# Evolutionary Psychiatry Special Interest Group (EPSIG)

## Newsletter Summer 2020


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## 1. Notes from the Editor

As I have the honour of being the new Editor of this Newsletter (with the help of the previous Editor Paul St John-Smith), we thought it would be helpful to get feedback from readers as to what you think and want in future communications. Please take the time to answer three short questions on this link: https://www.surveymonkey.co.uk/r/NP7GQCV. It will only take a couple of minutes of your time and will help us make sure that we get it right for you in future.

Please don't hesitate contacting Paul or me if you have any suggestions or submissions. This invitation includes students too.

## 2. RCPsych Webinar: Evolutionary Theory and Mental Disorder

**Dr Derek Tracy interviews Dr Riadh Abed (21st May 2020)**

https://youtu.be/yEQvsQW7cDg

**Why are evolutionary perspectives important to psychiatrists?**

I would say that the evolutionary perspective is important to all doctors and not just psychiatrists (as well as for all mental health professionals) for a number of reasons. First, it is always helpful to start from a factual and scientifically correct position that is that humans are evolved organisms and this means an explicit recognition that all our body systems and structures as well as our minds are the products of evolutionary processes. These facts are now self-evident, but they have profound implications that are not at all self-evident and require hard scientific work to uncover and understand. Unfortunately, however, mainstream psychiatry has largely ignored the need to engage with such questions.

For example, psychiatry has proceeded to identify and treat psychological dysfunction without first formulating a coherent understanding of normal psychological functioning. I would suggest that we can't begin to understand normal psychological functioning without reference to evolution.

I would also suggest that in psychiatry, evolutionary psychology can take the organising role that physiology has in the rest of medicine.

Taking an evolutionary perspective makes it possible to appreciate that distress and psychic pain can arise as a design feature of perfectly functional systems. It also guides us to ask questions such as: why are humans so vulnerable to developing mental disorders. There is a lot more that one can say about the benefits of evolutionary thinking but I should emphasise that evolutionary thinking doesn't give answers, what it does is help us formulate the right kind of questions.

**How can evolution help us understand disorders such as anxiety and depression?**

Before I answer your question I just wish to clarify that evolutionary psychiatrists adhere to the same principles of evidence-based practice as mainstream practitioners. So, the evolutionary position is that all patients with mental health problems should receive appropriate assessment and intervention in accordance with best practice guidelines.

However, evolution can certainly help us explore the nature of anxiety and depression by prompting us to think about the function of anxiety and low mood. We know that anxiety is a state designed to protect us from immediate or imminent risks (both known and unknown). Low mood, on the other hand, is a state experienced by the majority of people in response to setbacks, failures and losses but its function is less clear and has been subject to much theorising and speculation by evolutionists. It is fascinating that while psychiatrists feel confident about identifying and treating states of pathological depression not many have given much thought to the possible function of sadness; a capacity most of us have under certain circumstances. Think about grief. Virtually everyone has or will experience grief at some time during their life and the features can be indistinguishable from depression during the first few weeks so this universal human state must have been designed by selection. However, the function of grief is less well understood although there are some very interesting, evolutionarily informed, theories and models.

One useful way to view anxiety and depression is to see them as defences. Think about cough, pain, fever and vomiting, these are all defences that have been designed by selection as protective mechanisms but can be over-expressed and become harmful in themselves. It is

therefore, possible to view anxiety and depression as defences that can be useful under certain circumstances but can be expressed as false alarms. So, the questions is: Why is this so? We should start by noting that all defences run the risk of making 2 kinds of errors, these are: activating when the risk is not present (false positive) or NOT activating when the risk is present (false negative).

And as defences and alarm systems usually protect against serious or even deadly risks then false negatives are far more serious than false positives.

Therefore, a universal design feature for all alarms is to design them so they err on the side of caution and activate whenever there is a possibility of the risk being present and this leads to allowing false alarms. This design feature minimises the chances of failure to activate when there is a real risk or danger because this can be catastrophic. This was first described by Randolph Nesse and is referred to as the **smoke detector principle** and we now know that this principle has wide applications in biology from the immune system to various aspects of psychology such as cognitive biases in addition to industry and engineering. In short it is relevant whenever there is a major asymmetry in the consequences of the errors the system can make.

