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ΑΘΗΝΑ

MALE PHILOPATRY, FEMALE ENTRAPMENT AND SEX DIFFERENCE IN THE INCIDENCE OF DEPRESSIVE ILLNESS



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PREFACE

We are honoured to have been invited to contribute to a publication celebrating the distinguished career of George Christodoulou. We in the Psychotherapy Section of the World Psychiatric Association have long benefited from his advice and encouragement. He was the senior editor of the third volume of «Advances in Psychiatry» to which our Section contributed (Wilson et al 2009). That contribution concerned self-esteem and the narratives that go to form a sense of self and personal identity.

Now we move to the related theme of depression, on which topic Professor Christodoulou has published one of his many books. We try to break new ground, in the synthesis of some previously relatively independent themes: the work of Brown and Harris which revealed entrapment and humiliation to be an important predisposer to depression in London-based women, the archival material of the Human Relations Area Files (HRAF) which describes the social situation of married women in over a hundred primitive societies, and our own evolutionary interpretations that attribute to depression the function of enabling women (and men) to accept social roles which would otherwise be unacceptable to them.

This synthesis, we hope, will provide a theoretical framework to assist those psychiatrists and clinical psychologist colleagues who will be asked to train the many non-medical therapists who in the future will have the task of treating the 10% or so of the world's 6 billion inhabitants, i.e., 600 million persons, who will suffer from major depressive disorder at some stage in their lives.

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ACCEPTANCE OF SOCIAL ROLES

According to Darwin's theory of sexual selection, there are two fundamental social roles: Selected and Unselected (which also includes those who, having been selected, are then de-selected)

(Huxley 1938). Darwin further pointed out that individuals can be allocated to the role of Unselected in one of two ways: they can be rejected by the opposite sex as a mate (Intersexual selection), and they can be "driven away" or otherwise disadvantaged by other members of the same sex (Intrasexual selection). The role of Selected increases fitness, as it allows access to resources such as food, shelter and mates. The role of Unselected decreases fitness, and gives rise to two problems: is the role of Unselected imposed from within the individual or from without, and if from within, how could this evolve when the role reduces fitness? This second problem is beyond the scope of this brief paper, but much evidence suggests that each individual (animal and human) has available a psychological mechanism which enables him or her to adopt the role of Unselected.

How do we recognise the Unselected? One form of unselected, as proposed above, is the unsuccessful suitor. Julian Huxley observed a bird to change its physical appearance after it was rejected by its mate, so that it was recognised by other birds as a rejected suitor. The point is that at some level of its brain, this bird accepted the role of unsuccessful suitor and advertised itself as such, even though this behaviour reduced its chances of finding another mate. In the case of humans, we see patients suffering from depression after being rejected in love, and this depression makes it less likely that they will find another partner.

The other pathway to being Unselected is to be defeated by a rival of the same sex. In animals this leads to a life with no territory to enjoy, or to a place in the social hierarchy in which access to resources is limited by higher ranking individuals. As Huxley and other ethologists have pointed out, social competition in the form of fighting has been ritualised in almost all species of vertebrate (Blest 1961, Huxley 1966), and so we can expect losing to be ritualised as well. The characteristic of the loser of an unritualised fight is that he is incapacitated or dead, so we require a form of ritual incapacity sufficiently severe that it can take the place of death (Price 1969). The only viable candidate for this role is what we recognise clinically as Major Depressive Disorder (Wilson 1994, Wilson et al 2006). The features of depression closely match the variables which behavioral ecologists

have identified as leading to defeat in pairwise contests (Gardner et al 1999). Those such as Wolpert (2008) who claim that major depression is too severe to be of any use should contemplate the fact that in the past it has saved their ancestors from getting killed, and that, like sleep and hibernation, it is usually temporary, and the depressive lives on, if not to fight again another day, at least to be a useful member of the community.

