How the Mind Heals and Harms the Body and Handles Covid-19

Adrian Parker

Adrian argues that there are well-established findings showing how psychological effects have a major influence during the onset of illnesses, which is crucially relevant to dealing with the Covid-19 pandemic. The immune system shows learned responses whereby stress and the perceived degree of control help deal with infections. Many of the measures implemented have been shown not only to be largely ineffective but may well have been counter-productive by inducing fear and so-called collateral damage in populations. He concludes that dire dictatorial handling of the pandemic is at least in part due to a failure of science journalism to present less dogmatic and counter viewpoints and evidence-based research.

The difficulties in making correct predictions concerning Covid-19 suggest that epidemiology is far from being an exact science. The efforts by politicians and their advisors to retain credibility in the face of this uncertainty may have led to categorical opinions over issues where there is actually insufficient evidence (such as the use of masks) on which to base mandatory decisions. This may also have contributed to a complete absence of any discussion of the probable influence of psychological factors on the course and spread of the pandemic since the very acknowledgement of such factors in medical terms would be seen as adding further uncertainty. As will be shown later here, the ways such factors operate can be clearly specified and some of them do indeed indicate that many of the imposed restrictions were almost certainly counter-productive.

If there is any scepticism amongst readers concerning the value of psychology in the medical arena, then there can be no better demonstration of its potency than that seen in the remarkable use of hypnosis as an analgesic for major surgical operations. Although more common historically, the use of hypnosis for analgesic purposes still occurs and is well documented.[2, 3] Furthermore, some of the components of hypnosis such as visualisation and focused awareness are operative in cognitive therapy and the placebo effect. However, hypnosis is not just illustrative in showing what can be achieved by psychological intervention, it highlights almost paradoxically another the major issue central to health, the issue of control.

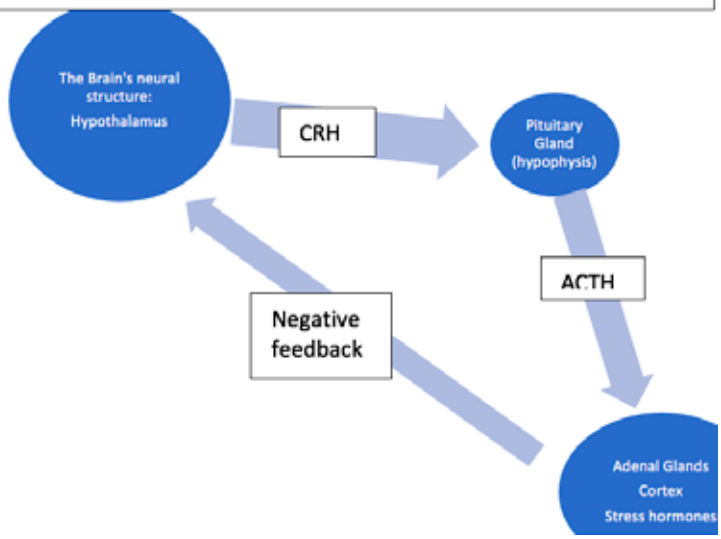
The issue of control

In classical hypnosis there is an image in the mind of the public of the control being with hypnotist, yet the correct and contemporary use of hypnosis is to enable patients to become aware of and to take control of their own latent resources that are activated by the hypnotist. Although there is divergent opinion as to which factors constitute hypnosis, it is generally agreed that hypnosis facilitates expanded awareness and receptivity to expectancy and suggestion.[5,6]

This issue of control is a vital aspect here because its prolonged loss is actually considered to be pathological and is a major component of depression. Depression is part of the collateral damage of lengthy lockdowns such as have occurred in the UK. An on-line survey found a threefold increase in clinical levels of anxiety and depression during lockdown with the most vulnerable being the young and unemployed. Sleep disturbance was common with 28% of respondents scoring above the cut-off point for clinical insomnia.[7] Another British study found that 18% of the large number surveyed reported suicide or self-harm thoughts during the first month of lockdown – again with a three-fold increase in compared to the previous year.[8] These findings are hardly surprising given that the established finding in clinical psychology that the feelings of helplessness and hopelessness are closely linked to the prevalence of mental disturbance and bodily illness.

