

PREVALENCE OF DEPRESSIVE SYMPTOMS AMONG PRIMARY HEALTH CARE PROVIDERS IN BAGHDAD

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ABSTRACT: *While some workplace stress is normal, excessive stress had negatively impact on individual's performance;. Objectives:* The objectives of this study were to identify the prevalence of depressive symptoms among healthcare providers **Methods :** A cross sectional study was carried out among employees (administrative and medical) .Data were collected with a questionnaire consisting of socio-demographic variables screened for depression by a standardized scale: (DSM-IV-TR). **Results:** This study included 521 persons who agreed to participate comprising of 157 administrative and 364 medical health care providers and an overall prevalence of probable depressive symptoms was (70.25%). **Conclusions:** Depressive symptoms is highly prevalent among primary health care providers. Age, number of children in medical participants, and marital status for administrative, had significant association with depressive symptoms , while gender, educational level, years of experience, monthly income, and presence of chronic illnesses showed to have no significant association .

KEYWORDS: Depression, Depressive Symptoms, Health Care Providers, (DSM-IV-TR). Diagnostic and Statistical Manual Of Mental Disorders, 4th Edition, Text Revision. , Sociodemographic Variables

INTRODUCTION

Mental illness is a major public health concern. By the year 2020, depression associated disability will be second only to that of coronary heart disease⁽¹⁾. Depression is a state of low mood and aversion to activity that can affect a person's thoughts, behavior, feelings and physical well-being. Depressed people may feel sad, anxious, empty, hopeless, worried, helpless, worthless, guilty, irritable, or restless. They may lose interest in activities that once were pleasurable; experience loss of appetite or overeating, have problems concentrating, remembering details, or making decisions; and may contemplate or attempt suicide. Insomnia, excessive sleeping, fatigue, loss of energy, or aches, pains or digestive problems that are resistant to treatment may be present⁽²⁾.

Depressed mood is not necessarily a psychiatric disorder. It is a normal reaction to certain life events, a symptom of some medical conditions, and a side effect of some medical treatments. Depressed mood is also a primary or associated feature of certain psychiatric syndromes such as clinical depression⁽³⁾. Everyone occasionally feels blue or sad. But these feelings are usually short-lived and pass within a couple of days. When depression occurs, it interferes with daily life and causes pain for both who had and those who cares. Depression is a common but serious illness. Many people with a depressive illness never seek treatment. But the majority, even

those with the most severe depression, can get better with treatment. Medications, psychotherapies, and other methods can effectively treat people with depression ⁽⁴⁾.

Men often experience depression differently than women. While women with depression are more likely to have feelings of sadness, worthlessness, and excessive guilt, men are more likely to be very tired, irritable, lose interest in once-pleasurable activities, and have difficulty sleeping⁽⁵⁾. The incidence of depression has risen every year since the early 20th century. There are probably many reasons for this, though most studies point to significant socioeconomic changes experienced by the post-World War II "baby boomer" generation ⁽⁶⁾. Health care is the diagnosis, treatment, and prevention of disease, illness, injury, and other physical and mental impairments in humans. Health care is delivered by practitioners in medicine, chiropractic, dentistry, nursing, pharmacy, allied health, and other care providers. It refers to the work done in providing primary care, secondary care and tertiary care, as well as in public health⁽⁷⁾.

While the definitions of the various types of health care vary depending on the different cultural, political, organizational and disciplinary perspectives, there appears to be some consensus that primary care constitutes the first element of a continuing health care process, that may also include the provision of secondary and tertiary levels of care⁽⁸⁾. Primary care is the term for the health care services which play a role in the local community. It refers to the work of health care professionals who act as a first point of consultation for all patients within the health care system^{(8),(9)}. Such a professional would usually be a primary care physician, such as a general practitioner or family physician. Depending on the locality, health system organization, and sometimes at the patient's discretion, they may see another health care professional first, such as a pharmacist, a nurse (such as in the United Kingdom), a clinical officer (such as in parts of Africa), or an Ayurvedic or other traditional medicine professional (such as in parts of Asia). Depending on the nature of the health condition, patients may then be referred for secondary or tertiary care⁽¹⁰⁾.

A health care provider is an individual or an institution that provides preventive, curative, promotional or rehabilitative health care services in a systematic way to individuals, families or communities⁽¹¹⁾. An individual health care provider (also known as a health worker) may be a health care professional, an allied health professional, a community health worker, or another person trained and knowledgeable in medicine, nursing or other allied health professions, or public / community health ⁽¹¹⁾. It was recognized that some employees seem less productive and reliable than usual-- they may often call in sick or arrive late to work, have more accidents, or just seem less interested in work. These particular individuals may be suffering from a very common illness called clinical depression.

