brain has difficulty distinguishing pornographic images from real sexual encounters. This claim is not backed up by any empirical evidence, but rests solely on theoretical grounds. For Kanazawa, male sexual arousal in response to pornography

> [D]oes not make sense, because these men should know that they would never actually meet, let alone copulate with, these sexually receptive women in the movies. So there is no point in getting an erection when they watch pornography, because the only biological function of an erection is to allow men to have sexual intercourse with women (KANAZAWA 2007, p.12).

He then claims this phenomenon can be explained via the Savanna Principle by considering that there 'were no television, videos, DVDs or the internet in the ancestral environment' (p.12) that would select for the ability to differentiate between reproductively accessible and inaccessible women. According to Kanazawa, 'all sexually receptive women that our ancestral men ever saw were real, and they were able to have sexual intercourse with them' (p.12).

Thus Kanazawa suggests that sexual arousal in the absence of potential reproductive intercourse is entirely attributable to an ecological mismatch argument, implying that such activity is limited to modern environments. While we know of no data on this phenomenon in contemporary hunter-gatherer groups, we note that masturbation, along with a range of other non-reproductive sexual behaviour, clearly occurs in many non-human primate species. This suggests that the practice has been part of our behavioural repertoire for some time (reviewed in DIXSON 1998). Furthermore, while we agree that modern audiovisual forms of pornography are ecologically novel to the human species, reviews of Palaeolithic art indicate explicitly erotically charged imagery was routine (GUTHRIE 2006). Whether or not these mediums are comparable, the phenomenon of male exposure to sexually attractive, yet unattainable women is clearly not unique to modern societies. We note that bare female breasts and buttocks constitute a large part of mainstream Western pornographic material, but such exposures are commonplace in many traditional populations. As a final point, Kanazawa presents no data to suggest humans use pornography as a substitute rather than a compliment to sexual intercourse (thereby relieving intra-sexual competition for mates) Everyday evidence tells us that the human brain seems quite capable of distinguishing pornography from real sexual encounters, as most men (and women) strive to and ultimately obtain real live mates.

It is important we labour these points, because they are the sole foundation of Kanazawa's subsequent claim that differential pornography access between Western and Islamic countries partially explains why Muslim men engage in terrorism, or as Kanazawa puts it:

> If you are a likely reproductive loser in the United States, watching porn is your way of meeting women and having sex. If you are a likely reproductive loser in a Muslim society, suicide bombing is your ticket (KANAZAWA 2007, p.13).

A COMPREHENSIVE EXPLANATION?

What Exactly has Kanazawa Explained?

If we overlook the theoretical and empirical problems identified above and accept Kanazawa's thesis on face value, are we really to believe that it constitutes a comprehensive explanation of 'World War III' (p.10)? We are not convinced. Critically, Kanazawa's framework provides no scope for explaining why Islamic terrorist acts are focused at certain nations or individuals, nor why suicide bombings have occurred at specific points in our recent history and not others. Understanding these geographical and temporal factors requires a sophisticated appreciation of relevant cultural and political history, but Kanazawa does not engage with such knowledge (see Section 4.2). This is not to say that an evolutionarily-informed perspective could not shed light on such issues: for example, interesting inclusive fitness arguments, incorporating concepts of fictive kinship, have been suggested elsewhere (QIRKO and ATRAN 2004).

Kanazawa also fails to explain why the vast majority of Muslim men, of whatever social status, do not attempt to die as martyrs. There is an obvious irony to this shortcoming; as we have already pointed out above, Kanazawa misrepresents the evolutionary approach as advocating the diversion of research attention from 'the particular, the exceptional, the individual, and the local' (p.8). It is striking, then, that Kanazawa chooses to analyze an unquestionably uncommon behaviour as if it was a universal cultural practice of all Islamic societies.

The Disregard of Relevant Cultural and Political Knowledge

Kanazawa purports to demonstrate the 'power of an evolutionary psychological imagination' (p.14) with a personal account of his response to television news coverage of the commuter train bombings in Madrid 2004:

> Knowing nothing about the Spanish national politics …. Knowing nothing about the typical terrorism methods employed by ETA, I said to myself, 'No it ain't ETA. It's Muslim suicide bombers (KANAZAWA 2007, p.14).

He further asserts:

> Armed only with the evolutionary psychological imagination (and nothing else), it was obvious to me from the start that ETA (or any other terrorist group) could not have committed this act (KANAZAWA 2007, p.14).

