



Evolutionary Psychiatry Special Interest Group (EPSIG)



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Notes from the Editor

If you are considering your next summer holiday, I would strongly recommend Vienna. I spent a few days there to attend the 23rd WPA World Congress of Psychiatry and gave two short talks on Evolutionary Psychiatry, one with the section of Public Health (on evolutionary mismatch) and the other with the section of Perinatal Psychiatry (on trade-off and life history theory). In spite of the second talk being at 08:00 on Sunday morning(!), they were well attended. Many psychiatrists from all over the world were fascinated to hear about Evolutionary Psychiatry for the first time, which reminded me again about how important it is to spread the word.

In this newsletter, we also print the full version of my submission that was shortened: Why an evolutionary perspective is useful for child and adolescent psychiatrists, published in *World Child & Adolescent Psychiatry* 2023;24:62-67. Of course, child development and the origins of mental illness are important for all psychiatrists and I would urge you to have a quick read even if you are not working with children directly.

Continued on the next page...

On the other hand, if you would rather watch a rap, yes a rap (by Baba Brinkman) – and a fantastic talk by Haley Peckham about how we adapt to trauma to survive (even if accompanied with suffering), please see the wonderful links:

For the talk (with rap at the end):

<https://healthsciences.unimelb.edu.au/departments/nursing/about-us/centre-for-psychiatric-nursing/news-and-events/dr-haley-peckham-the-neuroplastic-narrative>

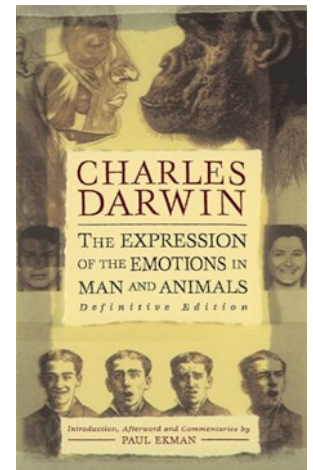
<https://www.youtube.com/watch?v=PsoJQgIQiWY>

The **Second EPSIG Psychiatric Trainee Engagement Workshop** will take place at the RCPsych HQ in London on 1 March 2024. This will be a full day training event on evolutionary principles and their application to mental health with both interactive and didactic components. Attendance is free and open to any psychiatric trainee in the UK or Ireland and will include lunch and refreshments. However, no travel or subsistence will be paid, and these must be claimed from attendees' current workplace CPD budgets. Places are limited and will be offered on a first come first serve basis. Interested trainees should contact Dr Tom Carpenter on carpenter.te@gmail.com for further information.

Book review

Riadh Abed and Paul St John-Smith reviewed Darwin's *Expression of Emotions* in the most recent BJPsych Advances. Please see the link below:

<https://www.cambridge.org/core/journals/bjpsych-advances/article/abs/expression-of-the-emotions-in-man-and-animals-darwins-forgotten-masterpiece/0738C484A4F9A40B296C6A9FDB01A580>



FREE WPA EP Section web pages with links to all future webinars

<https://www.wpanet.org/evolutionary-psychiatry>

Registration is free of charge by clicking on the hyperlinks. All interested colleagues from all disciplines are welcome.

Thursday 30 November 2023, 6pm GMT: Dr Laith Al-Shawaf, An Evolutionary Perspective on Human Emotions

<https://uzh.zoom.us/meeting/register/u5Msf-CtrjsrH9HRILO7A6zYduaFwysliKu0>

Thursday 25 January 2024, 6pm GMT: Prof Paul Gilbert, Evolution and Compassion Focused Therapy

https://uzh.zoom.us/meeting/register/u5YtdeyhqTouH9wj_nQ_nsQEL9FNI5qpmHUt

Thursday 28 March 2024, 6pm GMT: Prof Jerome Wakefield, title TBC

<https://uzh.zoom.us/meeting/register/u50lcu-vrD4pG9ODsI3PNr3hk2wcxmdclzaj>

Thursday 30 May 2024, 7pm BST: Prof Nichola Raihani, Evolutionary Perspectives on Paranoia and Suspiciousness

<https://uzh.zoom.us/meeting/register/u5wpdOmvzIsHNO4lwDubbM-z5TG3FCewcqy>

Why an evolutionary perspective is useful for child and adolescent psychiatrists

About the author

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Introduction

In Psychiatry, including child and adolescent psychiatry, we are very good at researching what happens in the brain and how and when it happens in terms of development. However, what we are not good at is asking **why** things happen the way they do.

