

Neurobiology of Increase in Violence in Pakistan and the Role of Online Medical Care in its Reduction

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Abstract

Causes of increase in violence in a named society, apart from socio-political and economical reasons, will be examined in this study. One of the most important reasons for increase in levels of hostility in a society is prevalence of psychological depression among population, which can lead to violent behavior and cause physical harm to one or others, increase in suicidal tendencies and destruction of property. Increase and prevalence of internal medical diseases are one of the main causes of increase in depression, among which diabetes, hypothyroidism, vitamin D, calcium, and vitamin B12 deficiency, hypo and dyslipidemia can be mentioned.

The main cause for increasing prevalence of depression in Pakistan can be attributed to:

- Rapid increase in spread of diabetes (mean prevalence 13.14%), which increased 2 times in during 7 years period. Share of other illnesses contributing to depression can be summarized as follows, 20% to spread of diabetes in urban areas.
- 6.6% to spread of vitamin B12 deficiency
- 84.3% to spread of vitamin D deficiency
- 8.29% of subclinical hypothyroidism

In order to have more accurate results further measurements of prevalence of functional vitamin B12 deficiency and calcium is recommended. By using on line medical care system in Iran, it was found that 85% of people suffering from depression had at least one of the above mentioned causes, and after treatment symptoms of depression were noticeably reduced. At the end of this article there is an announcement for specialists in Pakistan and other countries to adapt the online medical care system to their own circumstances.

Keyword: Vitamin D Deficiency, Vitamin B12 Deficiency, Calcium Deficiency, Diabetes, Dyslipidemia, Neurobiology, Psychobiology, Violence, Aggression, Depression

Introduction

Increase in levels of hostility in a society can be due to many factors, namely political, social or economic, but in this study these factors will not be considered. In this study we want to know the following:

- Are economic, social and political conditions the only conditions that have changed in past 50 years?
- Have human beings changed during this period and are they as healthy as before?
- Are prevalence of some diseases leading to increase in levels of hostility in societies?

Depression disorders are among the causes that lead to increase in levels of hostility [1]. This disorder is accompanied by conduct disorder in adolescents, and anti-social personality disorder in adults, both of which can lead to self-harm, damage to property, and excessive aggression [2,3]. All of that can lead to injury and suffering of others. Depression disorders also can lead to increase

in attempted suicide, which can also end in hostility [4,5].

Five medical internal medicine diseases which increase possible emergence of signs of depression will be studied in this article:

- Diabetes,
- Calcium and vitamin D deficiency,
- Hypothyroidism
- Vitamin B12 deficiency
- Dyslipidemia.

Diabetes

Considering papers and articles published in Pakistan, prevalence of diabetes in rural area change from 3% to 7.2% and in urban area it is higher [6]. Studies in state of Punjab show that 15.91% of women and 12.3 of men and 13.91 of both sexes suffer from diabetes, impaired fasting glucose level show 5.78 in women and 5.14 in men [7]. In Baluchistan area of Pakistan the prevalence of diabetes increased from 7.2% in 2002 to 14.2% in 2009, showing 2 fold increases in 7 years, also studies in Saudi Arabia show that chance of emergence of depression is three times more in diabetic women than in others [8,9].

Studies in Iran tell us that more than 50% of children have vitamin B2 deficiency and since vitamin B2 plays an essential role in carbohydrate metabolism, it can be said that vitamin B2 deficiency leads to disorder in carbohydrate metabolism and is one of the causes of increasing prevalence of diabetes [10,11]. Diabetes can lead to serious psychological problems as explained below:

In adolescent youth

Diabetes can lead to depression which in turn can lead to conduct disorder in adolescent youth, increasing the danger of harming oneself or others, or destruction of property [1].

In conclusion it can be said that diabetes increases the possibility of hostile behavior in adolescent youth.