A further study from the UK with potential implications for the influence of lockdowns on mental health[9] used the UK's hospital scale large data "biobank" to locate psychiatric patients with pre-pandemic diagnoses. Compared to a control group, the patient group was found to have more than double the Covid-19 admissions and mortalities. One might speculate that their life circumstances had increased their vulnerability, yet the measurements of numerous social variables gave no support for this hypothesis. The authors concluded from this that stress via brain mechanisms is able to "suppress cell-mediated and humoral immunity" making the person more vulnerable to COVID-19 infections. Let's look at these "brain mechanisms" and their link to immunity.

Figure 1 HPA Axis Linking the Hypothalamus, Pituitary and Adrenal Glands to the release of stress hormones



The brain as a pharmacy

The brain is actually more a pharmacy rather than any form of mechanism and one of its two glands is the *hypophysis* (pituitary gland), located at the base. The hypophysis has a rich supply of blood vessels and is packed with hormones so that when the gland is stimulated, these are released into the blood. This occurs as a response to signals from the major center of nerve tissue in the brain, the *hypothalamus*. In effect the hypothalamus exerts control over the body's hormonal (endocrine) system, and it does so by the secretion of corticotrophin releasing hormone from nerve fibres that reach directly into the hypophysis.

In the case of stress, the crucial hormone released from the hypophysis is adrenocorticotrophic hormone (ACTH), which on reaching the adrenal glands causes the release of the stress hormones, cortisol and adrenalin. These directly affect the body's major functions and one key result is the mobilisation of the body's fat and sugar to provide energy to deal with the impending stress. Normally, there is a positive and negative feedback system which regulates the level of hormones circulating in the blood. However, when the stress level is constantly high and the feedback doesn't function anymore, hypertension occurs. This means that the fat circulating in the blood stream may in chronic cases lead to a thickening of the walls of blood vessels, contributing to the risk of thrombosis and hemorrhages.

The initial effects of lockdowns can undoubtedly activate these bodily reactions in many stress susceptible people. The good news is that the stress responses gradually tend to normalise but the bad news is that when the stress events repeatedly happen, the bodily stress responses do not entirely normalise. It is therefore quite likely that subsequent lockdowns reinforce these responses and result in increased hypertension and other illnesses in a sizeable proportion of the population, which now is reported to be the case.[10]

In the case of prolonged lockdowns there is a further potentially damaging or so-called nocebo effect. Nocebo effects are due to hormones such as adrenalin, noradrenalin and cortisol reaching a level where they exert immunosuppressant effects. Psychological factors enter the picture here again but now with respect to the immune system.

The psychological link to the immune system

There are two types of immune reactions that complement each other: humoral immunity, which refers to antibodies circulating in the blood and lymph, and cell-based immunity referring to cells which devour and destroy viruses and bacteria (antigens)..

Antibody immunity concerns the so-called B-lymphocytes produced in bone marrow. B-cells first ingest the antigens and then present their remains on their surface. The T-cells (called so because they mature in the thymus) react to these remains and this reaction stimulates the B-cells to clone into memory cells and into plasma cells. It is these B-memory lymphocytes that enable the future recognition of the infectious antigen. The net result is the mass production of antibodies by plasma cells, which will combat the specific infection initially identified by B-cells.

Cell-based immunity is based on the devouring property of various T-lymphocytes. In the first instance, the helper T-cells ingest the viruses etc so that the remaining virus fragments appearing on the surface serve are markers for Killer T-cells to attack any such infected cells. There are also two further vital components of immunity which maintain the defence an appropriate level. These are the natural killer Cells which attack cancerous cells and the regulatory T-cells which suppress any overreaction in the form of auto-immune responses where lymphocytes attack the body's own cells.

This classical account fails to account for learning responses shown by the immune system .[11] This means that repeated experiences that have hitherto produced no reaction from the immune system begin to do so as a learned habit. The significance of this can hardly be overstated since it implies there are mutually reinforcing reactions, that is to say synergistic links, between stress, hormones, immune responses and illness.[12] Perception and awareness are therefore crucial in terms of our response. The evidence also suggests that psychological intervention is most effective in the prevention and the *early* treatment of major illnesses but probably less so with stabilised chronic ones.[13]

This is further support for a psychobiological view of how the immune system works. When they are at a low concentration in the blood, stress hormones stimulate the maturation and production of B- and T-lymphocytes, but when the concentration of stress hormones reaches a high level, then they become immune suppressors. Moreover, both the thymus and bone marrow have neural connections to the autonomic nerve system, which can potentially pass on the brain's responses to stress.

