

HEALTH – TREND DURING COVID-19

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Abstract: We live in strange times - times of change, crises, pandemics, conflicts and even wars. Throughout millennia of written and unwritten history humanity has learned to change, evolve and survive. This same change occurred for all of us at the beginning of 2020 when a new strain of the genus coronaviruses (Coronaviridae), started from a local epidemic with the first case at the end of 2019, was reported in a province of Wuhan China. It became a pandemic that spread with incredible speed around the world, thus entering everyone's life. The massive shock of the new coronavirus plunged the economy into the worst recession since World War II, causing global supply to shrink and even stop and the subsequent stalling of globalisation. This study analyzes the main economic trends, market structure and economic impact on health after the beginning of COVID-19. The study looks at the relationship between physical and mental health, laboratory tests, protective goods, medicines, vaccines and services after the onset of and during COVID-19. The behaviour of the market and the outlook for its future movements are focused on health and whether the topic should be considered as a trend wave. The pandemic has created both an economic and health crisis. The analysis tracks the number of researches, the stock appreciation of pharmaceutical companies and those developing vaccines, the increased rate of demand for drugs. People get sick in good times and bad, and the demand for medical care is constant. In the study, several major health trends will be analyzed and shown to be related to each other: (1) The increase in stress hormones (cortisol, prolactin) - causes: disruption of routine activities such as education, entertainment and other social activities; anxiety about family income and health left many people feeling fearful, angry and concerned about their future; the following lockdown to reduce the risk of disease spread and the limited human contact, especially in the early stages of the pandemic. In women, there is an increase in thyroid problems and diseases like Hashimoto, Hypothyroidism and other autoimmune diseases. In men, cortisol levels are elevated and reproductive functions and libido are impaired. (2) Obesity and other weight problems due to the sudden stop of all movement with unchanged or even increased caloric intake elevate the possibility for various diseases such as heart problems, diabetes type 2, osteoarthritis and asthma. As a result an increased interest in products and services related directly or indirectly to COVID-19 will be found. The findings of the research will show how short-term and long-term impacts and interest in health can be called a "trend", and the attention and resources given to health, vaccines, medicines and remedies from the consumer in the economic market will continue their rapid growth.

Keywords: COVID-19, stress hormones, economics, mental health, thyroid, trending services, obesity

1. INTRODUCTION

The main purpose of the study is to gain insight into the immediate changes in health after the start of the Covid pandemic. The word "pandemic" comes from Greek and means "all people" (παν, pan - "all" and δῆμος, demos - "people"). Pandemics are not about the severity of a disease but about the geographic distribution. According to the World Health Organization, a pandemic is declared when a new virus for which people have no immunity spreads around the world beyond any expectations. Practically a pandemic is a widespread epidemic that spreads among the population of a certain large geographic region, continent or around the world, infecting many people. Due to the lack of antibodies, mortality in pandemic waves is usually high. In order to neutralise the transmission of the disease, unprecedented measures were introduced to keep people in their homes and prevent them from social contact as schools, offices, factories and universities were closed, all public events were postponed. The world stopped, the hectic lifestyle slowed down. During this period some interconnected changes were observed in the people's health.

The methodology, observation and results of the research are compared using the number and type of blood tests in one of the largest private clinical laboratories operating in the territory of Bulgaria.

2. RESEARCH METHODOLOGY

The research methods are as follows:

To be included in the present study, a blood test should have a significant increase in the number of tests - for convenience "significant" will be applied to an increase of more than 20%. The last quarter of 2019 will be used in the comparative process the last quarter before the Covid pandemic from 01.09.2019 to 30.12.2019 and the last quarter of 2021 from 01.09.2021 to 30.12.2021.