Conduct and conformity disorders can cause following problems:

- _aggressive behavior causing bodily harm to oneself or others
- _destruction of property
- _theft and fraud
- _disturbing law and order

In adults

Also in adults suffering from diabetes, it increases the chance of depression disorders and this can lead to anti-social behavior causing harm to oneself and others [12, 13].

In initial stages of diabetes when it happens in hidden form (occult diabetes), disorders like late hypoglycemia accrue, which can lead to nervousness, irritability and attacks of sudden rage and anger [14].

Delayed reactive hypoglycemia is one of the complications of occult diabetes which is the reason for delay in insulin release from beta cells of pancreas. In this case when glucose tolerance test is performed, both hyperglycemia in initial stage of test and hypoglycemia in final stage of test are observed.

Vitamin D and calcium deficiency

These two cases will be considered together since in most cases they cannot be separated. Calcium deficiency is a medical disease that in initial stages leads to depression and anxiety and in severe cases can lead to seizure and psychosis [15].

There are no statistics of calcium deficiency prevalence in Pakistan but vitamin D deficiency which is the main factor in calcium absorption is reported to be 84.3% [16]. In view of prevalence of vitamin D deficiency, calcium deficiency can be assumed to be the cause of increase in depression and hence increase in spread of violence and aggression. (More research in this field is recommended). Vitamin D deficiency can directly cause depression as well [17].

Hypothyroidism

We do not have access to a comprehensive study about prevalence of hypothyroidism in Pakistan, but the studies at our disposal show that the prevalence of subclinical hypothyroidism is 8.21%, but in Kashmir area it is much higher (about 21.56%) in this area some studies show 81% of ordinary women suffer from subclinical hypothyroidism [18-20].

The prevalence of subclinical hypothyroidism in some areas is more than Iranian women and in the others, it is less than Iranian women %11.87, but because this illness causes depression,

which has relatively high prevalence in Pakistan, examination for hypothyroidism in all patients suffering from depression is recommended, and should be included in the list of illnesses considered by on line medical care system in that country [21].

Vitamin B12 deficiency

Vitamin B12 deficiency can lead to many psychological symptoms like depression, anxiety and paranoia [22]. In a study in Iran, prevalence in vitamin B12 deficiency among 3 to 19 years age range is reported to be 25%, so it is included in the list of conditions to be examined by online medical care system for depressed and anxious patients. Since a study in Pakistan shows that 6.6% of healthy people suffer from vitamin B12 deficiency, but there is no study about the prevalence of functional vitamin B12 deficiency. (For finding the prevalence of functional vitamin B12 deficiency, methylmalonic acid must be measured) [23, 24].

Dyslipidemia

Considering articles published in Pakistan, prevalence of high blood cholesterol levels is 16% in men and 24% in women, according to studies; disorder in fat metabolism, both in case of increase in levels and also excessive decrease can lead to depression [25-28].

We do not have enough data about hypolipidemia in Pakistan, but since there is high prevalence of high blood cholesterol level in population, inclusion of examination of hyperlipidemia in on line medical care system in Pakistan is recommended.

Introduction of online medical care system

As can be seen by this and other similar surveys there is a strong correlation between mentioned condition and levels of depression and aggression in different societies.

In order to monitor and treat such conditions individually and in groups an online medical care system was designed and developed by Hooshdar Medical Technologies Co. which can provide assistance and medical services to potential patients. By gathering relevant medical data about the applicant, the system is able to perform analyses and suggest course of action for treatment and further medical care. System can be used by individuals using online internet service or as an application providing service to medical centers. Full description of the system can be found here.

The system is in its early stages and although initial results are very encouraging, much work remains to be done both in field of research about factors involved in prevalence of depression and aggression and also expanding functionality of the system. At the moment it is a software system but it has the potential of expanding to a hardware-software system with its own testing and diagnostic hardware.

So we would like to invite interested professional individuals and institutions to participate in the project by providing information, assistance both financial and technical.

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