Even this view is noticeably incomplete since the interaction between stress, psychological factors, hormones (the endocrine system), and the immune system is further influenced by chemical messengers called *cytokines*. Cytokines are locally released by T-cells and these "cleansing cells" (macrophages) and their messages stimulate the immune cells to react to any *acute ongoing infection*. Problems can however arise when this reaction is provoked by infection into becoming a "cytokine storm". It is this overreaction that is most damaging to respiratory tissue and explains the serious or even lethal reactions to viral infection. Moreover, it is also believed to be a residual reaction which lies behind so-called "long Covid-19".[14]

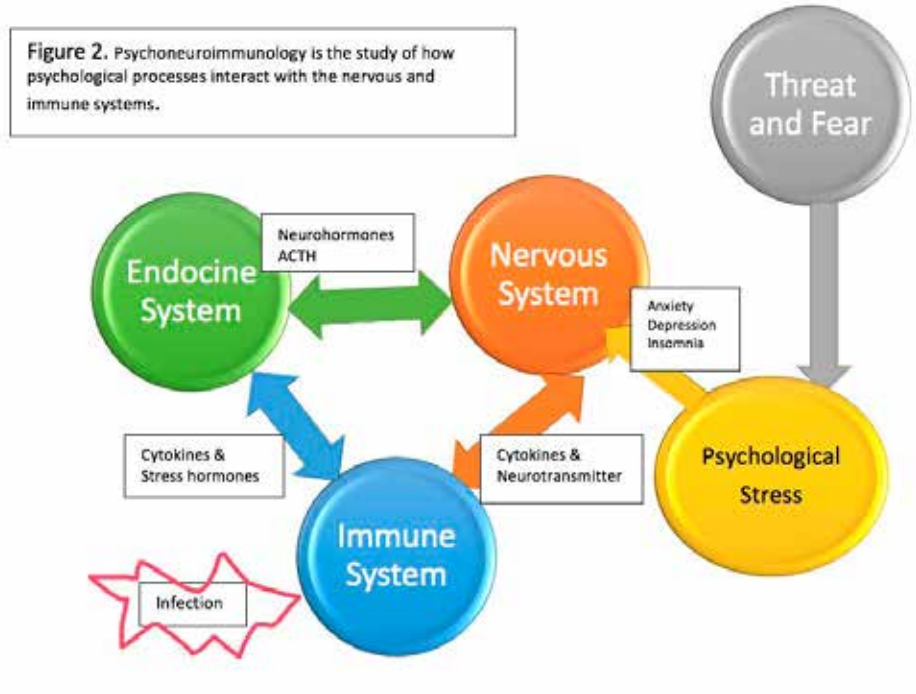


Figure 2. Psychoneuroimmunology is the study of how psychological processes interact with the nervous and immune systems.

Nevertheless, caution is needed here concerning the diagnosis of long Covid-19. Fatigue is a common post-viral symptom following most serious infections. In the case of long Covid-19, this psychobiological way of looking at the causality emphasises the synergistic or interdependent relationship between the various factors. It is conceivable that in *some case*s negative expectancy surrounding the after-effects of infection may contribute in a self-fulfilling manner to a chronic state. Certainly, the previous use of stress-related diagnoses with misleading names such as myalgic encephalomyelitis and fibromyalgia, seems only to have prolonged the fatigue associated with the post infection state. Shakespeare's Macbeth has made us aware of what is probably the most effective remedy: "Sleep puts each day to rest. Sleep that relieves the weary labourer and heals hurt minds."

Sleep as a protective agency

As noted earlier, insomnia appears to increase markedly in populations during lockdowns. Stress together with any incumbent psychological problems easily interferes with the integrity of sleep patterns. It is not just the requisite eight hours spent in sleep that are a vital part of well-being but also the regularity of *unfragmented sleep*. It has been known for some time that serious disruptions of this integrity lead to failures of attention and memory, making sleep deprivation a major cause of car accidents. Now we also know that sleep deprivation and insomnia are associated with stroke, dementia, diabetes, and cancer. Most recently, Alzheimer's Disease has been added to the list since the deep (non-REM) stages of sleep appear to play a vital role in eliminating toxic waste products (specifically, amyloid protein) from the brain.[15]