The argument goes, therefore, that evolution has designed our anxiety and mood systems to allow for many false alarms because that led to greater survival and reproductive success for those who possessed such systems compared with others. This may not be a recipe for a tranquil and blissful life but in the currency of evolution survival and reproduction are all that count. Those humans who had a relaxed, laid-back and sluggish anxiety system are not likely to be our ancestors. They are more likely to have ended up dead before being able to pass their genes on down the generations.

Similarly, those who were oblivious to life's setbacks and persisted in pursuing failed strategies are likely to have fared badly compared to those who experienced low mood that prompted them to stop, rethink, reappraise and make important and possibly painful changes to their lives. That is one way to explain why anxiety and depression are so prevalent and why they persist in all human populations.

**Schizophrenia has sometimes been argued to be in conflict with evolutionary models, adversely affecting fecundity and hitting people early in life. Thoughts?**

Interestingly, schizophrenia is the condition that has generated the greatest number and range of evolutionary explanations and theories for precisely this reason. How can such a devastating condition so harmful to the person's functioning and fecundity (fertility) hitting people at their peak reproductive years persist and not be weeded out by selection? Before I answer this question, I would just like to note that this question itself would not have been possible without the benefit of evolutionary thinking. Concepts like damage to fitness and a condition being weeded out by selection could not be conceived without taking an evolutionary perspective. If we are simply describing a condition and noting its features there would be no puzzle just a collection of facts and let's face it, much of psychiatry is descriptive. It is only when we place the phenomenon of schizophrenia within the wider framework of evolutionary biology that the puzzle of schizophrenia becomes evident and this demonstrates the power of the evolutionary perspective.

Now to answer your question: There are a number of evolutionary models that can explain the persistence of mental disorders of this kind. We need to remember that evolution works on average and cannot and does not achieve perfection. For example, if a certain trait or system is advantageous for the majority but has a harmful effect in a small minority this trait/system will persist in the population because the majority will benefit from it. We must remember that Evolution is a blind process oblivious to the harm coming to the minority as long as it leads to reproductive success in the majority. An example of this line of thinking is Tim Crow's theory that schizophrenia is the price humans pay for language and no one disputes that the facility for language contributes massively to fitness in humans.

Another model is called the Cliff-edge model. This will occur if the fitness peak of a trait is dangerously close to the catastrophic breakdown point so that a very small increase in the trait (or genetic loading) leads to a catastrophic failure. Again, in this model the majority derive fitness benefits from the given trait. This is Randolph Nesse's model of psychosis and if correct can very well lead to the persistence of schizophrenia in the population. Another model is one I have proposed about a decade ago and is a mismatch model that states that schizophrenia is the result of a range of novel social conditions that did not exist in the ancestral (hunter-gatherer) environment that includes living among many strangers and/or having abnormally low levels of contact with kin during critical periods of development. This model which I called the Outgroup Intolerance Hypothesis can explain a whole range of observations including: the increased risk of schizophrenia in migrants (both first and second

generations), city dwellers and those who live in neighbourhoods with a low density of own ethnic or racial group as well as increased risk among disadvantaged racial minorities in a given population.

**What can evolution tell us about our response as individuals/groups to the Covid-19 pandemic?**

Humans have co-existed with pathogens throughout their evolutionary history and unbeknown to them, humans have been engaged in an unending arms race with pathogens. However, as bacteria and viruses reproduce at much faster rates than we do, we are at the losing end of this arms race. Pathogens are continuously producing new variants and the Covid-19 virus itself is a good example of this.

This is why infectious diseases persist despite our best scientific endeavours.