An evolutionary view is very useful here, as it helps us understand why things are the way they are. It helps us to see which behaviours are pathological and which are adaptive strategies. In other words, many of the children we see in practice have developed evolutionarily sound strategies to cope with a harsh environment. Recognising this can help children, their families and their clinicians reduce shame and blame.

Evolutionary science

Dobzhansky stated that “Nothing in biology makes sense except in the light of evolution”. This is clearly also true for Child and Adolescent Psychiatry. Tinbergen explained that to understand any behaviour, we need to ask four questions:

- How does it work? (Mechanistic)
- How did it develop? (Developmental)
- How is this behaviour adaptive? (Survival value)
- How has it evolved? (Evolution)

We tend to be very good at considering the mechanistic and developmental aspects of the patients we treat – however we neglect to ask what the survival value is and how the behaviour evolved.

Charles Darwin wrote in “The Origin of Species” that: “As many more individuals of each species are born than can survive; and as, consequently, there is a frequent struggle for existence, it follows that any being, if it vary, however slightly in

any manner profitable to itself, under the complex and sometimes varying conditions of life, will have a better chance of surviving, and thus be **naturally selected**. From the strong principle of inheritance, any selected variety will tend to propagate its new and modified form.”

The key insight from evolutionary science is that those individuals that are best adapted to their environment have the best chance of surviving and reproducing. “Survival of the fittest” therefore does not mean that only strong and fast organisms will survive, but rather that those who have the best fit with their environment, will thrive. That is why sloths and slugs also exist. The goodness of fit between the individual and their environment is key. It is not about strength or intelligence, but about adaptation. This is also true for humans.

Key evolutionary concepts that are important for Child and Adolescent Psychiatry and will be discussed in more detail below:

- Parent-offspring conflict: what is best for the parent is not always best for a particular child. This conflict can explain a significant amount of parental child abuse and neglect.
- Intrauterine programming: Babies are primed for the environment their mother is in
- Attachment: successful survival depends on the ability to predict and adapt to environmental demands, for example, in dangerous environments it is adaptive to trust no one.
- Life history theory: in harsh conditions, there is a trade-off between short term survival and reproduction at the cost of longer-term health and happiness.
- Mismatch: where current environmental demands do not fit with what we have evolved to cope with.

Why an evolutionary perspective is useful for child and adolescent psychiatrists

1) Parental conflict

Data gathered from anthropological fieldwork shows that maternal love did not evolve to be unconditional and inevitable. Mothering has evolved to be sensitive to contextual factors. The cultural presumption that women evolved to love their infants automatically, selflessly and whatever the circumstances is incorrect.

Mothers had to make difficult choices when resources were scarce. There may be a conflict between what is best for the child and what is best for the mother (and her other or future offspring). A baby, whose mother was not committed to their care, was in life-threatening danger for the most part of our evolutionary history. Maternal responses to their infants may lie anywhere on a spectrum from close bonding to ambivalence to abandonment. Those babies who responded in ways to keep their mother's attention and care, and therefore survived and reproduced, are the ones who became our ancestors.

2) Intrauterine programming

Foetal programming prepares the infant for the type of postnatal environment it is likely to encounter.

Dangerous environments lead to a fearful mother, who is less able to provide sensitive care. Early experiences calibrate the stress axes to shape fear reactivity, resulting in hypervigilant and fearful young, which is adaptive in a dangerous environment.

Stressful life events, exposure to a natural disaster, and symptoms of maternal anxiety and depression increase the risk for the child having a range of emotional, behavioural and/or cognitive problems in later life. Brain imaging research reports that maternal stress is associated with changes in limbic and frontotemporal networks, and the functional and microstructural connections linking them.