One problem with this theory is that agonistic behaviour is a largely male activity in most species, in fact was called by Moyer "inter-male aggression" (Moyer 1976) so how do we account for the fact that the ritual losing of unipolar depression is more common in women by a factor of about 2:1 (Kuehner 2002)? To tackle this problem we will deal with the work on the social origins of depression in women, and we will contemplate the situation of a unique species that practices male philopatry and the dispersal of females at puberty via marriage.

THE SOCIAL ORIGINS OF DEPRESSION

That the question of whether women's seemingly higher rate of depression has any good evolutionary reason might best be answered by way of darwinian analysis has been of interest for some time, but recently Greenspan (2001) elegantly parsed a cogent philosophical psychological framework. Subsequent outstanding work on the social origins of female depression soon emerged with the reports of Brown and Harris (Brown 2002, Harris 2001) that entrapment and humiliation were even more important predisposing factors than loss. In a prospective study in Islington, London, half of initially non-depressed women became depressed in the following year if they had a severe entrapment or humiliation event and had initially been found to have both a "negative psychological index" such as low self-esteem and a "negative environmental index" such as lack of a close confiding relationship (Brown 2002). This finding has been confirmed in other cultures, in spite of wide variations in the incidence of depression (Brown 2002). These data support the theory that the function of depression is to enable an individual to accept a social situation which is otherwise unacceptable.

Indeed, rates of depression across cultures reflect a robust two-to-one bias toward women (Ustun et al 1995). While differences in social roles of men and women may account for some of this discrepancy, it does not account for most of the bias (Maier et al 1999). One area of difference in social roles between men and women arise with parenthood. Here, parental investment theory strongly infers that human parents and grandparents—especially mothers and grandmothers—ought not invest in just any offspring, but should instead allocate their support with respect to inclusive fitness; i.e., such things as infant viability, social support, resource plentitude, adverse affects on other offspring (Trivers 1972, Clutton-Brock 1991).

This investment theory, likewise, predicts a complex algebra of vectors within a lineage as well as an equally complex geometry between the sexes and across the generations. One possible consequence is that reproductive age women may find quite differential adaptations in patrilocal versus matrilocality. A further possible consequence of such adaptive differentials is that depressive reactions may be more likely in less manifestly supportive environs. As Hagen (in press) notes, women may be expected to have higher rates of depression because for them it is often a better strategy, and because they typically have had more conflicts with powerful "others". He further elaborates that women have a lower threshold for, and higher rates of, depression than men due to a variety of phylogenetic factors, the first of which he asserts to be patrilocal, meaning that females, more often than males, were living with non-kin, and thus were more likely to have conflicts with the group (Rodseth et al 1991).

Hagen (in press) further suggests that depression, like an industrial strike, represents a threat of withdrawal of labor. This is not entirely inconsistent with the social competition hypothesis. We have always maintained depression sends different messages to rivals and to friends. The message to rivals is one of submission, whereas that to friends is a request for nurturance (but such requests often contain an element of coercion).

For instance, if, in Shakespeare's Verona, the head of clan Montague became depressed, the message to Capulets would be different than to other

Montagues. To Capulets the message would be one of submission and withdrawal from engagement, allowing Capulet policies to prevail in the city. To Montagues, the message would be a request for nurturance, and also a request to back him up in his submission; it might well contain a threat to Romeo, saying, "I will go on strike with depression unless you give up this crazy scheme of marrying a Capulet."

MALE PHILOPATRY AND FEMALE DISPERSAL VIA MARRIAGE

One of the most amazing things about the social life of group-living primates is that the members of one or other sex leave the group around puberty (Pusey 1987). In many macaques and baboons it is the males who leave, so that the group is composed of related females or matriline. However, in chimpanzees it is the females who leave. We do not know what complex psychological processes induce a female chimpanzee to leave her mother and other relatives, and the security of her home range, to wander off into the unknown to join an alien group. It is generally thought that the dispersal of one or other sex at puberty is a device to avoid inbreeding.

