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Review Article

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Meta-Analysis: Why Many Patients with Covid-19 Reporting Neurological Symptoms and Psychoneurotic Complaints. Clinical Case Reports in Khartoum-Sudan

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Abstract

It is well-perceived that Corona Virus has many hazards to human beings all over the world, despite the development of health systems, cure, and preventive measures. This met-analysis and current research attempts to explore the incidence of neurologic symptoms and spreading of psychoneurotic disorders among patients with COVID-19 in Sudan. To fulfil that aim, the researcher adopted mixed approaches including data collection, analysis, and procedures. The sample selected based on survey, of which (170) patients were reached: (90) men, and (80) women purposively. Clinical case report including a list of psychoneurotic and neurological complaints was accordingly implemented, and the collected data were analyzed by employing relevant statistical tests. The results revealed that the most common neurologic symptoms found in patients with COVID-19 in Khartoum State were consecutively, Headaches, Dizziness, Cerebral Palsy, Encephalopathy, Cognitive disturbance, Dementia, Tremors , in addition to abnormal seizures. Moreover, there were prevalent psychoneuroses among CORONA patients were, Anxiety, Depression, Obsessional Compulsive, Phobia, Somatization, Panic, and Personality Disorders. These results were discussed, and the study was concluded by some recommendations and suggestions for further studies as well.

Keywords: *COVID-19, Patients, Neurologic symptoms, psychoneuroses, Khartoum, Sudan.*

Introduction

It was in 2019, when the first reported clinical case of covid-19 infection had occurred in Wuhan-China , and soon then the disease transmitted to many countries. Therefore. Majority of people all over the globe, have been infected and affected by such pandemic and fatal disease as well. The world health organization (WHO), announced immediately that disease, and it was considered as a major threat of mental health, causing potential psychoneurotic disorders among the victims [1]. At present time, a plenty of conducted researches regarding the effects of CORONA on personality structure of human being, have revealed that there an onset of spectrum of neurotic complaints and psychological suffering among the infected [2]. In accordance with a research carried out in China, indicated revealed that there were common psychiatric problems with significant statistical index, connected with CORONA, such as: affective disorder, and sleep disturbances in persons looking for mental health care. Moreover, a study found that recipients who had mental complaints , and diagnosed with Brain disorders showed deteriorating mental health , due to scarcity of psychiatric intervention , being restricted, and worry about catching an infection through body contact at open places [3]. A sample survey was conducted to assess social distancing as preventive procedure against CORONA infection, initial finding showing an increase of levels of despair, frustration, and phobias available among younger individuals on account of schools and universities closure, which in turn, can trigger melancholy and bleakness feelings for future [4-6]. On the other hand, Romagnolo, A., et al., maintained that home confinement which is implemented owing to prevent rapid spread of infection, maybe in turn can cause chronic mental deprivation, and possibly can induce a state of resentment among people [7]. It can be stated that closure procedure, which is performed on daily living, led to a disturbed psychological well-being.

Some researchers have predicted that there was relationship between CORONA infection and appearance of affective disorder symptoms, such as suicide attempts and delusions among patients. Furthermore, a study of the infection may have been a crucial determinant for psychoses and chronic neuroses [8].

Undesirable and adverse reaction of CORONA disease, have been observed among outcast people regarding quality of life and wealth worries, are well established. Economic cost left by joblessness and lack of income sources, they are categorically associated with post-traumatic consequences of Covid-19 pandemic. In fact, it is obvious that poverty and destitute are linked with psychological problems. Furthermore, patients suffering from mental symptoms , who live under poverty line, are more vulnerable to encounter the burden of the CORONA pandemic [9].

A number of countries all over the world, have adopted strong precautions and measures regarding CORONA disease. These procedures covering all aspects of human beings life . China ,for example, was the first country which adopted lockdown policy to prevent the virus spreading and infection, and then so did many other nations [4].

The current research is focused on seeking out how suffering that CORONA infected may face doe to its complications on both body and mind in Sudan . However, the significance and the size of efficacy are still under a thorough investigation as a result of COVID-19 infected ; pertaining to both neurologic and mental consequences.

Statement of the Research's Problem

It has been observed that among organic and different physical complications associated with CORONV infection, there are also some remarkable neurologic as well as psychoneurotic disorders that many patients have been suffering. This current research, therefore, endeavors to seek an answer to the following two inquiries:

1. What are the most common neurological symptoms among COVID-19 patients' in Khartoum-Sudan?
2. What are the most common psychoneuroses among COVID-19 patients' in Khartoum-Sudan?