While there appears to be an absence of research linking sleep quality to vulnerability to infection by the Covid-19 virus, there are major findings connecting sleep with infection by the seasonal influenza virus. A recent study monitored body-movement as a means of assessing time spent in sleep amongst volunteers who had received samples of the influenza virus. In the week before they received the virus, those volunteers who had slept less than five to six hours per night had more than four times the infection rate than those individuals who had slept for seven and nine hours. The authors concluded that sleep "exerts substantial regulatory effects on the immune system."[16]

Protective and risk factors

Beyond sleep, another major protective factor is "sense of coherence in life" which, at least according to self-reports, confers a healthy resistance to illness.[17] A sense of coherence occurs when the world is perceived to be comprehensible, manageable and meaningful. From this perspective, stressful restrictions during covid-19, whether advised or mandatory, should be presented as worthwhile challenges rather than demands in the face of punitive threats.

What do we know about risk factors for Covid-19 infections and fatalities? Statistics from "excess deaths" (over representation of deaths) in European countries do indicate that, at least during the high points of the first and second waves, deaths exceeded those of recent years.[18] It is also clear that there is an enormous international variation in both the fatality rate and the infection rate, which appears depend on socio-economic factors. It seems now well established that "co-morbidities" (especially obesity, diabetes and high blood pressure) are major risk factors.[19] It may well be that some of the high infection and fatality rates in the US and UK relate to the fact that their obesity rates are amongst the highest in the world.

Another major risk factor concerns excessive exposure to the virus: "high viral loading". Foremost vulnerability here of course concerns hospital staff but it also includes immigrant populations living overcrowded conditions where viral exposure is intense.[20, 21, 22]

The enormity of the second covid-19 wave in India might make the role of psychological factors appear to retreat

'I was too fat': Boris Johnson explains his 'nasty' brush with Covid | AFP

into marginality. Yet the infectious disease expert asked by the BBC to explain why their second wave had gained such impetus, while acknowledging the viral overload was linked to unrestricted festivals, attributed a major role to anxiety: "..the overbearing requirement [is] for people to have two things. Firstly, the need to get into a hospital and have a bed with oxygen where they can feel a bit secure. And secondly, the amount of anxiety that comes from not getting a bed. That has been the overwhelming sentiment of most people who may or may not need hospitalisation, but feel it is the most secure place for them."[23]

It is also claimed that the death of young and healthy individuals from Covid-19 shows the overwhelming its indiscriminatory effect. It is however difficult to draw conclusions from anecdotal cases, and research on reported autopsies of Covid-19 patients concerns mainly older adults. These autopsies indicate the presence of storm-like responses from the earlier mentioned cytokines giving rise to lung embolism and thrombosis, but no distinct pathology has yet been found which distinguishes Covid-19 from other corona viruses.[24] The few autopsy studies of the younger population indicate a link to obesity.[25] The respected forensic pathologist Klaus Püschel **shocked the German government by stating** that there are underlying major illnesses in all cases. [26]

Defenders of strict lockdowns further argue that they have been shown to be effective in reducing the rate of infections and fatalities. However, this claim may be due the fallacy of "delayed data inference". Swedish epidemiologists have pointed out that in several countries when infections and deaths increase and reach their peak, politicians panic and introduce lockdowns at a point in time when infections are already declining. Politicians will then falsely claim the decrease occurs because of the lockdown.[27, 28]

Do lockdowns work?

There is a variety of measures evaluating the effectiveness of restrictions: infection rates, mortality rates and seasonal excess mortality. Despite this complexity, the Greenwich University research psychologist Oliver Robinson systematically balanced these variables, and objective evidence emerged that lockdowns did have some *initial* effect - but other milder measures were just as or in some cases more effective.[26] Crucially, the collective outcome of studies found no association between lockdowns and reduction of mortality. As well as confirming the above immunosuppressant effects of lockdowns on individual mental health, Robinson highlighted the devastating economic effects with their long-term consequences for public health and almost paradoxically for a reduced life expectancy in the population.[28]

The enigma is of course why EU and UK governments have made such apparently poorly based decisions. An editorial in the *British Journal of Medicine* - a journal surely not given to hyperbolic or conspiracy thinking – issued the following condemnation: "The medical-political complex tends towards suppression of science to aggrandise and enrich those in power."[29]

