



Trauma-immunity; is there innate immunity, prophylaxe and strengthening against mental disorders like PTSD?

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Trauma (as we see in PTSD) has both somatic and psychological consequences, and trauma does impact biological immunity, could there also be psychological trauma immunity, expanding the notion that immunity is not only a biological phenomenon-

Modern “Western” medicine is mostly symptomatic, not looking at healthy people and why there are able to resist disease, but at the ones with complaints and diseases. There is limited interest in prevention and environmental conditions, although the epigenetic perspective has changed this quite a bit. The holistic approach of many “Eastern” traditions is aiming at health, at prevention, at looking at deeper causes, not at superficial indicators and symptoms. They see mind and body as a single integrated complex, not separating the somatic from the psychological and including the spiritual dimension.

The current „Western“ approach is mostly to limit immunity to the biological level, as what protects from diseases and infections. This means defining immunity as the ability of an organism to resist a particular infection, pathogenic (harmful) micro-organism or toxin by the action of specific antibodies or sensitized white blood cells.¹

Another way to look at immunity is to see it as a complex biological system endowed with the capacity to recognize and tolerate wha-

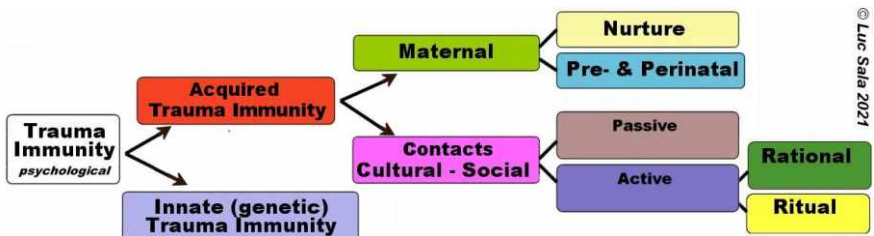
- 1 Merriam Webster definition: immunity is the quality or state of being immune, especially : a condition of being able to resist a particular disease especially through preventing development of a pathogenic microorganism or by counteracting the effects of its products.

tever belongs to the self, and to recognize and reject what is foreign (non-self) and this offers a bridge to the psychological immunity perspective, just remove the word biological.

Immunity (staying healthy) then is not only a somatic issue. There is immunity at the psychological level too and one could even talk about spiritual immunity. The term Psychological Immunity² was introduced by Daniel Gilbert³ and Timothy D. Wilson and there is a Psychological Immunity System Inventory (PISI) test.

Psychological immunity is defined as “a system of adaptive resources and positive personality characteristics that acts as **psychological** antibodies at the time of stress to protect the subject from experiencing extreme negative emotions.”

The „**psychological immune system**“ is a term used to encompass a number of biases and cognitive mechanisms like positive thinking, sense of coherence, sense of control, emotional regulation, goal orientation, that protect the subject from experiencing extreme negative emotions. These operate largely or entirely outside conscious awareness, but can be trained. The psychological immune system includes ego defense, rationalization, dissonance reduction, motivated reasoning, self-serving attribution, self-affirmation, self-deception, terror management and fading affect bias: a bias in which the emotion associated with unpleasant memories fades more quickly than the emotion associated with positive events.



- 2 Wilson, Timothy D.; Daniel T. Gilbert, „Affective Forecasting“ in Mark P. Zanna Advances in Experimental Social Psychology (2003)
- 3 Gilbert, Daniel; Stumbling on Happiness, (2006)

Immunity, both psychological and biological is seen as a quality, with active more long-lasting immunity that is innate (natural inflammatory responses and phagocytosis based on genetic predisposition and/or good condition or previous accidental exposure) or acquired (adaptive) through production of antibodies within the organism in response to the presence of antigens, like the immunity acquired by a vaccine or transfer of antibodies. Immunity can be specific, offering resistance to a specific disease. Adaptive immunity has two forms: the cell-mediated immune response, which is controlled by activated T cells, and the humoral immune response, which is controlled by activated B cells and antibodies.

There is also immunological memory which means the immune system keeps a record of every germ (microbe) it has ever defeated so it can recognize and destroy the microbe quickly if it enters the body again) or nonspecific, acting as a barrier and protection against a wide range of threats.

It has been apparent⁴ that serious injury in humans and experimental animals is associated with a decrease in immune functions dependent upon T cells, the principal cells involved in initiating adaptive immune responses. There is diminished resistance to infection commonly seen after major traumatic or thermal injury.