Significance

The current study highlights the potential psychological burden on patients as a result of CORONA pandemic all over the globe, and whether this disease has an impact on patients' overall psychological well-being. This scientific attempt is also considered significant as it tries to detect an extent of existence and spreading of neuropsychological disorders in patients suffering from COVID-19 pandemic.

Objectives

1. To determine the extent of spreading of neurologic symptoms connected with CORONA.
2. To investigate the prevalence of psychological disorders among COVID-19 patients in Sudan

Definition of Terms

Neurologic Symptoms

They are classified as the common diseases of the brain and the nervous system, such as Epilepsy, Stroke, and Brain Tumors. Neurological symptoms may occur due to CORONA infection, its complications affecting directly both the central nervous and peripheral systems; causing other disorders such as cerebrovascular diseases [10].

Psychoneuroses

Neuroses are opposite of psychoses, they are considered as psychological disorders associated with chronic distress, without existence of delusions and hallucinations. The term was coined by Scottish doctor William Cullen in 1769, indicating to disorders of sense and motion. Neuroses include a wide variety of mental disorders, such as anxiety, phobias, obsessional compulsive disorder, and hypochondria [11].

Literature Review

Specialists report that the impact of COVID-19 will continue and affect mental health, causing other psychological complications (Galea. et al, 2020). The Sudanese, like other societies, were exposed to psychological influence during the pandemic. The majority of the studies that have been conducted worldwide during COVID-19, recorded the impact of an infection on the human nervous system, and thus its damage on other parts of the body. The impact on mental health included all members of society and the recovered were not an exception. The end of the basic symptoms of the virus and the negative result of the examination is a watershed point that transfers the person from illness to recovery, but in some cases there are physical and psychological consequences following recovery, including what Shang had pointed out [12]. In a study conducted on those recovering from Covid -19 after six months of recovery, symptoms such as: fatigue, sleep disturbances, shortness of breath, digestive disorders, lack of memory, signs of depression and anxiety were common among them. Studies have indicated that some patients infected with COVID-19, after recovery and discharge from hospital, report symptoms of PTSD, poor memory and concentration, deterioration in quality of life, and anxiety [6]. With mild and severe Covid-19 virus they cannot think, and doctors have reported suffering from depression and anxiety [13]. The recovery response has been affected by various health and physical factors, such as age, weight, and chronic disease incidence [14, 15]. The effect of personality traits on recovery is not certain, but it has been observed that people's responses to the pandemic differ according to personality traits, such as those with a high degree of extroversion who have better coping skills during an epidemic, and introverts who are free from social pressures [16].

The coronavirus disease 2019 (COVID-2019) and the consequences of the pandemic on individuals' social, economic, and public lives are assumed to have major implications for the psychological well-being of the recipients characterized by neurologic and emotional disturbances as well [5].

CORONA pandemic has caused many damages that negatively affected mentally majority of infected people at various countries worldwide, and one of the most prominent psychological effects is that many people suffer from anxiety disorder, whether they are infected with the virus or not. According to a study of the general population, Wang et al., reported that 29% of Chinese suffer from anxiety due to the outbreak of the Corona virus in the country [17]. Also, adults in the United States of America reported 4 out of 10 of them about symptoms of anxiety [18]. The result of a survey conducted in Saudi Arabia showed that about 19.6% of the sample had a moderate to severe level of anxiety during the pandemic [19].

Nearly half of Hispanics have suffered from mild to chronic mental disorders, some of them have experienced varying degrees of worry, and many other had signs of depression as well as insomnia [20]. Moreover, the impact of the pandemic was more severe on people who had contracted the virus, as COVID-19 patients faced life-threatening and anxiety-inducing fears, such as prolonged hospital stays away from loved ones. The hospital was infected with that 60% of them showed psychological symptoms, primarily anxiety and depression. A systematic review was conducted for more than 10 studies that examined psychological disorders in a sample of 900 patients, and it was found that they feel confusion and lack of awareness, which are some of the manifestations of anxiety disorder [21]. Result of an investigation conducted on 144 infected in the United Kingdom showed that 35% suffer from anxiety, and 28% of them suffer from depression [22].

