



# Psychological factors negatively affecting the immune system



# Stress, anxiety, fear, depression, loneliness, social isolation

(all references at end of lecture PDF on HERT website)

- **Stress:** A meta-analysis of >300 studies found that chronic stress was associated with suppression of immune responses and can trigger systemic inflammation. Chronic stress drives a Th1-to-Th2 shift by suppressing Th1 cytokines, involved in the defence against infection, and activating Th2 cytokine production, involved in allergies and autoimmune diseases. It can also alter the composition of the gut microbiome, affecting immune responses.
- **Anxiety:** is associated with increased inflammation, particularly neuro-inflammation, and immune activation, possibly through mast cell activation.
- **Fear:** disrupted the normal circadian increase in natural killer cells and could cause changes in the neuro-endocrine-immune system, inducing susceptibility to disease.
- **Depression:** impairs the regular functioning of the immune system (lymphocytes, natural killer cells and neutrophils), particularly in women, and produces chronic inflammation which predisposes to infections.
- **Loneliness and social isolation:** impacts immune regulation, increasing levels of pro-inflammatory cytokines and suppressing natural killer cell responses and antibodies. Loneliness predicts increased morbidity and mortality, particularly from cardiovascular disease, and is associated with a faster decline in cognitive performance and development of Alzheimer's disease.

# Anger vs anxiety

The screenshot shows the APA PsycNet interface. At the top, it says 'APA PsycNet® AMERICAN PSYCHOLOGICAL ASSOCIATION'. Below that are navigation options like 'SEARCH', 'BROWSE', 'Recent Searches', 'My List', and 'My PsycNet'. The article title is 'Anxiety, not anger, induces inflammatory activity: An avoidance/approach model of immune system activation.' by Moons, Wesley G., and Shields, Grant S. (2015). The abstract is visible, discussing the relationship between emotional reactions and inflammatory activity. On the right side, there are buttons for 'Get Access', 'Cited by 23', and 'Citation statements' (44, 2, 28, 0).

(Moons WG, Shields GS. Anxiety, not anger, induces inflammatory activity: An avoidance/approach model of immune system activation. *Emotion*. 2015 Aug;15(4):463-76)

- Summary: **Anxiety, but not anger, induced increased pro-inflammatory cytokines in oral mucous.**
- Writing-based anxiety induction, but not writing-based anger induction, increased mean levels of pro-inflammatory cytokines and interferon- $\gamma$  (IFN- $\gamma$ ) in oral mucous.
- These results constitute the first evidence to our knowledge that specific negative emotions can differentially cause inflammatory activity and support a theoretical model explaining these effects based on the avoidance or approach motivations associated with emotions.

# SPI-B encouraged the use of fear to control people's behaviour



- The Scientific Pandemic Influenza Group on Behaviour (SPI-B), which advises SAGE, **'warned in March (2020) that ministers needed to increase "the perceived level of personal threat" from Covid-19 because "a substantial number of people still do not feel sufficiently personally threatened".'**
- Later, they **admitted that their work was "unethical" and "totalitarian"**.
- Ministers have faced repeated accusations that they ramped up the threat from the pandemic to justify lockdowns and coerce the public into abiding by them.
- Steve Baker, the deputy chairman of the Covid Recovery Group of Tory MPs, said: "If it is true that the state took the decision to terrify the public to get compliance with rules, that raises extremely serious questions about the type of society we want to become."

(<https://www.telegraph.co.uk/news/2021/05/14/scientist-s-admit-totalitarian-use-fear-control-behaviour-covid/>)

# From the 'Lockdown Diaries', serialised in the Sunday Telegraph



The screenshot shows the BBC News website interface. At the top, there are navigation links for Home, News, Sport, Weather, iPlayer, and Sound. Below this is a red 'NEWS' banner with a navigation menu including Home, Israel-Gaza war, Cost of Living, War in Ukraine, Climate, UK, World, Business, Politics, and Culture. The main article title is 'Matt Hancock: Leaked messages suggest plan to frighten public', dated 5 March 2023, with a 'Coronavirus' tag. A photograph of Matt Hancock is shown, credited to Reuters. The author is Helen Catt, a political correspondent.

<https://www.bbc.co.uk/news/uk-64848106>

- 'Matt Hancock suggested to an aide that they **"frighten the pants off everyone"** about Covid, messages published by the Sunday Telegraph show.
- The adviser responds: "Yep, that's what will get proper behaviour change."
- In another exchange, the head of the Civil Service, Simon Case, suggested the "fear/guilt factor" was vital to the government's messaging.
- **Were ministers ever told about the effect of fear on the immune system?**





# How did psychological factors impact the response to COVID-19?

- A US CDC study of >0.5 million adults hospitalised with COVID, **the strongest risk factors for death were hypertension/disorders of lipid metabolism, obesity, diabetes with complications, anxiety and fear-related disorders.**  
([https://www.cdc.gov/pcd/issues/2021/21\\_0123.htm](https://www.cdc.gov/pcd/issues/2021/21_0123.htm))
- **Those living alone reported a significant increase in COVID-19 symptom presence and severity** compared to those living with others. Moreover, significant correlations were found between perceived immune fitness, anxiety and loneliness, which were strongest in the group living alone. (Hendriksen PA, et al. Living Alone or Together During Lockdown: Association with Mood, Immune Fitness and Experiencing COVID-19 Symptoms. Psychol Res Behav Manag. 2021 Dec 3;14:1947-1957)
- Monkeys placed alone under lockdown conditions showed 30% to 50% reduction in all circulating immune cell populations and down-regulation of Type I IFN antiviral gene expression.
- Greater anxiety sensitivity (AS) predicted more severe COVID stress syndrome assessed one month later.