Depression results in more days in bed than many other ailments (such as ulcers, diabetes, high blood pressure, and arthritis) according to a recent large-scale study published by the Rand Corporation ⁽¹²⁾. In addition to personal suffering, depression takes its toll at the workplace

In the workplace, symptoms of depression often may be recognized by:

- Morale problems
- Lack of cooperation
- Safety risks, accidents
- Absenteeism
- Frequent statements about being tired all the time

- Complaints of unexplained aches and pains
- Alcohol and drug abuse ⁽¹²⁾ .

The Aims of the study

1. To estimate the prevalence of depressive symptoms among health care providers in primary health care centers at Alkadhiya district.
2. To estimate the distribution of depressive symptoms according to sociodemographic variables as age, sex, educational level, marital status, number of children, experience years, job title, monthly income, and presence of chronic illness regarding administrative and medical employees at primary health care centers

REVIEW OF LITERATURE

What is depression?

Depression can happen to anyone. Many successful and famous people who seem to have everything going for them battle with this problem. Depression also affects people of every age. Half of the people who have depression will only experience it once but for the other half it will happen again. The length of time that it takes to recover ranges from around six months to a year or more ⁽¹³⁾ .Living with depression is difficult for those who suffer from it and for their family, friends, and colleagues. It can be difficult to know if you are depressed and what you can do about it ⁽¹³⁾ .

Depression occurs in persons of all genders, ages, and backgrounds. It affects about 121 million people worldwide. Depression can be reliably diagnosed and treated in primary care. Fewer than 25 % of those affected have access to effective treatments(14) . In the United States, one in six people experience a depressive episode during their lifetime. Only 50% of the people who meet the criteria for diagnosis seek treatment for depression ,which affects the ability to determine how many people actually suffer from this disorder. Depression is a major cause of morbidity worldwide ⁽¹⁵⁾ .Lifetime prevalence varies widely, from 3% in Japan to 17% in the US. In most countries the number of people who would suffer from depression during their lives falls within an 8–12% range ^{(16),(17)} .Population studies have consistently shown major depression to be about twice as common in women as in men, although it is unclear why this is so, and whether factors unaccounted for are contributing to this ⁽¹⁸⁾ .The relative increase in occurrence is related to pubertal development rather than chronological age, reaches adult ratios between the ages of 15 and 18, and appears associated with psychosocial more than hormonal factors ⁽¹⁸⁾ .

People are most likely to suffer their first depressive episode between the ages of 30 and 40, and there is a second, smaller peak of incidence between ages 50 and 60 ⁽¹⁹⁾ . The risk of major depression is increased with neurological conditions such as stroke, Parkinson's disease, or multiple sclerosis and during the first year after childbirth⁽²⁰⁾ . It is also more common after cardiovascular illnesses, and is related more to a poor outcome than to a better one ^{(21),(22)} . Depressive disorders are most common to observe in urban than in rural population and the prevalence is in groups with stronger socioeconomic factors i.e. homelessness ⁽²³⁾ .

Depression Causes and Risk Factors

Depression is complex disease. It occurs for a variety of reasons. Some people experience depression during a serious medical illness. Others may have depression with life changes such as a move or the death of a loved one. Still others have a family history of depression. Those

who do may experience depression and feel overwhelmed with sadness and loneliness for no known reason⁽²⁴⁾. The cause of major depressive disorder is a combination of brain chemistry, family history, and psychosocial environment. It is not certain which of these factors dominates, but abnormal levels of the neurotransmitters nor epinephrine, serotonin, and dopamine are closely linked with depression. Thus, the cause of depression is often attributed to a "chemical imbalance." These neurotransmitters play important roles in how we experience pleasure and moods⁽²⁵⁾. Other physiological changes that accompany depression may result in irregular hormone levels in the brain. There is, however, little evidence to support the idea that abnormal hormone levels cause depression⁽²⁶⁾. Computed tomography (CT scan), which produces images of the brain, may reveal enlarged lateral ventricles (structures in the brain that produce cerebrospinal fluid) in some people who suffer from depression. These test results suggest that abnormalities in brain structure may be a factor in depression⁽²⁷⁾.

Genetic Risk Factors for Depression

Statistics show that the children of parents who suffer from depression are more likely to develop the disorder themselves. A person has a 27% chance of inheriting a mood disorder from one parent, and this chance doubles if both parents are affected. Studies of the occurrence of depression in twins show a 70 percent chance for both identical twins to suffer from depression, which is twice the rate of occurrence in fraternal twins⁽²⁸⁾.