Not only did anxiety suffer during the stage of infection with the virus and exposure to medical quarantine, but the effect extended to the stage after recovering from the virus, and returning to normal life, the effects resulting from infection cannot be ignored, as 58% of patients described their experience with the Corona virus as the worst stage of their lives and 20% of them reported that it was the most terrible time of their lives [23]. Anxiety and depression are common reactions in the context of a diagnosis of COVID-19, especially with people who have experienced illness and hospitalization, due to concerns about health, isolation, and the possibility of death [24]. Hu et al., reported that patients develop sleep problems, depression, and anxiety during treatment, while anxiety persists even after recovery [3, 25]. Studies of patients hospitalized with acute respiratory syndrome and assessed after recovery from 3 to 46 months indicated that anxiety, depression, and PTSD were highly prevalent [26]. The current study showed that 76% of the recovered reported symptoms of anxiety, and the degree of their harm varies from moderate to severe. The researchers believe that this result is logical given the harsh experience of the injured, as death awaited them and they almost died, in addition to the following physical symptoms of recovery from the virus that will enhance the feeling of anxiety. In addition, everything that the experience leaves behind may raise fear for health, the future, and the family. COVID-19 patients have faced life threatening and anxiety-inducing fears, such as prolonged hospital stays away from loved ones [27]. A meta-analysis reported that depressed mood, difficulty sleeping, anxiety, irritability, and distressing memories were the most common complaints in the post-disease stage [21]. It was also confirmed that there is a link between the persistence of physical symptoms and anxiety and depression [28].

Many studies from China, France, Italy, Brazil, India, and the USA, have investigated the prevalence of neurological symptoms in patients with COVID-19 pandemic. These studies pointed out that many patients reporting neurologic symptoms and psychological disorders similarly, and majority of these patients have attributed such complaints to COVID-12 pandemic.

Furthermore, as a matter of fact, during COVID-19, people definitely in the long run, will suffer from a wide range of both nervous system and as well psychoneuroses, such as hypochondria, and post-traumatic stress. Along with, CORONA itself, can cause neurological and the nervous system complications such as delirium, agitation, and strokes, consequently, COVID-19 infection requires intensive mental health services in most countries [29].

Some researchers have emphasized that many persons who are suffering from CORONA disease, whether being hospitalized or stay home, undoubtedly experience social isolation, distancing, and lack of extended social relationships. That behavior of deprivation may damage patients mental health, and negatively impact psychological wellbeing, causing other serious psychoneuroses as psychic deterioration, fear from the unknown, panic attacks, and extraversion [30].

Regarding the status of COVID-19 in Sudan, infections are increasing as it has been reported recently. There have been 53.959 infections and 3.393 mortality cases connected with Covid-19 outbreak in Sudan since the pandemic appeared. As an attempt to contain the disease, federal ministry of health administered at least 3.642.188 vaccines. Vaccination campaigns have targeted approximately 5% of the Sudanese.

Vaccination against CORONA infection is considered as the best prevention, therefore, it is less likely to occur among fully vaccinated individuals than for those who are absolutely unvaccinated. Not only this, but also there are some preventive measures adopted by the Sudanese health authorities; such as social distancing, hands washing, in addition to wear a mask frequently and properly [31].

Methodology & Procedures

Research Methodology

In this study, meta-analysis, descriptive, and mixed approaches were employed in designing the research's methodology.

Instruments

Data collection based on the clinical case reports of the COVID-19 patients. Clinical case reports are detailed reports underlying the symptoms, sings, diagnosis, treatment, and follow-up of the patients suffering from COVID-19. They are considered as bench

marks that can be utilized for both medical and scientific research purposes, as far as they often contain complete psychological profile that provide feedback for patients [32].

The Sample

The sample size was 170 patients; they were diagnosed with COVID-19 in Khartoum state hospitals as appeared on the records.

Table (1): Descriptive statistics summary of the selected sample (N=170)

Variables	Gender	Age	Education	Marital status
	Male (90) **53%**	Less than 20 (20) 11 % **24 %**	university (50) **29 %**	Married (110) **64 %**
	Female (80) **47%**	20-40 (40) **24 %**	Secondary (30) **18 %**	Widow (30) **18 %**
		41-60 (50) **30 %**	High (90) **53%**	Divorce (15) **9 %**
		Over 60 (70) **35 %**		Single (15) **9 %**

Statistical Processing

Parametric tests were used for analysis and descriptive statistics such as t-test, frequencies, means, and standard deviation.

Results

Regarding the first research's question: What are the most common neurological symptoms among COVID-19 patients' in Khartoum-Sudan?

Result is shown as follows:

Table (2) :List of the most common Neurologic Symptoms among COVID-19 patients in Khartoum State.

Symptoms	Affected	Mean	S.D	T-value	Sig.
Headaches	45	6.55	8.76	55.65	0.05
Dizziness	40	4.98	6.51	32.31	0.05
Cerebral Palsy	30	5.56	7.76	19.56	0.05
Multiple Sclerosis	20	4.10	5.55	26.38	0.05
Alzheimer's Disease	15	4.13	5.59	27.78	0.05
Parkinson's Disease	10	4.87	7.55	26.78	0.05
Tremors &Seizures	10	4.58	7,52	28.25	0.05

It is clear that the prevalence of neurologic symptoms among COVID-19 patients in Khartoum was significant.