The military and veteran medical centers are becoming more accustomed to managing the deleterious late consequences of combat trauma like in PTSD, related to the dysregulation of the immune system⁵. Trauma leads to the dysregulation of both the innate and adaptive immune responses, which places the injured at risk for several late consequences, including delayed wound healing, late onset sepsis and infection, multi-organ dysfunction syndrome, and acute respiratory distress syndrome, significant for the increased morbidity and mortality of wounded personnel. But there are obvious mental and emotional consequences too, depression, suicide, addiction, etc.

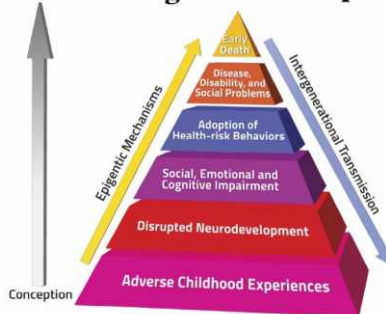
- 4 Lederer, J.A, Rodrick, M.L, Mannick, J.A.; The effects of injury on the adaptive immune response. (1999)
PMID: 10188766 doi: 10.1097/00024382-199903000-00001
- 5 Kelly B. Thompson, Kelly B., Krispinsky, Luke T. Stark, Ryan J. ; Late immune consequences of combat trauma: a review of trauma-related immune dysfunction and potential therapies. in Military Medical Research volume 6 (2019)

The Immunity level is not a constant, being able to withstand hostile situations depends on one's genetic profile, on one's condition, mood, the environment, the food one ate, it can vary even during the day. The psychological dimension of somatic immunity is important. In the CoVid crisis the effect of fear and stress on immunity, well known as a general principle, has not really been appraised or assessed as a factor in the vulnerability of a population, the focus was mostly on vaccination as a remedy.

Can immunity be activated, stimulated, strengthened

Innate immunity we can have as a genetic or epigenetic heritage, as something we acquire at birth by borrowing some of the mother's (gut/vaginal) biome, and as we encounter viruses and bacteria in growing up. The lifestyle, good food, a healthy environment, it all helps the immunity level. Immunity builds up, but needs maintenance in the sense, that encountering hostile influences keeps the immunity system active and functioning, total isolation doesn't (something ignored in the CoVid lockdown strategy). Children should play in the dirt, whatever doesn't kill them makes them stronger. Nature can be helped by nurture here, and it's clear that adverse childhood experiences (ACE) don't help.

Mechanisms by which Adverse Childhood Experiences Influence Health and Well-being Throughout the Lifespan



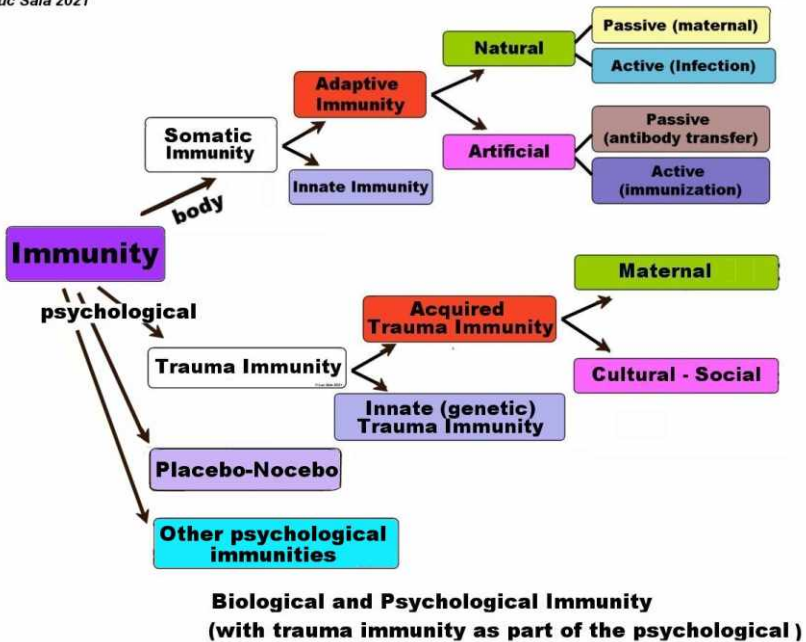
Slide Courtesy of Rob Anda, MD, MS

Now this is true for biological immunity, but why not for psychological immunity. The birth process is a potentially somatic trauma, but has mental/emotional consequences too. However, in a „healthy“ birth the baby seems to come out without much damage, due to hormonal mechanisms like the

oxytocin for a bonding effect. One could see the birth as the first trauma-training. Later in life there are instances, where trauma immunity is „trained“ or induced without the PTSD-like aftereffects, think about military boot camp or rites of passage in more traditional societies.