Psychosocial and Environmental Risk Factors for Depression

Depression is more common in people who have a history of trauma, sexual abuse, physical abuse, physical disability, bereavement at a young age, alcoholism, and insufficient family structure. In adults, the loss of a spouse is the most common cause of a depressive episode. Women are at increased risk for depression during and within the first few months after pregnancy (called postpartum depression). Chronic depression may be more common in areas afflicted with war, natural disasters, poverty, or neglect⁽²⁹⁾.

Age & Depression Risk

Teenagers are at risk for depression. The evidence is in teen suicide rates, which are increasing yearly. The growing rate of depression in this group may reflect growing pressure on young people to attend college and meet the high expectations of their peers and parents. Problems with self-esteem may result from failure or disinterest in meeting these expectations. Low self-esteem can lead to a negative perspective of life and depression⁽³⁰⁾.

Gender & Depression Risk

The disparity between rates of depression in men and women may reflect behaviors based on learned gender roles. Learned helplessness and socioeconomic stressors may result in depression in women. The socialization of men, which demands self-sufficiency and emotional toughness, may cause depression in men and may prevent them from seeking treatment⁽³¹⁾.

Race and Class & Depression Risk

Although there does not seem to be a correlation between depression and race or class, depression is diagnosed more often in Caucasians from the middle and upper classes. Caucasian psychiatrists may not recognize the condition in African Americans, Asians, or Latinos as frequently as it occurs. Differences in socioeconomic background may prevent psychiatrists from observing depression in people from lower economic classes; they simply cannot afford to seek medical attention for non emergencies⁽³²⁾.

Health and stress among health care practitioners

Some studies suggest that workplace stress is pervasive in the health care industry because of inadequate staffing levels, long work hours, exposure to infectious diseases and hazardous substances leading to illness or death, and in some countries threat of malpractice litigation. According to a report from the United States' National Institute for Occupational Safety and Health, "health care workers have higher rates of substance abuse and suicide than other professions and elevated rates of depression and anxiety linked to job stress." Elevated levels of stress were also linked to high rates of burnout, absenteeism and diagnostic errors, and to reduced rates of patient satisfaction ⁽²⁵⁾. In Canada, a national report *Canada's Health Care Providers* also indicated higher rates of absenteeism due to illness or disability among health care workers compared to the rest of the working population, although those working in health care reported similar levels of good health and fewer reports of being injured at work ⁽³⁴⁾.

Female health care workers may face specific types of workplace-related health conditions and stress. According to the World Health Organization, women predominate in the formal health workforce in many countries, and are prone to musculoskeletal injury (caused by physically demanding job tasks such as lifting and moving patients) and burnout. Female health workers are exposed to hazardous drugs and chemicals in the workplace which may cause adverse reproductive outcomes such as spontaneous abortion and congenital malformations. In some contexts, female health workers are also subject to gender-based violence including from coworkers and patients ⁽³⁵⁾.

Diagnostic studies

Though the prevalence rates of depression and anxiety disorders among doctors and medical staff varied greatly in the international literature (14%-60% for depression and 18%-55% for anxiety disorders). This is largely due to different measurement methods used in different studies ⁽³⁶⁾. However, there is limited research examining issues associated with the mental health of medical staff and practitioners, but an Australian context, with no studies examining the mental health issues relating to indigenous or rural and remote medical practitioners, a review of available literature identified 86 publications and studies that met the inclusion criteria relating to issues associated with mental illness (anxiety and depression) among medical staff and practitioners. The following 10 topic areas were selected for inclusion in the review:

- 1) Prevalence of anxiety and depression
- 2) Prevalence of substance misuse and self-medication
- 3) Suicide rates
- 4) Risk factors for anxiety and depression
- 5) Help-seeking rates for anxiety and depression
- 6) Barriers to help-seeking for mental health care
- 7) Interventions for anxiety and depression
- 8) Attitudes of medical colleagues
- 9) Impact on patient care
- 10) Impact on work and family life ⁽³⁶⁾.

Diagnosis of Depression

After a careful history from the patient and caregiver and an assessment of mental status, many scales can be performed to assess depression and its severity, one of them that primary care providers can readily apply is standardized diagnostic criteria (DSM- IV TR) in order to make a definitive diagnosis of depression ⁽³⁷⁾.

Five or more of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either:

- 1) depressed mood nearly every day.
- 2) Decreased interest or pleasure in activities.
- 3) Significant weight loss (without diet) or weight gain, or change in appetite. In children, this may be noted as a failure to make expected weight gains
- 4) Insomnia or hypersomnia.
- 5) Psychomotor agitation or retardation.
- 6) Fatigue or loss of energy.
- 7) Feelings of worthlessness or excessive guilt.
- 8) Diminished ability to think or concentrate, or indecisiveness
- 9) Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide ^{(37),(38)}.