# Isolation: a particular problem in care homes when visiting was banned



- A UK Biobank study of 458,146 subjects found that **those who do not see friends or family are 77% more likely to die of any cause** and 53% more likely to die from cardiovascular disease
- Another UK study reported that care home residents isolated from others resulted in **feelings of being imprisoned, caused fear and engendered negative reactions from families.**

(Foster HME, et al. Social connection and mortality in UK Biobank: a prospective cohort analysis. BMC Med 21, 384 (2023); Newman C, et al. Challenges and improvements associated with transitions between hospitals and care homes during the COVID-19 pandemic: a qualitative study with care home and healthcare staff in England. Age Ageing 2023 Sep 1;52(9):afad146)

# Heartbreaking stories abounded



The screenshot shows the MailOnline website header with navigation links for Home, News, Royals, U.S., Sport, TV&Showbiz, Femail, Health, Science, Money, and Trav. Below the header is a blue navigation bar with links for Breaking News, Australia, Video, University Guide, China, Debate, Meghan Markle, and Prince Harry. The main headline reads: "Care home nailed window shut to stop me holding Mum's hand - ex BBC star". The byline is "By DAN BARKER FOR THE SCOTTISH DAILY MAIL" and the publication information is "PUBLISHED: 00:22, 18 November 2023 | UPDATED: 00:22, 18 November 2023". At the bottom of the article preview, there are social media sharing icons for Facebook, Messenger, WhatsApp, Twitter, and Email, along with a share count of 26 and a comment count of 44.

A sports broadcaster has told how care home staff nailed a window shut and left her feeling 'bullied and abused' by refusing to let her see her mother.

- Care home staff nailed a window shut and left her feeling 'bullied and abused' by **refusing to let her see her mother, who had dementia.**
- She told an investigation of her anger at restrictions which robbed her of precious time with her mother.
- **'They shut the window and they locked it, so that you couldn't even have the contact with the hand.** Nobody could open that, and I was worried about it as a fire risk as well.'
- **'Mum was getting distressed. Eventually they took her away.'**

(<https://www.dailymail.co.uk/news/article-12763583/Care-home-nailed-window-shut-stop-holding-Mums-hand-ex-BBC-star.html>)





# Objection to blanket ban on care home visiting:

## Joint Committee on Human Rights 3 February 2021



Joint Committee on Human Rights  
Committee Office · House of Commons · London · SW1A 0AA  
Tel 020 7219 2797 Email [JCHR@parliament.uk](mailto:JCHR@parliament.uk) Website [www.parliament.uk](http://www.parliament.uk)



From Rt Hon Harriet Harman MP, Chair

**Rt Hon Matt Hancock MP**  
Secretary of State for Health and Social Care

By email.

3 February 2021

Dear Matt,

I am writing about the urgent situation in care homes and mental health hospitals regarding visiting. As we set out in our report last year, blanket visiting bans are contrary to the rights of both patients and their families under the European Convention on Human Rights, the Code of Practice to the Mental Health Act 1983, and NHS England guidance. Failure to adopt an individualised approach to the safety of visits risks breaching the right of patients, residents and their families to family life (Article 8 ECHR).

<https://www.parliament.uk/globalassets/documents/joint-committees/human-rights/correspondence/letter-to-rt-hon-matt-hancock-mp-re-care-home-and-hospital-visiting.pdf>

- I am writing about the urgent situation in care homes...regarding visiting.
- As we set out in our report last year, **blanket visiting bans are contrary to the rights of both patients and their families under the European Convention on Human Rights...and NHS England guidance.**
- ....We do therefore now believe that there is an urgent need for legislation to require that individualised risk assessments are done in relation to each resident or patient ....**to consider how Covid-safe visits might best be facilitated.**

# And it's not just the elderly

- Just under one in 10 people aged 16 to 29 reported feeling lonely often or always, according to an analysis of recent Office for National Statistics (ONS) data by the Campaign to End Loneliness – the highest level of all age groups.
- This is set against a backdrop of chronic loneliness levels among all age groups, which rose during the pandemic and never really came down again.
- At the peak of lockdown in late 2020 and early 2021, **levels of loneliness among those aged 16-29 reached 7.2%.**
- **In 2018, the figure had been 5%.**

Rachel Nicoll PhD, 2024



<https://www.theguardian.com/society/2023/jun/19/socially-stunted-how-covid-pandemic-aggravated-young-peoples-loneliness>

# Psychological factors: summary

- Stress, anxiety, fear, depression, loneliness and social isolation all negatively impact the immune system.
- But government policy was to frighten us, with SPI-B recommending that ministers needed to increase the perceived level of personal threat. Matt Hancock suggested they ‘frighten the pants off everyone’.
- SPI-B admitted at the COVID Enquiry that their work was ‘unethical’ and ‘totalitarian’.
- Anxiety, fear-related disorders, isolation and loneliness were found to be strong risk factors for COVID death and those living alone reported a significant increase in COVID symptom presence and severity.
- The Joint Committee on Human Rights formally objected to the blanket ban on care home visiting on the grounds that it was contrary to the rights of patients and their families under the European Convention on Human Rights and NHS England guidance.



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