In our evolutionary history it is possible that some

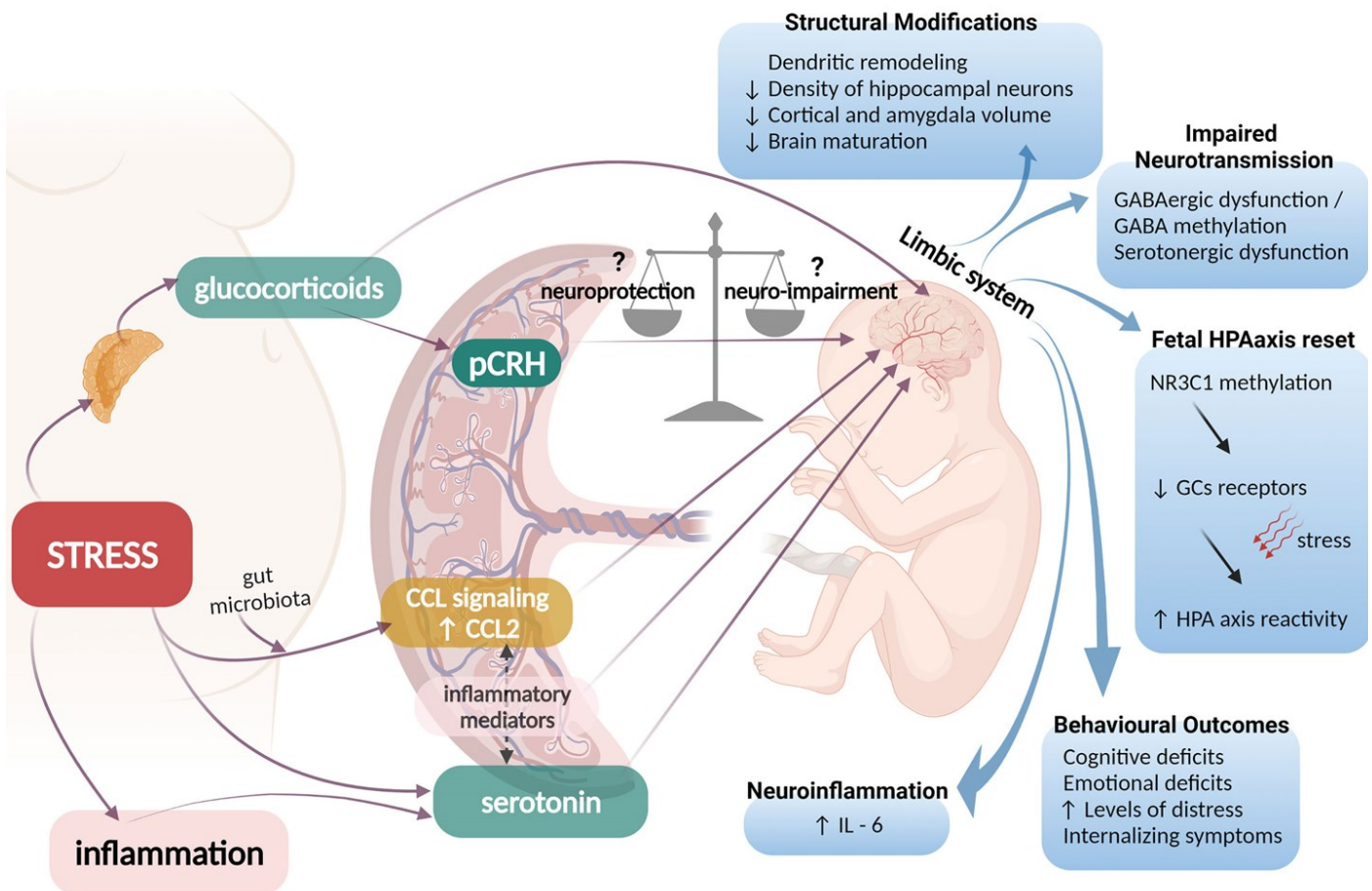


increase in these characteristics in some individuals was adaptive in a stressful environment:

- anxiety may have been associated with increased vigilance,
- distractible attention with more perception of danger,
- impulsivity with more exploration,
- conduct disorder with a willingness to break rules, and
- aggression with the ability to fight intruders or predators.