For an accurate diagnosis of Major Depression, you must also establish that the symptoms have caused clinically significant distress or impairment in social, occupational, or other important areas of functioning and that the symptoms occur nearly every day ⁽³⁸⁾. Once the primary care provider is confident of a diagnosis of Major Depression, a treatment plan should be formulated immediately for the child/adolescent in need. An effective treatment plan should include a referral for psychotherapy and antidepressant medication may be considered to as part of a comprehensive treatment plan. It is vitally important for any patient with depression to be screened for suicide risk at the time of the initial diagnosis and throughout the course of treatment. Parents and adolescents should be educated that suicidal thoughts and feelings are commonly associated with depression and that this can emerge in the course of treatment ⁽³⁹⁾.

Depression in primary care

Depression can be reliably diagnosed in primary care. Antidepressant medications and brief, structured forms of psychotherapy are effective for 60-80 % of those affected and can be delivered in primary care. However, fewer than 25 % of those affected (in some countries fewer than 10 %) receive such treatments. Barriers to effective care include the lack of resources, lack of trained providers, and the social stigma associated with mental disorders including depression ⁽⁴⁰⁾. Primary care based quality improvement programs for depression have been shown to improve the :

- Quality of care,
- Satisfaction with care
- Health outcomes,
- Functioning,
- Economic productivity,
- Household wealth at a reasonable cost ⁽⁴¹⁾.

Subjects & Methods:

Study design: A cross sectional study.

Settings: The study was conducted from the first of February 2012 to the end of June. The study was conducted in five primary care health centers included within Alkadhiya district in Baghdad :

- 1) Alkadhiya PHCC
- 2) Alzahraa PHCC
- 3) Alsabiyat PHCC

4) Alhurria PHCC

5) Alnoor alnamuthagi PHCC

Sampling design: The study included 521 health care providers (administrative and medical)

Inclusion criteria

1. Administrative and medical staff at PHCC.
2. Age 20 years and above of both gender.
3. Consented to participate in the study.
4. Able to complete questionnaire form.

Exclusion criteria

1. Health care provider less than 1 year experience (installation period in acting career is 1 year and more) .
2. Absent at time of data collection (illegal or legally like sick leave...etc).
3. Refused to accept or complete questionnaire form.

Ethical approval

This study approved by Iraqi ministry of health, by administrative order directed to Alkadhmiya district. The purpose of the study was explained to all participants and they given the right to participate or not. Oral consent was taken and participants were reassured that the information gained will be kept confidential and not to be used for other than the research objectives.

Data collection:

The participants were interviewed and the Questionnaire (appendix) was filled by the health care provider with researcher support if there was any language problem or misunderstanding of some statements after explaining the research objectives and taking verbal approval to participate in the study, an arrangement needed in each interview needed was about 10 minutes. Socio-demographic information like age, gender, educational level, marital status, number of children, years of experience , monthly income ,and chronic illnesses were obtained for both administrative and medical group of health care providers to assess their relation with prevalence of depression among study sample.

Depression diagnoses :

Depending on the most widely used criteria for diagnosing depressive disorder by World Health Organization, diagnostic and statistical Manual of mental disorder fourth edition text review (**DSM-IV-TR**) criteria (appendix) used to diagnose depression.

This scale investigate about **nine** symptoms and at a cutoff point **five or more** have been present during 2 weeks period and represent change from previous functioning condition ; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure then patient diagnosed with depression.

Symptoms not included if they were due to a general medical condition or mood incongruent delusions or hallucinations. They must cause clinically significant distress or impairment in social, occupational or other important areas of functioning, not due to a direct physiological effect of substance like in drug abuse or due to general medical condition as in hypothyroidism or after a traumatic event like death of loved one or loss of job.

Limitations of the study:

1. A convincing samples were taken but short time interview with each participants due to preoccupation with work because of overcrowding of patients that will not gave us a very precise estimate of the questionnaire.
2. Furthermore, it was hard to involve all PHCC included within alkadhmiya district because of limited period the research was taken.