Regarding the second research's question: What are the most common psychoneuroses among COVID-19 patients' in Khartoum-Sudan?

Result is shown as follows:

Table (3): List of the most common Neuroses among COVID-19 patients in Khartoum State.

Disorders	Affected	Mean	S.D	T-value	Sig.
Anxiety	55	6.33	8.55	55.44	0.05
Depression	40	4.98	6.51	32.30	0.05
Obsessional Compulsive	25	5.22	7.66	19.40	0.05
Phobias	20	4.15	5.49	27.25	0.05
Somatization	10	4.77	7.25	26.78	0.05
Panic	10	4.58	7.42	26.92	0.05
Personality	10	4.11	7.22	26.64	0.05

It is clear that the prevalence of psychoneuroses among COVID-19 patients in Khartoum was significant.

Discussion

This present research consists of two main hypotheses, and investigates mental aspects due to CORONA infection in Sudan in the light of some other demographic variables, during rehabilitative inpatient treatment. COVID-19 patients have experienced psychological disturbance, such as worry, melancholy or mood disorder, panic attacks, and hypochondriasis.

The first hypothesis's result showed that the most common neurologic symptoms found in patients with COVID-19 in Khartoum State were consecutively, Headaches, Dizziness, Cerebral Palsy, Encephalopathy, Cognitive disturbance, Dementia, Tremors , in addition to abnormal seizures.

The second hypothesis's pointed out that there were prevalent psychoneuroses among CORONA patients were, Anxiety, Depression, Obsessional Compulsive, Phobia, Somatization, Panic, and Personality Disorders.

These results have indicated that, people who have already been suffering from mental health problems, were more vulnerable to be infected by CORONA than those with other organic diseases. Thus, it is primarily important to provide a psychiatric care for those patients in order to build up their immunity systems.

Finding of this research, are consistent with some previous research's results maintained that there was a necessity for mental health care among Covid-19 infected individuals [1]. Efforts, therefore, have to be excreted particularly on healing mental aspects, so that all the patients with CORONA in all countries can lead a happy life [9]. As far as mortality rate(number of deaths) is concerned, researchers currently have noted that rise of deaths among CORONA are owing to bad psychological habits. Such as smoking , and in addition to unhygienic quality of life [33]. Nearly 15% of mortality among patients with CORONA all over the world , as a result of psychological disturbances and encephalopathy(Walker et al., 2015). Moreover, such nervous and mental disorders, are remarkable sings for fatal CORONA . In fact, there were many previous researches pointed out that there was connection between Covid-19 infection and occurrence of psychoneuroses [34].

Sadly, however, there is lack of awareness among many Sudanese Covid-19 patients, with regard to mental disorder ,its nature, prognosis, as well as neurological disorder.

It is imperative, therefore, in this juncture, for mental health , psychiatrists, and counselors to exert their efforts in providing good services for CORONA pandemic in Sudan [35].

Conclusion

The result of this study is that anxiety is prevalent among 76% of those recovering from the Corona virus, 42% at a moderate level, and 11.7% at a severe level. Also, women are the most anxious, that divorced and married women report a high level of anxiety, and smoking has a role in increasing anxiety among the sample members, especially women.

Findings of this present research have reinforced the idea that mental health care should be made available for CORONA disease's patients, along with to provide them with psychological support they needed on the eve of pandemic.

The Sudanese society, majority of its people live in poverty, illiteracy, and have no health awareness regarding COVID-19 pandemic. This fact has made the Sudanese the most relaxed people as being not fear the disease itself, in addition to, they belief that they have strong immunity against such pandemic.

Recommendations

1. To increase patients' awareness concerning the potential complications of neurologic symptoms connected with CORONA.
2. To change the patterns and manners of patients' behavior during COVID-19 pandemic.
3. To provide and develop psychiatric services for patients with COVID-19.
4. Health professionals and practitioners should observe the existence of both neurologic and psychological disorders among COVID-19 patients.

Suggestions for Further Studies

1. Psychiatric assessment is needed for those infected with Covid-19.
2. To examine the prevalence of neurotic disorders among patients during the COVID-19 pandemic.
3. To conduct an intensive cross-sectional study on the effect of COVID-19 on patients' personality traits.
4. Neurological diseases such as Parkinson's, Cerebrovascular, and Brain Tumors; should be investigated together with COVID-19 infection.

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