It's worth noting that the current advice of **social distancing** to slow down the transmission of Covid-19 would not have been within the social repertoire of ancestral humans living as hunter-gatherers. Group living was essential to survival for our ancestors and it would not have been possible for individuals or even small family groups to survive in isolation. However, what was commonplace was the avoidance of contact with strangers from more distant groups. The evolutionary roots of this xenophobia may well have been the avoidance of infection by new and unfamiliar pathogens i.e. pathogens they have never been exposed to before. It is interesting that studies have shown that the degree of xenophobia (suspicion of & avoidance of strangers) increases the closer you get to the equator. This finding is consistent with the pathogen avoidance theory of xenophobia as the prevalence of pathogens increases depending on latitude; the closer you get to the equator the greater the diversity and the density of pathogens.

Also, it is of interest that there is a variant of OCD that is focused on the theme of contamination and pollution and many such OCD patients engage in repetitive handwashing. I published a theory about 20 years ago suggesting that OCD may be a kind of psychological immune system designed in its milder form as a risk avoidance system. It would be of interest to know whether the infection/survival rates (in the current pandemic) of those with OCD are any different from the general population levels.

Finally, just a brief comment on the possible psychological effects of the current lockdown situation and social distancing. Humans are, of course, an intensely social species and we

experience social isolation and loneliness as intensely unpleasant, even distressing. Evolutionary psychologists such as Robin Dunbar have been actively researching the biological and evolutionary background to this. They have noted that we experience distress and negative emotions as a result of loneliness and social isolation despite the availability of modern technology that enables us to communicate with others through sound and picture. The reason for this is that human sociality includes a significant tactile element which stimulates the release of oxytocin that is known to promote a sense of well-being and has significant anti-stress effects, none of which are possible using current electronic communication systems.

**Do you think that we as psychiatrists need to educate ourselves better on evolution so that we can become better able to formulate evolutionarily informed questions rather than simplistic one?**

Yes, I fully agree, which is why we in EPSIG continue to advocate that evolutionary biology should become a basic science for psychiatry and even for the whole of medicine. Because to formulate the right questions we need to have learned the basics of evolutionary biology otherwise we would be asking questions such as ‘what is the evolutionary benefit of schizophrenia?’ rather than ‘what evolutionary processes have given rise to the vulnerabilities that lead to schizophrenia?’

**How do we take this forward? What should we do as a college and as a profession to promote evolution?**

This is something that we in EPSIG have talked about and written about and I would refer colleagues and listeners to the editorial we published in the BJPsych in December 2019 where we put forward proposals for the basics that need to be added to the MRCPsych syllabus. Such basics as thinking about causality in evolutionary terms and specifically to incorporate Tinbergen’s causal system that include 4 types of causes which forms the framework for understanding all biological systems. This adds evolutionary causes to the familiar proximate causes. Also, teaching our trainees the evolutionary pathways for the persistence of disease and disorder. Teaching basic principles would be a very good start.

**If people want to read something further on the subject, what would you recommend?**

I would recommend a book that was published in 2019 written by the co-founder of the whole evolutionary medicine movement, Randolph Nesse, titled ‘Good Reason for Bad

Feelings'. The book is aimed at a wide audience or readership, not limited to academics or clinicians and summarises a large amount of literature in one place. There are other larger texts aimed more at clinicians and academics but I believe Nesse's book would be a very good starting point.

## 3. THE EVOLUTION OF LIFE WORTH LIVING

The ***Evolution of Life Worth Living*** presents a new and closely-argued theory of the origins of the human psyche. Step-by-step, Dr C. A. Soper explains how a single defining event in pre-human evolutionary history may shed light on some of the most intractable puzzles in behavioural science. The experience of unconditional love, addictions, depression and other mental disorders, optimism bias, psychoanalytic defences, religion, placebo cures, pure altruism, suicide, and recreational sex, may all ultimately be traced to the human animal's need for a positive motivation to live.

Written in conversational style, the book is companion volume to a technical post-graduate textbook (published by Springer, 2018) which in turn stemmed from the author's doctoral research. It will interest mental health professionals, psychologists, evolutionary thinkers, as well as general readers.

Dr Soper is an evolutionary psychologist and psychotherapist. He holds degrees from the universities of Cambridge and London in England, and is based in Lisbon, Portugal.