Data analysis

***Descriptive statistics:** frequency tables (numbers& percentages).

***Analytic statistics:** Statistical analysis was done using statistical program Minitab13 (statistical and process management software version 13). Continuous variables were presented as mean (M) and standard deviation (SD) and discrete variables were recorded as numbers (N) and percentages (%). Chi square was employed to determine the association of various basic, occupation related variables with the presence of depression among healthcare providers. In places where expected values were small for chi square to work properly, condensation of cells was done to get statistical analysis. A p-value of less than 0.05 was considered statistically significant

RESULTS

This study included five hundred twenty one participants comprising of 157 (30.13%) administrative , and 364 (69.87%) medical health care providers . The mean age for admin. Was 38.223 years (SD=10.257years) while mean age for medical was 38.937 years (SD=10.754years) as shown in table 1. The result revealed that 124(78.98%) of a total 157 administrative participant were depressed, while 242 (66.5%) of total 364 medical participants were depressed with a significant p-value as shown in table 2

Administrative participants

Results showed higher percentage (86.3%) had depression was found in age group 30-39 years, but there was no significant association between depression and age as shown in table 3 .

Regarding gender, results showed 85.3% of depressed participants reported in female group and 73.2% in males, but there was no statistically significant relationship between depression and gender variable as shown in table 4.

The distribution of this study sample showed no statistically significant value between educational level and depression among admin. Employees, although higher percentage (91.7%) found at primary educational level as shown in table 5 .

Regarding marital status, there was statistically significant association between marital status and depression among admin. participants being high percentage (100%) between widows and(85%)among divorced as shown in table 6.

Regarding number of children (excluding single group), the results identified that more depression (90%) occurred in high child number, but there was no association between depression and number of children as shown in table 7.

Regarding years of experience, percentage of depression was more (91.3%) among (20-29) years group, although the association had no significant value between depression and years of experience among admin. employees as shown in table 8.

Regarding monthly income, (79.7%) had depression with no enough income ,but the study showed no significant association between depression and monthly income among admin. participants as shown in table 9 .

Regarding chronic illnesses, there was no significant association between depression and presence of chronic illnesses as shown in table 10.

Medical participants

Regarding age, there was statistically significant association between depression and age demographic data among medical participants being more depression percentage (77.8%) with age group more than 50 years as shown in table 11.

According to gender variable, female had (70.1%) depression while male had (63.1%) , but there was no significant association between depression and gender demographic data among medical employees as shown in table 12 . Regarding educational level , low education had more depression percentage than others (69.5%) , although there was no statistically significant relation between depression and educational level among medical participants as shown in table13 .According to marital state, study showed that a high percent of depression was among widows(84.6%) and divorced(76.3%)medical employees ,but it identified that there was no significant association between depression and marital status demographic data among medicals as shown in table 14 .

Regarding number of children(excluding single group), it showed a statistically significant relationship between depression and number of children among medical participants being high percent of depression (82%)who had between(3-5)child as shown in table 15 . According to experience years, there was no statistically significant relationship between depression and years of experience among medical participants as shown in table 16.Regarding monthly income , there was approximately no difference between enough and not enough income , and so the relationship had no significant value between depression and monthly income among medical participants as shown in table 17 .Regarding chronic illnesses, there was no significant association between depression and presence of chronic illnesses, though the study identified high percent of depression (71.3%) among presented one as shown in table 18.

DISCUSSION

Prevalence of depression among primary health care workers:

The main finding of this study was the high prevalence of depressive symptoms among primary health care workers, where (70.25%) of the study sample had depression for both administrative and medical group (Table 2). This result was compared with British study estimated rates of minor psychiatric disorders(anxiety and depression) in health care workers in a large representative sample from the National Health Service (Researchers administered the General Health Questionnaire-12 (GHQ-12) to 11,000 health care workers and compared the results with GHQ-12 data on 5,000 employed adults from the British Household Survey). Nearly 27% of health care respondents met criteria for a minor psychiatric disorder (mostly depression and anxiety) versus 18% in the general population ⁽⁴²⁾.

Other study was done by The Office of Applied Studies (OAS) in the US Department of Health and Human Services (HHS) published a study looking at the rate of work place depression from years 2004-2006 in workers ages 18-64. They found that each year, about 7% of full time health care workers experienced major depression, and the highest rates of depression occurred in those working in the personal and service care (10.8%). Healthcare practitioners and technicians came in at 3rd place with a depression rate of 9.6%, while in our study sample; 78.98% of administrative and 68.48% of medical employees had some form of depression ⁽⁴³⁾.

Another study showed that the prevalence of depressive symptoms among healthcare workers was 48.12% (95% CI: 45.08% to 51.16%). The prevalence of depressive symptoms among nurses was 52.40% (95% CI: 47.87% to 56.93%) higher than doctors' 44.70% (95% CI: 10.64% to 48.77%) with the significant difference (chi (2) = 6.077, P = 0.014). Positive associations were found between the high effort-low reward, level of work-related over commitment and depressive symptoms (OR = 1.859, 95% CI: 1.337 to 2.585; OR = 2.207, 95% CI: 1.656 to

2.942) among healthcare workers, respectively ⁽⁴⁴⁾. The high prevalence rate of depressive symptoms of the study may be attributed to the fact that:

1. Unstable security situation in our country and exposure to traumatic events lead to a sense of uncertainty which will reflect negatively on employee health, including depression.
2. The large number of attendants for the primary health centers and the lack of supplies and integrated health services create a state of confusion at work and increase the tension and stress and possibly depression.