Prenatal stress increases anxiety, depression and stress responses in females. In a stressful environment it may be adaptive for females, who are more likely to stay in one place and look after children, to be more vigilant and thus show more stress responsiveness. Males are more likely to show learning and memory deficits. With males it may be more adaptive to go out and explore new environments, compete with other males, and be more aggressive. For this it may help to be less responsive to external stressors.

Why an evolutionary perspective is useful for child and adolescent psychiatrists



Schematic of intra-uterine programming

3) Attachment theory

Attachment theory was developed by John Bowlby and Mary Ainsworth. "Attachment" refers to the bond of the infant to its primary caregiver (usually the mother) and later towards meaningful others. This bond is necessary for mammalian newborns who cannot survive by themselves. Close proximity to the mother protects against predators and provides a secure base from which the infant can explore and return to if frightened. Children can form multiple attachments if given the opportunity.

Where mothers have enough physical and emotional resources, they can provide sensitive and responsive care. This leads to infants developing a "secure attachment", in which they believe themselves to be worth of care and others as capable of caring for them. However, nature does not prepare babies only for the optimum where they are loved, wanted and sensitively cared for. Children develop attachment relationships even if

their caregivers are rejecting, inconsistently sensitive, or abusive.

Mary Main proposed that the attachment system would need to be capable of calibration to a variety of environments, favourable and adverse (conditional adaptation). Sensitive caregiving is optimal, and the provision of a secure base would help a child to explore and learn. However, less sensitive caregiving could be expected to elicit responses that would support survival even in adverse conditions.

Nature does not prepare babies only for the optimum where they are loved and wanted. Babies have some degree of influence over their survival via their own behaviour influencing their caregivers. Babies develop different attachment styles to mothers that are warm, rejecting, ambivalent, or abusive. (Those who did not develop an attachment and elicit care, did not survive and their genes to not persist in the gene pool).

Why an evolutionary perspective is useful for child and adolescent psychiatrists



- Where mothers have enough physical and emotional resources, they can provide sensitive and responsive care. Their infants develop a “secure attachment” with high levels of trust. This is adaptive in a benign environment. Note that this style is not adaptive in a harsh environment, where too trusting individuals may be taken advantage of.
- When mothers are dismissive of their babies’ needs, perhaps because they have many other competing priorities, their babies learn to become as independent as possible, in order not to antagonise a rejecting mother. These children develop an “insecure-avoidant attachment”, which is characterized as being compulsively self-reliant and not to show their stress. It is important to recognise that it is adaptive not to expect support if none is forthcoming.
- Preoccupied and inconsistent mothers who are ambivalent about their babies, have children who develop an anxious-ambivalent attachment style and are compulsively care-seeking. Once again, this is not pathological, as it allows children to get the most care possible from a caregiver who is able to provide good care, when given lots of prompts, by crying, whining, and clinging.
- Main and Solomon described a fourth style, which they termed “disorganised”, as these children would use unusual and odd ways of engaging with their caregiver. The disorganised category is prevalent in psychiatric patients (about 90%) and is associated with care by a fearful or frightening caregiver, whose own childhood is unresolved. Hrdy has argued that in previous times, children would not have survived such adversity. However, Haltigan has argued that freezing (or “attentive immobility”) is a functional response, which allows a protective role in high-risk contexts in which caregiver behaviour may be potentially harmful. Also, Pat Crittenden has developed the Dynamic Maturational Model that obviates the disorganised category and describes it as extreme strategies of the avoidant or anxious styles. Furthermore, it is conceivable that in high stress situations, risky, last-resort strategies may be adaptive in exploring alternative coping mechanisms to hopefully find a behaviour that reduces the risk to the child.