Here, Kanazawa appears to be suggesting that an evolutionary psychologist should conclude that particular forms of future terrorist acts are committed by Muslims – without consulting the available local or historical knowledge, and without waiting for substantive evidence. The evolutionary psychological imagination, in and of itself, is presented as a sufficient diagnostic tool in the international political arena. We are also alarmed by Kanazawa's assertion that a personal anecdote, rather than a systematic review of available evidence, consolidates the power of his proposed explanatory framework.

Furthermore, Kanazawa suggests that, unlike all other (non-Islamic) terrorist acts, politics plays no part in Islamic suicide-bombing, because the 'bombings themselves were what they wanted' (p.14), and that such acts 'have nothing to do with religion, politics, culture, race, ethnicity, language or region' (p.13). On this view, Islamic suicide bombers are motivated only by the individual's unquestioning acceptance of the pertinent lines of the Koran, and by the drive of human males to obtain mating opportunities whenever possible. Such a viewpoint, when unpacked, implies that the Muslim male is sex-crazed beyond reason, incapable of independent thought, and desirous of death and destruction for its own end. Kanazawa contrasts this (p.10–11) with the aims and methods of monogamous, non-Muslim 'traditional terrorists' (p.10), such as Marxist revolutionaries and eco-terrorists, who (he states) have political goals and/or strict individual targets. This is cherry-picking and misrepresents modern political history. The stated goals of the disparate groups that employ suicide bombings range from withdrawal of foreign troops from the Arabian Peninsula to independence from the Russian Federation. Whether or not these are realistic or justified aims for killing indiscriminately, they are unquestionably political goals. In the case of the Spanish bombings, one could make the case that the bombers achieved their political goal, in that the Spanish withdrew, in 2004, from the multi-national coalition operating in Iraq from 2003 onward. If Kanazawa is making the argument that Islamic terrorist strategies are simply co-opting an individual's non-political motivation to reproduction, he must demonstrate that "traditional/monogamous" terrorists differ in this respect also. Otherwise, relevant cultural and political information is necessary. Without belabouring the point, Kanazawa's minimal exploration of modern political history appears to rely heavily on interpretations from a limited set of sources (e.g. FRIEDMAN 1999, 2000).

Contradictory Hypotheses

Contradictory hypotheses are imbedded within Kanazawa's explanatory framework. For example, in the principal application of the evolutionary psychological imagination to international acts of terrorism (e.g. 9/11 and the Madrid bombings), we are informed that Muslim men committed these attacks to gain sexual access to 72 virgins in the afterlife, and that these attacks are undirected because 'killing

itself is the goal, not the means to the goal' (p.14). However, when the evolutionary psychological imagination is applied to suicide bombings occurring at present inside Iraq, Kanazawa hypothesises that 'it is as if the Iraqi insurgents are trying to eliminate as many of their intrasexual rivals (fellow Iraqi men) as possible, rather than killing American troops' (p.14–15). Either Muslim men commit undirected terrorist acts because they believe they will reap their rewards following death, or they target violence towards intra-population male rivals to increase chances of reproductive access to local women. These two hypotheses appear to be very different strategies and in obvious contradiction, but Kanazawa fails to discuss the incompatible multiple outcomes, leaving us unconvinced by either alternative.

Kanazawa's immediate conviction that the Madrid bombings were carried out by Muslim *suicide bombers* with a motivation of sexual gratification in the afterlife is also inconsistent with the reality of the event. As Kanazawa himself points out, the perpetrators of this act were not 'typical Muslim suicide bombers' (p.14) in that bombs were detonated remotely with no immediate threat to the terrorist's personal safety. Weeks later, some, *but far from all*, of the terrorists committed suicide upon the threat of capture by the authorities. Suicide bombing and suicide to evade life imprisonment are distinct phenomena. At the very least this series of events indicates that the individuals responsible were in no rush to reach heaven at the expense of a future beyond the bombing.

CONCLUSION

Imagination is unquestionably important for hypothesis generation. Hypotheses may be as wild, revolutionary, or unpleasant as can be imagined, but scientific hypotheses must be testable and falsifiable – and the evolutionary approach to human behaviour is a scientific one. Science speaks to many of the issues of the original article: questions of cultural diversity; questions of political cause and effect at state, community, and individual levels; questions of individual reproductive histories and how those interact with other aspects of social life. But none of these questions are approached in a rigorous way. Instead, KANAZAWA (2007) advocates a misinterpretation of evolutionary psychological principles, in which 'enlightened' researchers are granted the ability to analyze complex politically sensitive issues without appealing to anything recognizable as scientific method. There are no clear and falsifiable hypotheses tested, no relevant data collected, and no proper examination of alternative scenarios. The beauty of the scientific method is that it allows us to ask, and sometimes answer, tough questions. Addressing the tough questions without the transparency afforded by the scientific method is not brave: it is simply cavalier.

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