Relationship between depression and occupation

Regarding occupation, administrative health care providers had 78.98% depression rate, while medical health workers had 66.5% of the study sample (Table 2), this result disagreed with study from United Kingdom where medical healthcare workers (general practitioners GPs) got more depression than administrative one (27% against 6%) with no significant difference between GPs and consultants (45). General practitioners were more likely to show suicidal thinking than consultants (14% against 5%) but not administrative (13%). No significant difference could be found between the three groups on any other measures ⁽⁴⁴⁾. On the other hand, the work of physicians working in health centers is characterized by administrative jobs, routine procedures, compliance with medical records, and a large number of patients. Besides that, adherence to guidelines (for example some healthcare programs) and restrictions by the Ministry of Health (for example limited sources for high-quality care of patients) could have additional negative effects on the organization of work and working conditions ⁽⁴⁶⁾.

Relationship between depression & age

In regard to age, the study showed no significant association between age and depression among administrative employee, while among medical employees it was found (77.8% of 50 years and older) as shown in (Table 3 and 11). This study matched by a study conducted in Britain by Ruth Chambers and Ian Campbell, 1996, family practice Oxford university using Hospital Anxiety and Depression (HAD) scale showed no association was found between age and depression Spearman's correlation coefficient = 0.004 ⁽⁴⁹⁾.

Depression in association with gender variables

According to gender variables, it showed no relationship between male or female and depression for both administrative and medical healthcare workers (Table 4 and 12) although female had higher percentage than male (85.3% and 70.1%) may attributed to social and environmental factors precipitate depression, but other study showed the reverse. OAS data revealed that female healthcare workers in management reported 3 times as much depression (9.5%) versus male workers in management (3.3%), and the OAS data does not suggest that there are factors in the workplace specific to females that could have caused a higher incidence of depression in females. However, one may speculate that certain disparities in the workplace may be a factor contributing to depression in female workers ⁽⁴³⁾.

Other study in Canada, the researchers surveyed 218 female workers at health-care centers in three cities in the province of Ontario using several standard study questionnaires ⁽⁵⁰⁾. The women were asked about work conditions such as time pressures, level of responsibility, physical demands and level of support, among many other questions. They were also asked about spillover of work life to family life, and vice versa. Finally, the women were surveyed for depressive symptoms. They found that more than 30 per cent of the women reported enough symptoms of depression to suggest the presence of clinical depression ⁽⁵⁰⁾.

Association of depression with educational level

Regarding educational level, our results identified no significant association between depression and education, although highest percent of participants got depression (79% and 69.5%) who had received primary educational level among administrative and medical workers respectively (Table 5 and 13), the cause may be due to a greater sense of responsibility to the pressures of work or dealing with PHC attendees. Similarly, other study done by the researchers surveyed 218 healthcare workers at primary health-care centers in three cities in the province of Ontario using several standard study questionnaires, they found that (30%) of them had depression and had significant association with low educational level. I did not find other studies to compare the results⁽⁵⁰⁾.

Depression & marital status:

Results mentioned in our tables revealed a significant association between depression and marital status among administrative employees but not medical part, being more depression rate among divorced and widows (85% and 100% of administrative and 76.3% and 84.6% of medical participants) as shown in Table 6 and 14. Our study disagreed with an American study stated that marriage is generally considered to be an effective buffer to emotional distress. Whether the incidence of divorce is higher among physicians than among the general population is not known, but marital problems are common, perhaps in part because of the tendency of physicians to postpone addressing marital problems and to avoid conflict in general⁽⁵¹⁾. Marital problems, separation, or divorce can certainly contribute to depressive symptoms, which can increase the likelihood of suicidality if unaddressed. Other study identified that those living alone had significantly higher anxiety scores than those living with partners, but there was no significant association with levels of depression^{(51),(52)}.

There was significant association between depression and number of children among medical but not administrative healthcare providers being high percentage of depression (90%) with higher group (more than 5 child) in administrative and (83%) for medical participants who had (3-5) child (Table 7 and 15). In comparison, a study from United Kingdom identified that there were no associations of anxiety or depression levels with whether or not respondents had children, the number or ages of any children, or the average practice list size⁽⁵¹⁾.

