

Espousing Environmental Enrichment as Therapy for Post-Covid-19 Syndrome

Abayomi Oyeyemi Ajagbe¹  • Ebenezer Oyedele Ajiboye²  • Oluwanisola Akanji Onigbinde¹ 

¹ Department of Anatomy, Basic Medical Sciences, Nile University of Nigeria, Abuja, Nigeria

² Developmental Neurobiology Unit, Physiology & Anatomy, Ajayi Crowther University, Oyo, Nigeria

Dear Editor,

Coronavirus disease-19 (COVID-19) is primarily a disease of the respiratory system which started in December 2019, swiftly spread and its causative agent is Severe Acute Respiratory Syndrome Corona virus-2 (SARS-CoV-2) (1, 2). High number of mortalities have been recorded till now due to the disease and its victims having various symptoms such as fever, dry cough, fatigue and failure of the respiratory system (3). Presentations from COVID-19 range from mild cases with manageable symptoms which require treatment at home in the absence of oxygen therapy and chronic cases which were transferred to the intensive care unit (ICU) (3). However, there is a link between co-morbidities and age with the intensity of COVID-19 (3).

After succeeding severe acute respiratory syndromes (SARS) outbreak in 2003, post recuperation expressions on victims revealed

different symptoms of clinical relevance namely depression, muscle pain, psychiatric disorders and severe tiredness which were severe and prolonged, coupled with the aforementioned symptoms was a mild low stimulation of the hypothalamic-pituitary-adrenal axis as recorded by Leow et al. in 2005 (3). Studies have been disclosing chronic neuropsychological effects of COVID-19 spanning from different levels of depression, sleep disorder and anxiety, in addition, post-traumatic stress disorder (PTSD) as disclosed from approximately 97% of COVID-19 victims in 714 victims in China (1).

Lengthened symptoms viz muscle pain, headaches, anosmia have been discovered in 112 hospitals and 2001 out of hospital COVID-19 positive patients with a greater number of asymptomatic or high mildly symptomatic victims in Belgium and Netherland (1).

Corresponding Author: Abayomi Oyeyemi AJAGBE
Department of Anatomy, Basic Medical Sciences, Nile
University of Nigeria, Abuja, Nigeria
Email: abayomiajagbe4@gmail.com
ORCID: 0000-0002-2110-2626

Received: Apr 2, 2022 **Accepted:** May 20, 2022
Published: June 6, 2022

This is an Open Access article distributed under the terms of Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, or reproduction in any area, original work is properly cited.

The Ulutas Medical Journal © 2022



Post COVID-19 expressions disclosed various symptoms in a greater number of victims spanning from lethargy (72.8%), anxiety (38%), the pain of the joints (28.6%), shortness of breath (28.2%) while 10.8% of patients express no symptoms as recorded from a study conducted on 287 recuperated COVID-19 (3). However, a great percent (67.6%) recuperated from post-COVID-19 expressions while 32.4% of patients have prolonged manifestations which are remarkable figures, notwithstanding multivitamins (natural/pharmaceutical products) were administered to 90.6% of all sufferers at the period of the disease. However, age and comorbidities cannot be ignored regarding the gravity of post-COVID-19 manifestation (3).

Regulating the human environment is feasible and it has been reported in the literature concerning the potency of the environment in enhancing the evolution of good habits in most species which can be done via enriching the environment and environmental enrichment involves the integration of novelty to stimulate cognitive, behavioral and social functions (4).

The purpose of environmental enrichment is to upsurge composite and interaction in the abode, enhancing newness and stimulating better all-inclusive life-permitting modulation of the environment and mitigating tendency of anomalous behaviors which were corroborated in health and behaviors (4). Environmental enrichment effectively integrates changes in the structure and function of the brain which has a positive effect on cognition and emotion via neurogenesis (formation of new nerve cells) and brain neuroplasticity (4).