Why an evolutionary perspective is useful for child and adolescent psychiatrists

However, it is not just mothers who are important and there is truth in the saying that “It takes a village to raise a child”. The involvement of a father in childrearing has beneficial and distinct effects on the child’s neurobiological maturation, and on the development of social competencies, particularly the child’s capacity to manage aggression. In many cultures, grandparents are particularly helpful in contributing to children’s survival and helping them thrive. Multiple caregivers and a network of attachment relationships have been found to constitute a protective factor in child development, with secure attachment to one person buffering the implications of insecurity in other relationships. Alloparents provide almost half of the care in hunter-gatherer-populations.

In summary, in a benign environment where parents are well and have adequate support, they will provide sensitive and responsive care. Children will adapt to be open, trusting and able to accept help (secure). If parents are stressed due to ill health, poverty or having less social support, they may be less able to provide consistent care. Such children will adapt by becoming compulsively self-reliant (avoidant) or clingy and compulsively care-seeking (ambivalent). These children will have highly activated stress systems, mirroring their parents’ stress and adapting to the more stressful environment. We know that chronic high stress levels contribute to mental and physical disorders later in life. However, reproduction is not inhibited and thus the cycle is perpetuated with an intergenerational transmission of trauma. High stress may be adaptive and enable survival in harsh environments – even when coupled with considerable suffering.

It is also important to be aware of the caveats regarding attachment theory. “Attachment” is about a particular relationship – it is not child-specific. The focus on attachment can unhelpfully legitimate a narrow focus on the mother–child relationship, and the responsibility of the mother for this relationship, thus directing attention away from the family socioeconomic context and the availability of social support. Also, some children are genetically more difficult to care for due to

temperament, sensitivity and/or underlying neurodevelopmental conditions, while other children are genetically easy-going and resilient. Genes and the environment interact: Nature and nurture are important. The consensus statement (Forslund et al 2021) is important: “Unless the world is successfully engineered to become a responsive and safe place with plenty of resources for all of its inhabitants, it may not be justified to consider only secure attachment relationships to be adaptive for all individuals.”

Resilience is also an important concept to consider, as although all children show a degree of adaptability, some are more sensitive to environmental effects (whether these are good or bad) than others – this is therefore a differential susceptibility and not just a vulnerability. Candidate genes include the serotonin transporter and dopamine receptor genes. Nature doesn’t put all her eggs in one basket – so that there are always some who thrive, regardless of the environment.

4) Life history theory

Life history theory refers to the concept that in harsh conditions, there is a trade-off between short term survival and reproduction at the cost of longer-term health and happiness.

Slow life history: individuals defer reproduction and tend to have fewer offspring in whom they invest considerable resources. The focus is on quality rather than quantity. This is adaptive in a benign environment where most of the young are expected to survive to adulthood.

Individuals who follow a fast life history begin reproducing at a young age and tend to have more offspring, each of whom gets relatively little nurturance. The focus is on quantity rather than quality. It is important to note that this is adaptive in harsh and dangerous environments where many young are expected to die.

Why an evolutionary perspective is useful for child and adolescent psychiatrists



Slow life-history



Fast life-history

Thus, it follows that in a dangerous world, an insecure attachment style and a fast life history are more adaptive in terms of survival and reproduction – even if it does create genuine suffering. Secure attachment with a slow life history is more adaptive in a benign environment.

Therefore, the more adverse the early experiences a child has, the greater the likelihood of a faster life course, with more stress, more physical and mental illness, less stable relationships and shorter life.

Natural selection acts on survival and reproduction only, therefore as long as affected individuals continue to survive and reproduce, the inter-generational transmission of trauma will continue.

Evolution does not select for happiness.

5) Evolutionary mismatch

An evolutionary mismatch occurs when the environment in which an organism lives is significantly different from that in which it evolved. Traits that were once adaptive, may then become pathological. In child psychiatry, we can see many examples of this, of which I discuss two below.