Humans also disperse at or around puberty. The choice of dispersing sex is culturally determined by marriage customs. Most human societies (70%) practice male philopatry, or patrilocal residence, in which sons stay with or near their parents, and daughters are dispersed via marriage; in only 12% of societies in the ethnographic record is the girl joined in her parents' home by her husband (Witkowski et al 1996). For some girls, marriage to a man in a distant village may be a welcome release from a home where she was treated as a child by her parents and dominated by her brothers' wives, and she may welcome entry to a home where she is treated as an adult married woman. But for others it must be a frightening experience. She enters a household which is likely to contain a patriarch and matriarch, a new husband (whom she may not have met before the marriage ceremony), her husband's brothers and their wives, and their children. Since 80% of societies with patrilocal residence also practice polygyny, she may have to share her husband with one or more other wives. Her sisters-in-law are

likely to be a source of both comfort and challenge. Since there is likely to be only one inheritance (a throne, an estate, a farm, or just a house) there is likely to be a good deal of competition from her sisters-in-law for preferment for their sons. Such situations are enshrined in myths such as the Ramayana and the Mahabharata.

The matriarch is in a powerful position and is likely to keep the peace between her daughters-in-law. She is in a good position to do this, since being post-menopausal, she is equally related to all the children in the house (who are her grandchildren) so she is seen by her daughters-in-law as being impartial in their efforts to advance their own sons. This important role of matriarch was absent in the two myths mentioned above, which might account for the problems that the protagonists had to deal with. The importance of an impartial matriarch to keep the peace among ambitious daughters-in-law may well have contributed to the evolution of the human menopause. There has been no systematic research into the relation between patrilocal residence and mental health, but anecdotal evidence is suggestive; one woman wrote to her parents after 6 weeks of marriage, asking to come home, complaining about her in-laws, and saying she felt "like a parrot in a cage", not a bad way to describe entrapment (Ember et al 2004).

To be married into an alien social group is bad enough, but some women fare even worse. Some are sent to their future husband's village even before puberty (Erickson 1996, Brown 2002). Even more prone to subordination than a wife is the concubine, a role which does not have a male equivalent. Even lower than that of concubine is the role of slave, which is more common among women, since it was typical for a victorious army to kill their male opponents and take the females into slavery. Following such forcible capture, women may have to live in a social group with alien language and religion. This requires the use of various appeasement strategies, including depression and the "Stockholm Syndrome" (Cantor et al 2007).

Male philopatry may have contributed to female depression in two ways, both by making their social circumstances liable to entrapment and humiliation, and by selecting women who respond to these

adverse circumstances with depression (the alternative being death or banishment from the group). First of all, the girls are put into a situation in which they suffer entrapment (by the husband's family) and they are liable to experience humiliation in the skirmishing between the sisters-in-law. So they are likely to qualify for Brown and Harris's predisposition to depression. Moreover, since their families of origin have known since their birth that they will be married away, perhaps they are not given the love and support which is lavished on their brothers, so there may well be a childhood deprivation of love. Secondly, submission to the mother-in-law is a necessary channel to acceptance by the new family, and if the mother-in-law demands behaviour which is unacceptable to the girl, a depressive reaction may be socially appropriate to enable her to accept the unacceptable. Therefore the girls may have been selected to have a low threshold for developing a depressive state.

FROM EVOLUTION TO TREATMENT

What we call Major Depression may well have evolved in the male sex in our common ancestor with present day reptiles, allowing those who were defeated in ritual combat to survive, although adopting a subordinate social role. But evolution does not stand still – it is all about change. Within the primate radiation we find subordinate social roles are at least as common in females as in males. Carol Shively, Professor of Pathology at the Wake Forest University School of Medicine, has groups of female cynomolgus monkeys (crab-eating macaques) in whom severe depressive states are not uncommon (Shively et al 2009), and these depressions are not due to captivity as the dominant females in each group do not become depressed (Shively, personal communication 2009).