Some elements of environment enrichment vitalize healthier brain function viz food, routine physical exercise in addition actions that invigorate the brain and are a catalyst for the

evolution of neuroplasticity (4). It has been discovered from studies that foods abundant in progenitors and cofactors of neurotransmitters namely acetylcholine, serotonin and dopamine are imperative in enhancing brain function and general functions such as memory, mood, and passion (4). Tryptophan is the progenitor amino acid of serotonin which affect happiness and well-being and is located abundantly in foods of the main source of cocoa namely chocolates, almond, oats and bananas. In addition, another better origin of tryptophan is established in kiwi, a fruit from China (4).

The therapeutic effect of music integrated into depression and anxiety which is part of post-COVID-19 syndrome conditions has been disclosed to be potent from a neurochemistry viewpoint via its stimulating action which has been established on limbic and paralimbic units namely the amygdala, the hippocampus, and the nucleus accumbens in victims of depression. From a rehabilitation perspective, music therapy regulates the function of the motor areas which can be linked to happiness and in the long run have an impact on disposition (5).

Great biochemical changes concerning oxidative stress management have been earmarked in individual who executes Yoga namely, high manufacturing of antioxidant enzymes, upsurge metabolism of glutathione, and effective elimination of per-oxidation outcomes (6). Motor function namely flexibility of the shoulder, spinal pliability, and torsion of the upper and lower limb enhancements has been highlighted as the effects of Yoga which will ameliorate fatigue recorded as a post-COVID-19 syndrome (6).

The negative Polymerase chain reaction (PCR) test result does not stop keeping under surveillance recuperated patients from COVID-

19 as the post-COVID-19 syndrome is in existence and prompt intervention is imperative to ameliorate the silent killer. This article recommends Environmental enrichment as therapy for all COVID-19 survivors for a long duration via food, music therapy, and yoga.

Reference

1. Wijeratne T, Crewther S. Post-COVID 19 Neurological Syndrome (PCNS); a novel syndrome with challenges for the global neurology community. *J Neurol Sci.* 2020;419:117-179
2. Molderings GJ. Covid-19 hyperinflammation and post-Covid-19 illness may be rooted in mast cell activation syndrome. *Int J Infect Dis.* 2020;100:327-332
3. Kamal M, Abo Omirah M, Hussein A, Saeed H. Assessment and characterisation of post-COVID-19 manifestations. *Int J Clin Pract.* 2021;75(3):e13746
4. Davim A, Trindade da Silva L, Vieira P. Environmental Enrichment as a Strategy to Confront Social Isolation Under the COVID-19 Pandemic. *Front Behav Neurosci.* 2021;14:564184. Published 2021 Jan 21
5. Raglio A, Attardo L, Gontero G, Rollino S, Groppo E, Granieri E. Effects of music and music therapy on mood in neurological patients. *World J Psychiatry.* 2015;5(1):68-78
6. Mishra SK, Singh P, Bunch SJ, Zhang R. The therapeutic value of yoga in neurological disorders. *Ann Indian Acad Neurol.* 2012;15(4):247-254

Contact Details

Abayomi Oyeyemi Ajagbe

Department of Anatomy, Basic Medical Sciences,
Nile University of Nigeria, Abuja, Nigeria.
E-mail: abayomiaajagbe4@gmail.com
ORCID: 0000-0002-2110-2626

Ebenezer Oyedele Ajiboye

Developmental Neurobiology Unit, Physiology &
Anatomy, Ajayi Crowther University, Oyo, Nigeria.
E-mail: eo.ajiboye@acu.edu.ng
ORCID: 0000-0003-1214-1292

Oluwanisola Akanji Onigbinde

Department of Anatomy, Basic Medical Sciences,
Nile University of Nigeria, Abuja, Nigeria
E-mail: onigbindesola@gmail.com
ORCID: 0000-0001-5473-1034

How to cite?

Ajagbe AO, Ajiboye EO, Onigbinde OA. Espousing Environmental Enrichment as Therapy for Post-Covid-19 Syndrome. *Ulutas Med J.* 2022;8(2):76-78
DOI: 10.5455/umj.20220427083613