Double deprivation: Children who have experienced their early life in adversity have been primed to be stressed and to trust no one. If their environment changes for the better, for example by being adopted into a loving family, it takes a lot of time and repeated positive interactions to change the child's internal model. There is a mismatch between the environment the child used to be in (even if just in utero) and the environment it is in later on. This can prevent the child from making use of real help that is offered and is termed "double deprivation".

Why an evolutionary perspective is useful for child and adolescent psychiatrists

ADHD as an evolutionary mismatch: Children are certainly not adapted to sit still and listen for many hours every day. In hunter-gatherer societies, which humans lived as for 95% of our evolutionary history, children play and learn by doing and moving and modelling and practicing. The symptoms of ADHD of hyperactivity, impulsivity and inattention may not be a problem in these societies and to the contrary may be strengths. There is a poor goodness of fit between children with ADHD traits and our modern school expectations. Therefore, the problems that arise are not just due to “pathology” in the child but due to a mismatch between the child and their environment.

Conclusion

The investment that a mother makes in her child is on a spectrum from indulgent care to ambivalence to rejection. The mother’s input in the child is dependent on the emotional and physical resources that are available to her. If resources are limited, there is a trade-off between what is best for the mother and what is best for the child. A mother’s stress level (which result from her internal and/or external environment) is transmitted to the baby through intrauterine programming, thus preparing the baby for the level of stress it is likely to encounter once born.

Secure attachment with a slow life history is adaptive in a benign environment. In a dangerous world, the pathway described by insecure attachment, predisposing to fast life history, is more adaptive in terms of survival and reproduction – even if it does create genuine suffering. Not all children are equally sensitive to the environment, and this is genetically determined to a large extent. Some are easier to care for than others. Further research into epigenetics and differential susceptibility may inform our thinking about which treatments might work best for specific patients.

Acknowledging the importance of the early environment creates the potential to improve clinical outcomes, by increasing the resources given for parenting programs and early child development support. Understanding the evolutionary context and gene-environment interactions can help patients feel less shame and blame. An evolutionary view can give us a more sophisticated approach to psychopathology, enhancing the possibility of intervening more appropriately and with greater compassion.

Book Review: Robin Dunbar's "How Religion Evolved: And Why It Endured"

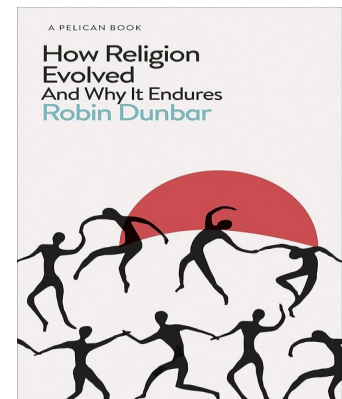


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How Religion Evolved: And Why It Endured: Some Implications for Evolutionary Psychiatry

Dunbar's 'How Evolution Evolved: And Why It Endured' is a ground breaking book, reaching across the traditional schism between religious studies and evolutionary theory. Across its pages, Dunbar breaks away from the traditional theological or historical approaches to studying religion to provide "*an overarching theory for why and how humans are religious*", grounded in a rigorous application of evolutionary biology. One of the fundamental features of religion Dunbar thinks must be explained is its universality. He notes the resilience of religion in the last several centuries despite the rising tide of secularism.

To explain this, Dunbar argues for the existence of a universal "*aspect of human psychology which predisposes us to a belief in the transcendent*". He terms this 'the mystical stance'; "*herein lies the origins of religion as we know it*". Crucially, the mystical stance is argued not to be simply a maladaptive by-product of cognitive processes that evolved for other purposes – like lower back pain in the case of walking upright – but in fact a trait which has evolved in humans with a clear adaptive function: to potentiate group bonding. Group bonding was vitally important for humans in the environment of evolutionary adaptedness for such reasons as foraging efficiency and increased defence against predators. Living and sharing in groups was thus synonymous with survival. Contemporary monotheist religions are thus proposed to be a recent manifestation of this fundamental human characteristic: "*beneath the surface veneer of doctrinal rectitude lurks an ancient foundation of pagan mystical religion*".