How this strengthening of the psychological immunity exactly

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works, and if it could be used in psycho-therapy is an interesting question, one could even suggest that all therapy aims at restoring or building up the immunity level.

PTSD immunity and resilience

Some people can experience potentially traumatizing events with much more than a normal reaction and trauma processing, without long lasting effects, other suffer a life time from the trauma. Others have so little immunity, that they develop a whole series of substitute identities and suffer from the consequences. This trauma immunity can thus have many levels and gradations. Concentrating on PTSD, but accepting there may be many more mental disorders that fit within the Psychological Immunity category, trau-

ma-immunity is a relevant term. Nobody is really immune to stress, but there are people who deal with potentially traumatizing events in a “normal” way, without long term effects.

The immunity-level influences the susceptibility (risk of becoming a PTSD victim) and resilience (ability to withstand and overcome the effects) and could help to make predictions of the emotional responses to future events for victims.

Vulnerability, predisposition, resilience, immunity

People typically experience the same event in different ways, their immediate and long term reaction is very individual. There are many factors in how a specific incident affects a person, but obviously one's state of mind is the most important, even before things like the physical condition. This state of mind has a history, and prior experiences with trauma (even if long forgotten like perinatal trauma) play an important role in how we deal with a potentially traumatic situation. Are we able to cope because we have an adequate trauma-immunity level, or do we end up with a more or less hidden disorder.

An example that highlights this principle can be seen through the horror of war combat. Two soldiers may endure the same exposure to the trauma of being shot at, while shooting at an enemy. Yet, it is possible that only one of them may go on to develop overwhelming stress that leads to a diagnosis of post-traumatic stress disorder (PTSD). Here a person's history plays a role in the vulnerability. If the soldier was already impacted before by other life traumas (for example, malnutrition, abuse, loss, accusations) his or her susceptibility to developing serious symptoms may be greater (Pitchford, Krippner⁶ 2012).

Several factors may *predispose* one individual to being more susceptible to developing emotional and psychological stress and lasting trauma upon a traumatic experience than another. These include previous history factors such as perinatal incidents (like a C-section), childhood traumas, living in unstable

6 Krippner, S., Pitchford, D.B., & Davies, J.; Post-traumatic Stress Disorder. Biographies of Disease (2012).

or unsafe environments, separation from a parent, serious illness, intrusive medical procedures, domestic violence, emotional neglect, bullying, and sexual, physical, or verbal abuse. These predisposing factors include biological predisposition or a low capacity for resilience or could also include grieving a recent loss or experiencing a significant level of stress before the traumatizing event.

Although these factors may predispose an individual to be more vulnerable to trauma, it is not entirely predictable how a given person will react to a particular circumstance. There is the immunity level at the specific moment as this varies, depending on the condition of the person. The notion of trauma-immunity is relevant here.

People are volatile, especially when emotional issues are at play. Traumas can be very complex, the root event can be just one incident, or a series of incidents, or a combination of incidents.

There are a number of causal factors identified. Being the **perpetrator or the victim**, and often those two roles are intertwined like when involved in armed combat, makes a difference. The question of guilt, and even switching identification with either role in post-traumatic processing is possible, and morality plays an important role. Could it be prevented, who is or is not responsible, at what level, what if one had acted differently in the run-up to the event, those questions can haunt trauma-victims.

Another factor is whether the traumatizing incident was **outside human intervention** or that it was caused by humans and somebody could be blamed. It is usually assumed that Interpersonal traumas cause more problems than impersonal ones like natural disasters. For example, school violence is viewed as a human-made disaster, whereas earthquakes are considered natural, impersonal disasters. The type of disaster itself may determine the impact level of trauma and intensity of trauma processing a person experiences, depending upon how the survivor's sense of invulnerability to harm is challenged. In the case of a natural disaster, one's **locus of control** (the potential ability to take charge of an event) may be basically external in nature.

How 'close' an incident was, in physical terms or psychologically, also plays a role. There is the "**identifiable victim effect**", which refers to the tendency of individuals to be involved more or offer

greater aid when a specific, **identifiable** person (“**victim**”) is observed in a situation under hardship, as compared to a large, vaguely defined group with the same need.