For human females, subordinate social roles are probably more common than in males. Subordination itself does not cause depression – one may make a joyful surrender to a god, or to a king, or to a respected elder, or to a loved one – but often the subordination is unwelcome, even coercive, and then the lower levels of the brain take control. The therapist needs to distinguish depressed emotion from depressed mood. Depressed emotions such as grief,

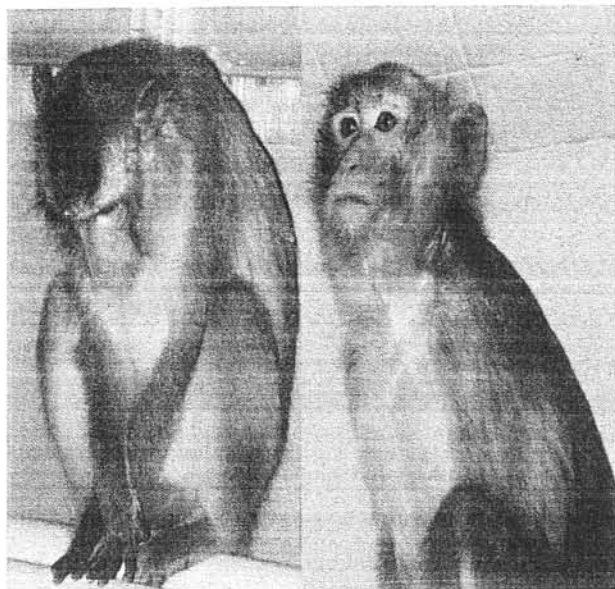


Figure 1. A depressed subordinate female crab-eating macaque (*Macaca cynomolgus*) – note the eyes are open, the posture slumped. She is not threatened by the other monkeys. She is due to enter a trial of “sertraline”. Normal cagemate on the right.

shame and guilt, which are mediated by the limbic forebrain, are recognised by the patient as due to some mischance or adversity, and then it is a case of helping the patient to rectify the situation. However, depressed mood is mediated by the reptilian forebrain (corpus striatum), and evolution has ordained that we deny any connection between the depression and what has caused it, and in fact in most human cultures depression is treated as a physical disease due to jinns or other factors, and this denial of a social cause absolves both patient and relatives from attaching blame and seeking revenge.

It is the task of the therapist to remedy this evolved blindness and to track down the cause which is likely to be some form of adversity, such as loss or humiliation or loss of “face”, or simply not getting their own way. This is likely to involve seeing close relatives, including grown-up children. The therapist should not waste time trying to argue the patient out of depressive ideas; we say to the patient, “If you came to me complaining of shivering, would you rather have a doctor who rubbed ointment on your shivering muscles, or one who enquired why it is that you have not turned on the central heating?”

The role of the unselected is easy to see in animals because they either lack territory or social rank (Price et al 2007). In human society things are far more complex, not least because prestige competition has largely replaced agonistic competition (Gilbert 1992), and the role of the unselected has been scattered in the complexity of human affairs. However, it has not gone away. For over forty years now we have been putting forward our ideas about the evolution of the susceptibility to depression, based on our clinical experience and our reading of basic sciences, particularly comparative ethology and behavioural ecology (Price 1969, Sloman et al 1989, Wilson 1994, Gardner et al 1999, Stevens et al 2000, Wilson et al 2007).

Admittedly these ideas are not directly testable, since evolution cannot be rerun in the test tube. However, they are indirectly testable both with animal work and with patients; they have implications for both research and treatment (Mongrain et al 2008). Under the influence of managed care and the pharmaceutical industry, clinicians have come to treat depression with drugs alone, and largely ignore the psychosocial components of the biopsychosocial model. Therefore we welcome this opportunity to put our ideas before the world psychiatric community in the hope that it will lead to a better deal for patients than they have had from an overly narrow and constrained “medical model”.

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