Dunbar neatly links this ultimate cause of

religion with a proposed proximate mechanism; the endorphin system. The endorphin system is identified as a key neurochemical substrate for group bonding, being activated by such activities as singing, dancing, emotional storytelling, feasting, and ritual. The activation of the endorphin system, through a range of complex mechanisms, promotes cooperation and reduces violence between humans, allowing them to more effectively share resources. In a move which he acknowledges to be unusual for an evolutionary biologist, Dunbar thus claims that religious belief brings benefits for mankind.

Whilst Dunbar goes on to predominantly focus upon benefits which lie at the societal level, he also acknowledges that religion gives rise to direct health benefits to the individual. With a psychiatric perspective in mind, it is upon this thread of Dunbar's thought-provoking evolutionary account of religion I wish to advance. There is robust body of literature which supports the claim that generally speaking, 'religion/spirituality (R/S)' bring health benefits to the individual (whilst acknowledging that there are of course many instances in which religion's contemporary monotheist manifestations have caused great harm). Moreover, the majority of research into the health impacts of R/S has been in psychiatric illnesses, mainly depression, anxiety, and substance misuse, rates of which have all been shown to be inversely proportional to R/S. Consistent with this, it has long been known spirituality has represented a 'path to salvation' for some suffering with mental disorders, as exemplified by the success of the 12-Step Programme of Alcoholics Anonymous in the case of addiction.

Book Review: Robin Dunbar's "How Religion Evolved: And Why It Endured"

Placing Dunbar's conclusions about religion into a broader psychiatric context, a decline in R/S has been long identified as a factor in the increased rates of mental disorders measured in an increasingly secular West, bearing out the prediction of 19th Century German Philosopher Friedrich Nietzsche, almost 150 years ago. As he said famously announced: *"God is dead. God remains dead. And we have killed him. How shall we comfort ourselves, the murderers of all murderers? What was holiest and mightiest of all that the world has yet owned has bled to death under our knives: who will wipe this blood off us?"*. For Nietzsche, enlightenment thinking, culminating most notably in the publication of Darwin's 'The Origin of Species', made a belief in God untenable. Whilst also envisaging the potential for seismic social change, it is clear he simultaneously recognised the potentially for this to create an endemic of psychological turmoil. Nietzsche's prediction of a decline in religion in the West have indeed been born out: in the UK, as in a number of other Western countries, non-believers now outnumber the faithful. Others have expounded upon the implications of this decline in R/S in the West, with this now being identified as central factor in what has been termed 'the meaning crisis'.

In recognition of this, psychiatry has already begun to tentatively incorporate religious and spiritual interventions into its models of care, with a bio-psycho-social *-spiritual* approaches being called for by some in the field. However, spiritual psychiatric care is not widely practise. This is perhaps in significant part because religion and spirituality are not themselves well defined concepts. Moreover, particularly with the emphasis placed upon culturally-sensitive care, expressing views on religion and spirituality may feel to some psychiatrists as if they are stepping beyond their remit. It is this regard that psychiatry stands to significantly benefit from incorporating Dunbar's account. Across his explanation of why and how humans are religious Dunbar *"steers us away from seeing religion as 'just' a set of beliefs (the view which has come to dominate the study of religion in the past half century) and refocuses attention on the older view of religions as a set of practises"*.

In identifying the endorphin-releasing activities which constitute the practices of religion – singing, dancing, emotional storytelling, feasting,

and ritual – Dunbar provides a tangible set of recommendations to promote one's spiritual health, even the most staunchly atheist psychiatrist can recommend to their patients. This evolutionary perspective adds a powerful impetus to the importance of these interventions, providing a robust framework grounded in evolutionary theory upon which they can be understood by both clinicians and patients.

¹The term 'R/S' is used in the literature to make clear that it is not just monotheist religions which are being referred to, given the common lay-assumption that 'religion' only refers to doctrinal monotheist religion. This corresponds to Dunbar's assertion that monotheism is but a modern manifestation of the mystical stance of man.

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