**The evolution of life worth living**

Why do humans enjoy being alive? Uniquely among animals, our species has a zest for life. It arose not because nature cares about our happiness. It evolved as a survival necessity, ultimately because humans alone have to live with the possibility of opting out of life. Our species' most important evolutionary problem is the potential for suicide. Evolved solutions to this problem shaped the construction of the human mind, and explain our capacity for joy, love, charity and hope and other gifts of the human condition. Thus, this book explains how the most beautiful aspects of human experience arise from the darkest of human possibilities.

**Why do people kill themselves?**

1.4% of human beings die by their own hands, and science has no idea why. Suicides in the US, for example, continue to rise despite a century-long effort in research and treatment. Progress has been blocked, it is argued, by a fundamental flaw in the field's leading paradigm: the expectation of proximal causation. A new paradigm is offered, based on evolutionary science. Suicide presents an as-yet unresolved evolutionary puzzle: how can an animal evolve with the capacity willfully to kill itself? The fitness cost (fitness referring to reproductive success) is extreme – biologically, a 'fate worse than death'. Adding to the puzzle, suicide is ubiquitous across human societies, and it is unique to our species – no other animal commits suicide.

**How the hominid got its suicidality**

This chapter critiques two of the most prominent existing evolutionary theories of suicide, which try to explain the behavior as an evolutionary adaptation. They hold that threatening, attempting, or committing suicide can sometimes benefit an individual's genetic fitness. It is argued that both theories lack evidence of the hallmark of adaptation – special design: a precise match between the function a biological trait evolved to fulfil, and that trait's observable form. Suicide shows no sign of being specially designed for an adaptive purpose. It likely arose not as an adaptation, but as an unfortunate side-effect of some other evolved trait that is, overall, adaptative.

**Pain**

Suicide is motivated by pain. Pain is an ancient adaptation that alerts animals to fitness threats, and steers them to safety. Pain necessarily hurts: it is designed to force the animal to act to end it. As other animals, all humans experience pain. But we are also prone to intense psychological pain – 'psychache', and especially to social pain, which alerts humans to threats to vital social relationships. Social pain can be felt as even more unbearable than physical pain. Suicide makes sense as a way for humans to obey the biological command to act to end pain, especially social pain.

**Brain**

Pain is evidently not enough. There are three groups that do not take their own lives, however badly they hurt: young children, non-human animals, and people with severe intellectual disability. Their commonality suggests the behavior needs an intellectual threshold to be crossed. Suicide presupposes an understanding of personal mortality, acquired only by

species-typical humans, usually in adolescence. Suicide is thus traced to the sapience that defines *Homo sapiens*. Human intelligence is an adaptation so valuable that it was worth the fitness cost even of suicidality for its sake. We arrive at the 'pain-and-brain' theory: suicide evolved as a by-product of two adaptations combined – pain, and the human brain.

**The problem of being human**

The 'pain' and 'brain' conditions are not only necessary for suicide, but sufficient. Any animal that knew it could end its suffering by ending its life would be expected to do just that. Suicide emerges as a severe and recurring fitness threat in human evolution. Psychological defenses against suicide needed to be in place before our hominid ancestors could cross the intellectual threshold for suicide. These protections probably evolved under intense selective pressure over a long period preceding the Later Stone Age. They are designed to stop people who are in enough pain to think about suicide from putting that thought into action.

**Why don't people kill themselves?**

What would these anti-suicide defenses look like? They will not include a so-called 'survival instinct', this being unevolvable. They will instead be purpose-built systems: they will use specific cues as inputs and produce specific behaviors as outputs. Reactive antisuicide adaptations are given a working name 'keepers', to bring to mind the role of a goalkeeper in soccer. Based on keepers' special task, twenty features are predicted. These include; psychache as an activating 'pain' input; a 'brain' input, which ensures keepers do not activate before adolescence; 'pain' and 'brain' outputs which, respectively, dull psychache and impair high-level intellectual functions; the ability to carry out complex tasks; and they activate at the ideation stage of a suicidal path, rather than at the stage of plans or attempts.