The age and attitude of the victim is also important. Young adults commonly display a sense of imperviousness to being wounded and a heightened sense of transcendent immunity to life events. When a young person’s **notion of invulnerability** is challenged, his or her entire world view might be shaken. These perspectives may increase the susceptibility to the impact of a trauma. (Paulson & Krippner, 2007⁷).

Natural immunity, the CoVid case

Corona will have an enormous impact on the general and individual mental health for decades to come. Many PTSD-like trauma cases are already surfacing, especially for IC patients, but it has an effect on all. Understanding and studying why some people did get the disease and others not may mean a giant step in immunity science and trauma-immunity.

In the discussion about a vaccine for SARS-CoV-2 the issue of herd or population immunity is often mentioned. The idea is that if enough people would be vaccinated the virus would die out. Herd or group immunity is supposed to happen at the 80-90% level of immunity. What had been disregarded by the virologist and epidemiologists and has led to a redefinition by the WHO is the natural or innate immunity. Before „herd immunity“, was seen the indirect protection from an infectious disease that happens when a population is immune either through vaccination or immunity developed through previous infections. The WHO⁸ now only refers to artificial immunity by vaccination: „Never in the history of public health has herd immunity been used as a strategy for responding to an outbreak, let alone a pandemic. It is scientifically and ethically problematic.“ This remark has been criticized a lot, but has

7 Paulson, Daryl S, & Krippner, Stanley. Haunted by Combat: Understanding PTSD in war veterans (2007)

8 <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---12-october-2020>

been seen as an edict and many governments now make vaccination obligatory, direct or indirect, violating fundamental human rights of integrity.

If a relatively high proportion of the population has innate, natural or previously acquired immunity the dying out makes much more sense. There have always been people immune or at least better able to deal with them to specific diseases, never the whole population died out (the plague, Spanish flu), at worst some 30% survived. If the natural immunity for SARS-CoV-2 is around 60-70% (and this varies among populations) additional immunity buildup in surviving patients and through vaccination might help to reach the herd immunity level (some 80- 90% is suggested) and thus dying out of the virus.

Many people have some level of natural immunity, small or robust, for many reasons like genetic or epigenetic factors, previous exposure to similar viruses, but maybe also because of their age, good or bad health, condition, lifestyle, food patterns, climate conditions like humidity, specific gut biome bacteria, trauma history, medical history notably steroid and antibiotics use, telomere degradation of DNA, radiation, comorbidity, fear and stress levels, and what not. Left handedness, eye-color, birth trauma, allergies, relationship patterns, meditation practices, religion, sex life, vitamin and other supplements intake, oxygen efficiency, breath patterns, sleeping position, the list is endless.

Now that enough people have has SARS-CoV-2 and immunity levels are high enough, helped by the vaccination of large proportions of the population, the epidemiologist should start looking at the data and try to discern what factors are helping or even providing natural immunity, and what factors affect it negatively. More attention to comorbidity and medical history would be a practical route, but the problem is that those who were immune, are not normally tested for all the potential immunity factors. So research has, initially, to rely on comparing the data of SARS-CoV-2 patients with the general or specific populations.

Any discussion about the effectiveness of vaccination should take this into account. There are certain risks associated with vaccination, exposing everybody by forced vaccination might be counter-productive, is against basic human rights (integrity) and may cause more harm than good.

References:

Wilson, Timothy D.; Daniel T. Gilbert, „Affective Forecasting“ in Mark P. Zanna *Advances in Experimental Social Psychology* (2003)

Lederer, J.A, Rodrick, M.L, Mannick, J.A.; The effects of injury on the adaptive immune response. (1999) PMID: 10188766
doi: 10.1097/00024382-199903000-00001

Gilbert, Daniel; *Stumbling on Happiness*, (2006)

Paulson, Daryl S, & Krippner, Stanley. *Haunted by Combat: Understanding PTSD in war veterans* (2007)

Krippner, S., Pitchford, D.B., & Davies, J.; *Post-traumatic Stress Disorder. Biographies of Disease* (2012).

Kelly B. Thompson, Kelly B., Krupinsky, Luke T. Stark, Ryan J. ; Late immune consequences of combat trauma: a review of trauma-related immune dysfunction and potential therapies. in *Military Medical Research* volume 6 (2019)