Depression & years of experience:

In regard to years of experience, no significant relationship identified between depression and how many years healthcare providers had spent in work. Our study sample results showed high prevalent depression (91.3% and 73.7%) among who had more years of experience (more than 20 years) in relation to administrative and medical employees respectively (Table 8 and 16). Other studies did not mention years of work in relation to depression but time of daily work, if it is full time or half day work. One of the studies in USA "Combined data from 2004 to 2006 indicate that an annual average of seven percent of full-time health care workers aged 18 to 64 experienced a major depressive episode in the past year."⁽⁵²⁾

Other study recruited 60 participants of paramedics, the majority of which were male (77%), and having worked shift work between 5-10 experience years had (35% depression). Depression was found to be mild among (27%) and moderate among (10%) of respondents⁽⁵³⁾.

Association between depression & monthly income:

Regarding monthly income, the results showed that there was no association between it and depression although high prevalent of depression (79.7%) among administrative and not so difference (67.6%) among medical participants (Table 9 and 17). In European study included 258 health care workers used the Brief Symptom Inventory (BSI) and a general questionnaire with questions about socio-demo- graphic characteristics, income, and workplace, were used. Monthly income of the majority of workers (207 or 80.2%) was below the monthly income in Bosnia and Herzegovina. Workers with salaries below the average salary for Bosnia and Herzegovina have pronounced somatization, anxiety, depression, interpersonal sensitivity and hostility. The BSI scale yielded significant negative correlation between the level of monthly salary and the expression of psychological symptoms ($p=0.002$) and between the level of family income and the expression of psychological symptoms ($p=0.024$). Based on the study results, it was determined that socio-economic factors such as the level of salary and total family income and job insecurity, educational level, marital status and gender may be predictors of psychological symptoms ^{(54),(55),(56)}. Other study a survey of 2003 employees estimated decrease in annual income among workers with selected disorders⁽⁵⁶⁾ showed that 31% decrease in annual income had major depressive disorder, 36% had bipolar disorder, and 37% had generalized anxiety disorder ^{(57),(58)}.

Depression & chronic illnesses:

In regard chronic illnesses (like diabetes mellitus, hypertension, heart disease...etc), the results identified no significant association between depression and the presence of chronic illnesses among primary health care workers (80.4% with no chronic illness and 71.3% of depression had chronic illness among administrative and medical employees respectively) as shown in (Table 4-10 and 4-18). In fact, our explanation refers to the important point is that depression does not attribute accidentally as an outcome of an organic disease or aggravation of the situation in sick. In other studies, conversely, rate of depression is increased in patients with long-term medical illnesses. As much as 15% to 20% of patients with diabetes and long-term heart failure have depression as a co morbid illness ⁽⁵⁹⁾.

Disclosure of interest

Primary care is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, such profession with the late circumstances that Iraq had encountered would over load its employee with stress hence depression which can affect workers' productivity judgment, ability to work with others, and overall job performance, the inability to concentrate fully or make decisions. This may lead to costly mistakes or accidents., in addition, it has been shown that depressed individuals have high rates of absenteeism and are more likely to abuse alcohol and drugs, resulting in other problems on and off the job

CONCLUSIONS& RECOMMENDATIONS**Conclusions**

Depressive symptoms is highly prevalent among primary health care providers both administrative and medical group. Age of 50 years and more, number of children (3-5 child) (regarding medical participants), and marital status (divorced and widows) for administrative participants, had significant association with depressive symptoms, while gender, educational level, years of experience, monthly income, and presence of chronic illnesses socio-demographics showed to have no significant association with depressive symptoms.

Recommendations

1. Increase awareness of primary health care providers about depressive symptoms.
2. Improvement of the economic status of the Iraqi families.
3. Screening for depressive symptoms should be considered to primary health care employee with chronic diseases, marital status (divorced and widowed) and those with large families.
4. Adapt suitable environment at primary health care centers.

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Table 1: Number, Mean age, and Standard Deviation for administrative and medical health care providers.

Job title	N	%	Mean age	SD
Administrative	157	30.13	38.223	10.257
Medical	364	69.87	38.937	10.754

Table 2: distribution of participants according to depression.

Participants	Not depressed		Depressed		Total		P-value
	N	%	N	%	N	%	
Administrative	33	21.02	124	78.98	157	100	0.004
Medical	122	33.5	242	66.5	364	100	

Table 3: The association between depression and age among administrative Participants.