**The diseases that keep us alive.**

Chapter 7's specification of keepers finds a match, across all twenty predicted features, with unifying features of many common mental disorders: depression, generalized anxiety, addictions, OCD, schizophrenia and other sundry 'functional' diagnoses. These diagnoses are not distinct real-world phenomena – they are invented by committee, not discovered by science. The evidence points to them actually being manifestations of a single psychological process, hitherto unknown. The keepers hypothesis is the only available explanation for their commonalities. We can take it, then, that common mental disorders are not disorders at all:

they are, rather, regular mechanisms by which the human mind seeks to avoid self-destruction at times of chronic mental distress.

**Happiness**

The existence of keepers points, in turn, to a wider set of anti-suicide defenses, which may touch on almost every aspect of human life. These are labelled 'fenders' to invoke the role of a soccer team's other defensive players – they try to avoid crises escalating to point where the keeper has to intervene. Fender One keeps most people fairly happy most of the time. Fender Two protects us from psychache by censoring incoming bad news before it reaches conscious awareness – it thus underlies denial and other psychoanalytic defenses. Fender Three co-opts several ancient instinctive routines for a new pleasure-creating purpose. Thus, we eat, drink, have sex etc for partly recreational motives. Our perceptions of fun, beauty, and fulfilment arise ultimate from the needs of suicide avoidance: they keep us safely away from psychache.

**Thinking twice**

Separate, more evolutionarily modern, defenses try to block mental access to the suicide idea. These are cultural mechanisms, and labelled 'brain-type' fenders. They make suicide taboo – literally unthinkable; they give us a protective fear of a painful afterlife; and they stigmatize the act, the people who do it, and their kin relations. These are common features of major religions. The cruel way people bereaved by suicide are treated make sense as an exemplary punishment: harsh consequences are meant to make anyone else who is thinking of committing suicide to think again. Our negative attitude to suicide keeps us safe.

**Love**

Human survival requires a measure of irrationality. We need to view our futures as being more pleasurable than is objectively likely. We have an overarching psychological need, then, to avoid correcting our core beliefs in the face of factual disproof. This is Fender Four: it enables us to hold in the mind a benign perspective of our place in the world, and it allows us to keep our faith in that paradigm despite continual counter-evidence. Scientists' dogged adherence to their paradigms thus reflects a human-wide trait. Religion can be understood as an anti-suicide benign worldview – a promise of salvation. The Golden Rule – do to others as you would have them do to you – is a universal human expression of that promise. The evolutionary puzzles of religion and pure altruism arise from Fender Four. A benign worldview can be summed by the word 'love'

**We're not lumbering robots**

The evolution of life worth living offers a way to replace several paradigms in behavioral science that have outlived their usefulness. Three are discussed. The first old paradigm could be called 'suigiston' – it assumes that the causes of suicide are identifiable, and suicide is in principle predictable. It is this fallacy that leads to a current mass drugging of populations with mind-altering substances, although the great majority were never going to attempt suicide. The second could be called 'DSM-ism' – the way arbitrary diagnostic labels dominate research and treatment in mental health. A perspective that sees outwardly diverse disorders as signs of a single protective system at work could transform the field for the better. The third paradigm change would lead medical science to accept the vital importance of spiritual health: we, uniquely, are spiritual beings. Hope, faith, and love are necessary for human wellbeing.

If you are interested in reading this as yet unpublished book for free (and potentially providing feedback to the author), please contact Dr Cas Soper on contact@soper.pt.

## 4. LINK to papers re misconceptions in evolutionary thinking

**Please see** https://www.newscientist.com/article/dn13620-evolution-24-myths-and-misconceptions/#ixzz6VyCQNcMx for wonderful explanations (see below for some examples)

- Everything is an adaptation produced by natural selection
- Natural selection is the only means of evolution
- Natural selection leads to ever-greater complexity
- Evolution produces creatures perfectly adapted to their environment
- Evolution always promotes the survival of species
- It doesn't matter if people do not understand evolution
- "Survival of the fittest" justifies "everyone for themselves"

Thank you for reading this Newsletter. Please remember to click on the link **https://www.surveymonkey.co.uk/r/NP7GQCV** to answer three questions to help us improve this newsletter for future editions.