3. RESULTS OF THE RESEARCH

The number of laboratory tests are as follows:

57,297 tests carried out from 01.09.2019 to 30.12.2019

159,341 tests carried out from 01.09.2021 to 30.12.2021

Table 1

	Number of studies for the period from 01.09.2019 to 30.12.2019.	Number of studies for the period (%)	Number of studies for the period from 09/01/2021 to 12/30/2021.	Number of studies for the period (%)
Prolactin	884	1.54%	7601	4.77%
Serotonin	21	0.03%	174	0.10%
Testosterone	987	1.72%	3773	2.36%
Cortisol	380	0.66%	2608	1.63%
D dimers	505	1.54%	4920	3.08%
Insuline	1812	3.16%	7241	4.54%
LDH (Lactate dehydrogenase)	293	0.51%	1668	1.04%
PCT (Procalcitonin)	21	0.03%	129	0.08%
Vitamin A	42	0.07%	198	0.12%
Vitamin C	13	0.002%	335	0.21%
Vitamin E	29	0.05%	290	0.18%
Vitamin K	21	0.03%	343	0.21%
Vitamin D (25-OH)	4746	8.28%	14551	9.13%
Zink in Blood	5	0.008 %	99	0.06%
Androstanediol Glucuronide	21	0.03%	130	0.08%
Ferritin	599	1.04%	3136	1.96%
HSV 1&2 IgM	87	0.15%	483	0.30%
MICROBIOM	42	0.07%	268	0.16%
Lipid profile (Cholesterol, HDL-cholesterol, LDL- cholesterol, VLDL- cholesterol, Triglycerides)	251	0.43%	1872	1.17%

4. DISCUSSIONS

COVID-19 spread exponentially to all continents in just a few months (Yıldırım et al., 2020). Several conclusions are reached in the discussions of the present study. Despite the significantly increased number of tests for the observed periods (278.09%), a large number of all clinical laboratory tests remain unchanged in nature and number. The data in Table 1 help to understand the collaboration and connection between the individual studies. An increase of over 200% was observed in the study of Prolactin - the main stress hormone, along with Cortisol and Adrenalin. Research shows that people under quarantine experience various psychological problems such as stress, fear and frustration (Brooks et al., 2020). The uncertainty associated with COVID-19 and the longer time of staying home has caused significant changes in daily life. Such changes have the potential to increase levels of stress, anxiety, burnout, fear and feelings of dissatisfaction (Arslan, Yıldırım, Tanhan, et al., 2020). Stressful life situations have a significant negative impact on people's mental health and psychological functioning, and lead to psychological problems such as anxiety, mental confusion, social deprivation and depression (Yildirim & Arslan, 2020). Psychological stress has an impact on the human body, especially on some specific organs and parameters (Seyedeh Negar Assadi, 2017).

Research shows that stress during the covid pandemic is affecting many parameters. One of them is the hormone Ghrelin (hunger hormone) - by definition the lowered levels of the hormone are often observed in people suffering from obesity (obesity as defined by the World health organization has a body mass index (BMI) of 30 kg/m or more). Stress raises cholesterol levels, more specifically bad LDL cholesterol. Stress makes the body to produce more energy in the form of metabolic fuels which causes the liver to produce and excrete more of the bad cholesterol (LDL). The connection between stress hormones and hypertension, diabetes type 2 mellitus and lipid disorders has been found (Natasa Djindjic et al., 2020).

Prolactin is the most well-known pituitary hormone and it also affects other physiological processes like appetite, metabolism, glucose uptake and sexual desire. Serotonin also increases prolactin release and selective inhibitors can cause hyperprolactinemia and contribute to sexual side effects. (David J. Lyons et al., 2016).

According to Mariluce Rodrigues Marques Silva (Mariluce Rodrigues Marques Silva et al., 2021) in a study on the relationship between vitamin D deficiency and psychophysiological variables many of the results linked vitamin D deficiency to anxiety, depression, poor sleep quality, mood and neuropsychophysiological consequences in general. Showing the connection between the material also examines the consistently reported link between obesity and low vitamin D concentrations (Simon Vanlint, 2013).

5. CONCLUSIONS

In the results of table 1, there are many changes in research, the interest in some parameters was expected based on the communication response from COVID-19. The research shows that there is a growing interest in aspects of health, mainly psycho-physiological, which have not been observed before. Because of the commitment and awareness of those willing to make the research, many topics that were only known to a few specialists now become available and of interest to the public.

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