Age	No depression (N=33)		Depression (N=124)		Total (N=157)		P-Value
	N	%	N	%	N	%	
20-29	14	29.2	34	70.8	48	30.57	0.313
30-39	7	13.7	44	86.3	51	32.48	
40-49	9	20.9	34	79.1	43	27.39	
50- more	3	20	12	80	15	9.55	

Table 4: The association between depression and gender among administrative Participants

Gender	No depression (N=33)		Depression (N=124)		Total (N=157)		P-value
	N	%	N	%	N	%	
Male	22	26.8	60	73.2	82	100	0.062
Female	11	14.7	64	85.3	75	100	

Table 5: The association between depression and educational level among administrative Participants .

Education level	No depression (N=33)		Depression (N=124)		Total (N=157)		P-value
	N	%	N	%	N	%	
Illiterate	9	37.5	15	62.5	24	100	0.141
Primary	1	8.3	11	91.7	12	100	
Secondary	10	17.9	46	82.1	56	100	
Institute and university	13	20	52	80	65	100	

Table 6: The association between depression and marital status among administrative Participants.

Marital status	No depression (N=33)		Depression (N=124)		Total (N=157)		P-value
	N	%	N	%	N	%	
Single	11	39.3	17	60.7	28	100	0.037
Married	16	19.5	66	80.5	82	100	
Divorced	6	15	34	85	40	100	
Widow /widower	0	0	7	100	7	100	

Table 7: The association between depression and number of children among administrative Participants (excluding singles) .

Number of children	No depression (N=33)		Depression (N=124)		Total (N=157)		P-value
	N	%	N	%	N	%	
0	9	40.9	13	59.1	22	100	0.670
1 – 2	12	16.4	61	83.6	73	100	
3 – 5	11	21.2	41	78.8	52	100	
More than 5	1	10	9	90	10	100	

Table 8: The association between depression and years of experience among administrative Participants .

Experience / years	No depression (N=33)		Depression (N=124)		Total (N=157)		P-value
	N	%	N	%	N	%	
1 – 9	18	21.2	67	78.8	85	100	0.211
10 – 19	8	22.2	28	77.8	36	100	
20 – 29	2	8.7	21	91.3	23	100	
30 and more	5	38.5	8	61.5	13	100	

Table 9: The association between depression and monthly income among administrative Participants .

Monthly income	No depression (N=33)		Depression (N=124)		Total (N=157)		P-value
	N	%	N	%	N	%	
Enough	8	23.5	26	76.5	34	100	0.685
Not enough	25	20.3	98	79.7	123	100	

Table 10: The association between depression and chronic illness(es) among administrative Participants .

Chronic illness(es)	No depression (N=33)		Depression (N=124)		Total (N=157)		p-value
	N	%	N	%	N	%	
Present	12	24	38	76	50	100	0.531
Not present	21	19.6	86	80.4	107	100	

Table 11: The association between depression and age among medical. Participants .

Age	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
20-29	46	48.9	48	51.1	94	100	0.001
30-39	33	25	99	75	132	100	
40-49	35	34.3	67	65.7	102	100	
50- more	8	22.2	28	77.8	36	100	

Table 12: The association between depression and gender among medical participants .

Sex	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
Male	69	36.9	118	63.1	187	100	0.160
Female	53	29.9	124	70.1	177	100	

Table 13: The association between depression and educational level among medical Participants .

Education level	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
Primary	25	30.5	57	69.5	82	100	0.409
Secondary	10	50	10	50	20	100	
Institute and university	87	33.2	175	66.8	262	100	

Table 14: The association between depression and marital status among medical Participants .

Marital status	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
Single	25	34.7	47	65.3	72	100	0.134
Married	81	36.8	139	63.2	220	100	
Divorced	14	23.7	45	76.3	59	100	
Widow /widower	2	15.4	11	84.6	13	100	

Table 15: The association between depression and number of children among medical Participants(exclude singles) .

Number of children	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
0	15	60	10	40	25		0.000
1 – 2	70	38.7	111	61.3	181	100	
3 – 5	25	18	114	82	139	100	
More than 5	12	63.2	7	36.8	19	100	

Table 16: The association between depression and years of experience among medical Participants .

Experience years	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
1 – 9	61	83.6	97	61.4	158	100	0.263
10 – 19	31	28.4	78	71.6	109	100	
20 – 29	20	33.9	39	66.1	59	100	
30 and more	10	26.3	28	73.7	38	100	

Table 17: The association between depression and monthly income among medical Participants .

Monthly income	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
Enough	63	34.6	119	65.4	182	100	0.657
Not enough	59	32.4	123	67.6	182	100	

Table 18: The association between depression and chronic illness (es) among medical Participants .

Chronic illness(es)	No depression (N=122)		Depression (N=242)		Total (N=364)		p-value
	N	%	N	%	N	%	
Present	27	28.7	67	71.3	94	100	0.253
Not present	95	35.2	175	64.8	270	100	