A similar situation occurs also in Germany where the opinions of leading academics and clinicians appear to be ignored and they are even ostracised when their opinions deviate from government policy. One of Germany's foremost medical microbiologists, Sucharit Bhakdi, issued a potentially devastating critique of government policy on biological grounds.[20] Another serious researcher, clinical psychology professor Harald Walach, exposed the myths and fallacies in the official lockdown policy in Germany. Walach went so far as to find major faults with the "fact checking" provided by journalists, replacing this with his own source-referenced list.[31]

Sweden as the non-lockdown control group

Robinson in the above review depicted Sweden as the control group for judging lockdowns. This is because Sweden is the only industrialised country in the world that neither imposed lockdowns nor facial masks on its population. Although some minor legal restrictions concerning crowding and early closing of bars were imposed during 2021, the policy was to observe social distance, maintain good hand hygiene, prioritise home-based work, and to stay at home when ill.[32]

The Swedish death rate per capita is currently in Spring 2021 at average or less for EU countries and lower than many countries which had both lockdowns and masks such as England, France, Italy, Spain and Belgium. Moreover, the death statistics for regions in Sweden where the pandemic was most prevalent were later shown to be gross overestimates.[33]

There was naturally enormous pressure on Sweden to conform to the measures used by other EU countries: The Swedish Science Academy, in direct opposition to Sweden's government and to that of its Public Health Authority, did *recommend* the voluntarily use of face masks. Asked for the evidence for their effectiveness, the Academy gave the rather lame response: "They cannot do any harm". But this may not be so. It is surely good clinical practice to avoid long-term interventions where there can be serious effects on health, in this case by reducing the body's normal oxygen-carbon dioxide exchange.[34] The largest and seemingly most well-controlled study is the Danish study that randomly assigned 6,000 participants to either a non-mask group or a mask group. The mask group wore *three-layered disposable masks* for periods of at least 3 hours outside the home every day during a whole month. The study did not find the expected reduction in infection rates.[35]

The policy of the Swedish Public Health Authority is to reduce the spread of the virus by using measures that can be maintained and which interfere minimally with normal life so as not to produce stress-related illnesses: schools were kept open and outdoor recreation actively encouraged. Rather than restricting exercise as occurred in many lockdowns, exercise and motion were encouraged. Belatedly, in Spring 2021 Prime Minister Boris Johnson began efforts to reduce his overweight since he attributed his difficulty in handling his own Covid-19 infection to being "hampered by being too fat".

Conclusions

Many of the policies of governments claim to be influenced by the recommendations of the World Health Organisation (WHO) and by science. Despite these claims, there has been a total failure to take modern psychobiological science into account and to listen to the opinion from many respected epidemiologists and clinicians. An example of this incongruity which should have led to other less panic-driven approaches, was published in the *Bulletin of the WHO* by the Stanford epidemiologist, John Ioannidis. After reviewing the international rates for Covid-19 infection fatality, this publication concluded that while there is great variation between countries, "Most locations probably have an infection fatality rate less than 0.20%" [35] - which is about the same as that of seasonal influenza.[35, 36]

Despite having the longest period of lockdown in the world, the UK had in March 2020 the second highest Covid-19 mortality rate per capita.[37] Given the above review of the way psychoneuroimmunological factors interact, it seems an inescapable conclusion that lengthy lockdowns have enforced practices which may well have been damaging rather than protecting health and that in doing so it is conceivable they contributed further to the pandemic.

Part of the difficulty in realising this is conceptual. Many people might accept that psychological factors can play a minor role in certain illnesses, and some might even accept that radical procedures (such as the example given with hypnosis) can effect

dramatic cures, but very few are conversant with the idea that psychological factors can have a major causal role in how the immune system reacts to infection.

In democracies, the diversity of expert opinion needs to be respected. The earlier examples indicate one of the greatest failures in the pandemic is the near absence of neutrality and objectivity in science journalism. Science in this area has been largely replaced by politicised accounts.

***Adrian Parker** is a clinical psychologist educated at the Tavistock Clinic and with medical courses from the University of Gothenburg where he is em. professor. He was the first at Edinburgh University to gain a doctorate with a thesis on psi phenomena. As well as being a co-founder of laboratory techniques to induce dream-onset states - the original psi-ganzfeld technique and of the current real-time ganzfeld - he has a wide interest in altered states of consciousness and the mind-body relationship. He is author of the book States of Mind and co-author of Shakespeare's Ghosts Live. He received the Gothenburg Student Award in Pedagogics and in 2019 was an Axel Munthe Scholar at St Michele, Capri. Adrian is currently the President of the Society for Psychical Research.*

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